



**INDIAN INSTITUTE OF INFORMATION TECHNOLOGY  
DESIGN AND MANUFACTURING KANCHEEPURAM  
(An Institute of National Importance under MoE, Government of India)  
Melakkottaiyur, Off Vandalur-Kelambakkam Road, Chennai – 600 127,  
Tamil Nadu.**

**NOTICE INVITING TENDER (E-PROCUREMENT MODE)**

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Indian Institute of Information Technology Design and Manufacturing (IIITDM) Kancheepuram invites **e-tender under TWO BIDS** with prequalification systems from the vendors who fulfils the eligibility as given below in the campus.

Sl. No.	Particulars	Quantity Required
1	<b>Comprehensive Annual Maintenance Contract for operation and maintenance of various capacity Central Air Conditioning Systems located at IIITDM, Kancheepuram.</b>	As per Annexure-4

The tender document may be downloaded from the website <http://iiitdm.ac.in> or <https://mhrd.euniwizarde.com>. or <https://eprocure.gov.in/epublish/app>

The offers, in the prescribed format shall be submitted online at <https://mhrd.euniwizarde.com> as per the tender document. No tender will be accepted in hard copy, fax, email or any other such means. The intending, bidders must be registered with eWizard procurement <https://mhrd.euniwizarde.com>.

<b>Tender Number /Date</b>	IIITDM/2022-23/Central AC Systems/001; DT: 24 <sup>th</sup> June 2022
<b>Pre-bid meeting / Site visit</b>	30 <sup>th</sup> June, 2022; 11:00 Hrs.
<b>Bid Submission last date</b>	14 <sup>th</sup> July, 2022; 15:00 Hrs.
<b>Technical Bid Opening</b>	14 <sup>th</sup> July, 2022; 15:30 Hrs.
<b>EMD</b>	Bid declaration form duly typed in letter head of the bidder must be enclosed (Annexure – 1).
<b>Security Deposit / Performance Guarantee</b>	Successful Bidder shall submit the Security Deposit at 3% of Contract value.
<b>Estimated cost</b>	Rs. 22,23,900/- Per Annum (Excl. GST)

## **TERMS & CONDITIONS GOVERNING THE CONTRACT**

**1. Eligibility Criteria:** In order to be considered for the contract of the works as detailed under 'Scope of Work' in this Tender Document the tenderer should be:

1.1 Original Equipment Manufacturer (OEM) or their authorized service company (OEM authorization letter / certificate must be enclosed)

1.2 "Having Experience in executing similar Centralized / VRF Air Conditioning plants Annual Comprehensive Maintenance and service works" preferably awarded by the State Govt. / Central Govt. / Autonomous / Reputed corporate institutions, for the value enlisted below and executed on or after 01/01/2018.

(i) Rs. 17.80 lakhs Excl. GST for a single work order.

(Or)

(ii) Rs. 11.10 lakhs Excl. GST each for two work orders.

1.3 At least, one work should be in live from the scheduled works mentioned for the work completion certificates.

### **2. Earnest Money Deposit/Bid Declaration Form:**

Instead of EMD, Bidders are to execute a Bid declaration form accepting that if they withdraw or modify their Bids during the period of validity or if they fail to execute the awarded work as per the work order/contract they will be debarred for the period of one year for bidding for any tender of the institute. Further, the debarment will be intimated to all Institutes of Government of India/ Governmental organizations for bidding by the firm for any tender (**Declaration format enclosed as Annexure-1**).

### **3. Security Deposit & Contract Agreement:**

3.1 On receipt of notification of award, successful bidder shall be required to send the acceptance of work order within 07 working days.

3.2 Successful Bidder shall submit the Security Deposit of 3% of Contract value in the form of a Crossed Demand Draft/Pay Order/Banker's cheque/FDR drawn/Bank guarantee in favor of "The Registrar, IIITDM Kancheepuram", payable at Chennai within 07 (SEVEN) working days of the receipt of Notification of Award (NOA) / Award of Work order from IIITDM Kancheepuram (the Defect Liability Period as specified (i.e., 12 months after completion of work).

3.3 The successful bidder shall be required to sign a detailed contract / agreement with IIITDM Kancheepuram within a period of 07 working days after depositing Security Deposit. Failure to do so on the part of the Contractor, Notification of Award is liable to be cancelled and Security Deposit is liable to be forfeited.

3.4 In case of failure to commence the work by the Contractor within 07 days after signing of the contract or handover of site, the Institute shall be at the liberty to terminate the Award and forfeit the Security Deposit.

### **4. Preparation of bids - Two bid system (simultaneous receipt of separate technical and financial bids):**

**4.1 Technical bid** shall consist of only prequalification document along with supported documents as detailed below:

4.1.1 Complete prequalification papers, Name of the Agency and also commercial terms etc., offered (**Note: Price column in this cover should be kept blank, otherwise the bid will be treated as invalid**).

- 4.1.2 Duly filled and digitally signed Bid submission, bid declaration & self-declaration Proforma (**As per Annexure – 1**).
- 4.1.3 Duly filled and digitally signed copy of Qualification Proforma along with a copy of GST certificate (Issued by appropriate authority to be attached) and copy of OEM/ OEM Authorized dealer / Service certificate, live work order & Work completion certificate or work orders along with satisfactory completion reports from the valid customer referred as per the eligibility criteria referred in clause no. 1.
- 4.2 Financial bid** indicating item-wise price for the items mentioned in the technical bid, special concession in rates if any applicable for Educational Institutions shall also be offered and indicated clearly.
- 4.3 Both the covers should be submitted through online eWizard portal <https://mhrd.euniwizarde.com> before due date and time.**

## **5. Technical terms:**

- 5.1 The selected contractor will have to carry out Comprehensive annual maintenance and service of various capacity of Central Air Conditioning Systems installed in the IIITDM, Kancheepuram.
- 5.2 The AMC inclusive of indoor, outdoor, higher end & lower end and all associated installations operation, preventive, breakdown, troubleshooting maintenance (Electrical / Electronics / Mechanical / Electro-mechanical) of all installation of the systems, repairs, spare installations, testing & commissioning as per the relevant CPWD, Indian Electrical and other electrical standards for Air conditioner & electrical systems.
- 5.3 The AMC also includes periodical checking & cleaning of all the items / parts mentioned in annexure-3 as well as to its subparts i.e., electrical starters, switches, mechanical parts, filters, motors, pumps, Gauges, condenser fans, condenser coils, evaporators, electric control panels, drives/VFD, printed circuit boards, electronic circuit boards, automation systems, connecting cables, wires as well as checking of cooling efficiency and gas filling etc., After the repair / replacement, the faulty item(s) shall be taken back from the site as per direction of Engineer in charge. During service of Air Conditioning Systems/ Equipments, Safety / precautionary boards like WORK IN PROGRESS, OUT OF SERVICE & DANGER PLATES etc., shall be kept in required places in terms of safety if mandate.
- 5.4 The AMC services shall include providing all manpower, tools and tackles like ladder, stools, spanners, testing equipment, all testing instruments/meters, special equipments, cranes, jacks, etc., and replacement of defective spare parts etc.
- 5.5 All the scheduled services & break down services including any number of compliant calls / break down services for the period of contracted year shall be carried out by the contractor with in the stipulated time of complaint i.e., the complaint/call shall be completed within 24 hours if it is minor work and consumable replacements. The major components like Motors, pumps, compressors, transformers, convertor/invertor and other printed circuit boards (PCB), capacitors, relays, coils, blower fans, soft/hard drawn copper pipe lines, UPVC pipes etc., as applicable must be replaced within 07 working days (under special repair / replacement working days may be extended with prior approval of Engineer-in- charge of IIITDM for replacement).

- 5.6 Day to day maintenance, Monthly Periodical maintenance & Breakdown maintenance as and when required should be carried out and including replacement of parts / sub parts for the effective functioning of the equipment during the contract period and all the necessary services / complaints / replaced equipments reports should be submitted to IIITDM, Kancheepuram.
- 5.7 Quoted rate is inclusive of all service / repair / rectification / replacement / buyback of all the central air conditioner & VRF items/parts as well as all its subparts for smooth & effective functioning of Central Air Conditioning & VRF Systems and periodical checking of gas & it's filling whenever required.
- 5.8 The contractor shall display a board / notice / log sheet on each Central Air conditioner system about date of service carried out / next due date duly signed by the service engineer / technician.
- 5.9 The contractor shall maintain record books and provide necessary service reports periodically on operation and scheduled maintenance of Central Air conditioner & VRF systems.
- 5.10 The Contractor shall employ its labour in sufficient numbers to maintain the required rate of progress and of quality to ensure workmanship of the degree specified in the Contract and to the satisfaction of the Engineer-in-Charge.
- 5.11 Work shall be executed and completed as per the technical terms and conditions of this document. In case the Contractor fails to complete the assigned work within specified Period, IIITDM Kancheepuram may recover Liquidated Damage and/or terminate the Contract and/or forfeit the Security Deposit. IIITDM Kancheepuram on its part would be required to handover the site to the Contractor free from any encumbrance.

## **6 Commercial terms:**

- 6.1 The contract shall be in force for a period of **THREE YEARS**. The work order will be issued on an annual basis taking into account of satisfactory performance of preceding year by the contractor.
- 6.2 Payment will be made on Quarterly basis after satisfactory completion of the maintenance service during that period (Service reports shall be produced after completion of each service in the same day it self). The rate inclusive of inspection, testing, fault rectification, spare replacement, transportation and incidental expenses etc.,
- 6.3 If the Contractor fails to complete the assigned AMC work during the period as per the work order, IIITDM Kancheepuram shall without prejudice to its other remedies, deduct as liquidated damages 0.5% of the Contract Value (or) particular work value for each and every week of delay (part of the week shall be considered as full week) subject to maximum of 10% of the Contract Value (or) particular work value and the same shall be deducted from the bill(s) or any other payment due to the Contractor. The competent authority will evaluate the incomplete work/delayed work and take appropriate decision for penalty/liquidity damages. In addition to it, Institute shall be at the liberty to terminate the Contract, and/or forfeit the Security Deposit, in case, Contractor fails to complete the assigned work within the 'AMC Period'.
- 6.4 The Contractor shall take at his own cost, necessary insurance cover in respect of staff and other personnel to be employed or engaged by him in connection with the afore mentioned services personnel by services to be rendered.
- 6.5 Statuary deductions of taxes at source will be carried out from the payment due at the prevalent rates as prescribed by the government.
- 6.6 The AMC inclusive of one skilled technical manpower for day to day operation & maintenance of all Air conditioning plants in one shift. Further, if required the manpower shall present to the institute irrespective of holidays.

## 7. Other conditions:

- 7.1 The institute reserves the right to reject any or all the bids without assigning any reasons thereof. No tenderer shall have any cause of action or claim against IIITDM Kancheepuram for rejection of his bid.
  - 7.2 The IIITDM, Kancheepuram is having a right to cancel the awarded AMC work at any point of time in case of the contractor's performance is not up to the mark by giving termination letter. Similarly, institute having a right to accept any bid in part or split the contract between two or more bidders. The institute shall not be liable for any financial loss sustained by the contractor in case of the quantity of the work executed by the contractor is at variance with the illustrative quantities as mentioned in the scope of work.
  - 7.3 The quantity mentioned in the scope of work illustrative only and not in exact nature. They may increase or decrease during actual execution of the work. The tender document is not transferable and Conditional Tenders / Non-compliance of any of the conditions set in tender document shall render the bid liable for rejection.
  - 7.4 IIITDM Kancheepuram reserves the right to seek any clarification from the bidders or waive any minor deviation in the provisions governing the contract at its sole discretion.
- 8 Further, refer & comply with the in detail “**Tender general terms and conditions**” available at IIITDM > FORMS > ENGINEERING SECTION > TENDER GENERAL TERMS AND CONDITIONS” enclosed in the mentioned web link. These conditions are part and parcel of contract agreement.  
[http://www.iiitdm.ac.in/img/intranet\\_forms/ENGINEERING\\_SECTION/tnc.pdf](http://www.iiitdm.ac.in/img/intranet_forms/ENGINEERING_SECTION/tnc.pdf)

Sd/-  
Registrar  
IIITDM Kancheepuram

**BID SUBMISSION, BID DECLARATION & SELF DECLARATION PROFORMA**

**Name of the Work/AMC:** Comprehensive Annual Maintenance Contract of various capacity Central Air Conditioning Systems located at IIITDM, Kancheepuram.

**Tender No.:** IIITDM/2022-23/Central AC Systems/001; DT: 24<sup>th</sup> June 2022

The Registrar,  
IIITDM Kancheepuram,  
Chennai 600127.

Dear Sir,

- 1.1 I / We do hereby declare that our Firm has not been blacklisted/ debarred by any Govt. Department/Public sector undertaking/Autonomous Body etc., at anywhere in the country.
- 1.2 I/We hereby bid for the tender and agree that if we withdraw or modify our Bids either during the period of validity of bid or fail to execute the contract in line with the purchase order/contract, our firm will be debarred for the period of one year for further bidding of any tender of your institute. Further, we agree that your institute is at liberty to intimate this debarment to all Institutes/ organizations of government and governmental organizations.
- 1.3 I/We hereby offer to quote for work as defined in 'Scope of Work' and the relevant Annexures at the quoted price given in the 'Scope of Work' Proforma as per Annexure-3 and agree to hold this offer open till 03 months from the due date.
- 1.4 I/We have read, understood and comply with all Terms and Conditions stipulated in the Tender document necessary for submission of this bid.
- 1.5 It is further stated that I/We have fully read and understood the 'Scope of Work' and Terms and Conditions in the Tender Document governing this contract and shall abide by them in toto, if awarded the Contract.

Date:

Yours faithfully,  
Digital Signature

***Note: This form duly typed on the letterhead of the bidder and duly signed should be uploaded forming Annexure-1 of this Bid document.***

**QUALIFICATION PROFORMA**

Name of the bidder (Firm):	
Contact details of the bidder: Contact person name: Address:  Land line: Mobile: Email Id:	
OEM / OEM authorized company / Service Certificate: <b>(Please enclose the valid copy of certificate)</b>	
GST No.: <b>(Please enclose the valid copy of GST)</b>	
PAN No.:	
Bid Submission, Bid & Self declaration Proforma: <b>(Please enclose the annexure-1)</b>	
Experience: Details of similar AMC works executed especially with Govt./PSU /PWD/ CPWD/ MES/ BSNL/ RAILWAYS/ State Govt. Org./ Autonomous / Corporate institutions organizations for a value not less than Rs. 17.80 lakhs (Excl. GST) for a single work order (or) Rs. 11.10 lakhs (Excl. GST) each for two work orders should be awarded and executed on or after 01.01.2018. <b>(Please enclose the copy of valid work completion certificates or work orders along with the satisfactory performance report from the customer)</b>	
Copy of one live work order value in Rs. <b>(Please enclose the valid proof of work order)</b>	
Details of Manpower availability: (Number with their qualification & experience): (Add separate sheet if required)	

**Declaration:**

I/We hereby declare and affirm that I/We have read and understood the terms and conditions of the contract as stipulated in NIT.

Digital Signature

**A.) SCOPE OF WORK & PRICE SCHEDULE:**

Comprehensive Annual Maintenance Contract for Operation & maintenance of the high side & low side of the Central Air Conditioning Plants (Chiller, VRF & Associated units) comprising of all equipment & machinery installed in the AC plants in one shift per day, includes routine, preventive & break down maintenance including repair / replacement of worn out / defective items with minimum down time and warranty and guarantee of repaired / replace items & with a defect liability period of one year as per scope of work & schedule of maintenance as mentioned in this document.							
Sl. No.	Description of Items	Qty	Unit	1 <sup>st</sup> Year (July 2022 to June 2023)	2 <sup>nd</sup> Year (July 2023 to June 2024)	3 <sup>rd</sup> Year (July 2024 to June 2025)	Total Amount in Rs.
1.	300 TR Carrier make Central Air Conditioning Plant & Associated indoor units	01	Job				
2.	348 HP Voltas make VRF Air Conditioning Systems & Associated indoor units	01	Job				
3.	376 HP Toshiba make VRF Air Conditioning Systems & Associated indoor units	01	Job	-			
Total Amount / Annum in Rs. (Excl. GST)							
Grand Total in Rs. (Excl. GST)							
Grand total in words		Rupees ( )					

**Note: Grand Total will be taken into consideration for arriving at L-1.**

- Site visit is compulsory.
- GST will be paid extra as applicable.

**Declaration:**

I/We hereby declare and affirm that I/We have read and understood the terms and conditions of the contract as stipulated in NIT.

**Date:**

**Digital Signature**



**B.) SCHEDULE OF MAINTENANCE:**

(Inspection, functional checking, minor and major rectification, replacements etc., of the following items)

- The section covers the maintenance schedule during the contract period.
- The maintenance provided during the AMC shall be fully comprehensive and shall include but not limited to all equipment's, labor part and emergency calls providing and site response within 24 hours.
- Consumable materials shall be arranged by the contractor during the AMC period.
- Apart from day to day operation and maintenance shall also include a minimum of 12 monthly preventive maintenance visits by the qualified personnel who are thoroughly familiar with the type of equipment and system available in the Institute and has to submit inspection reports.
- In addition to the following scheduled maintenance checks listed, the contractor shall carry all mandatory checks to run the machines/ equipments efficiently & futuristically.

**Central / VRF Air Conditioning System:****Daily inspection:**

1. Check the water Chiller R410A & gas R 134 gas level and make up water/gas line is working.
2. Check the electrical, thermal & other parameters.
3. Check the valves, pipe lines, ducts, copper lines, pumps, compressors, electrical & control panels etc., as required.

**Monthly inspection and service:**

1. Check refrigerant level, leak test with electronic leak detector, if abnormal, trace and rectify as necessary.
2. Inspect level and condition of oil. If abnormal, trace fault and rectify as necessary.
3. Check the liquid line sight glasses for proper flow.
4. Check all operating pressure and temperature.
5. Inspect and adjust, if required, all operating safety controls.
6. Check capacity control, adjust if necessary.
7. Lubricate vane/linkage/bearings
8. Visually inspect machine and associated components, and listen for unusual sound or noise for evidence of unusual conditions.
9. Check lock bolts and chiller spring mount.
10. Review daily operating log maintained by department's operating personnel.
11. Providing written report to Department, outlining services carried out, adjustment made, rectification carried out and if the deficiency is of a major nature, arrange with department for shut-down to rectify equipment.

**Central /VRF Air Conditioning System:****Annual inspection prior to expiry of AMC period:**

1. Perform all functions for monthly check
2. Check all flanges for tightness
3. Change oil in oil sump
4. Replace filter
5. Check oil temperature control
6. Check motor terminals
7. Check connections in starter

Please note that oil filter gasket replacement shall deem to be included in the contract.

1. Check motor earthing, megger motor and connection wiring on each leg.
2. Check motor temperature cut-out, tighten motor terminals.
3. Check starter contacts, arc shield, transformer.
4. Check dashpot oil, clean dashpot and replace oil when necessary
5. Test and calibrate overload setting.
6. Inspect, calibrate and adjust to original specifications all gauges, safety and operating controls including low temperature and high pressure cutout, oil pressure switch, load limit relay and electrical interlocks.
7. For water cooled condenser systems, inspect condenser tubes for fouling. If fouling exceeds original specifications, the contractor shall carry out cleaning of the tubes at his own expense.

<p>8. For air-cooled condenser coils, dust should not be allowed to accumulate on the condenser coil surfaces. Cleaning should be as often as necessary (approximately every three months) to keep coil clean. Exercise care when cleaning the coil, so that the coil fins are not damaged. Under no circumstances this unit be cleaned with acid based cleaner.</p>
<p><b>Water pumps &amp; Compressor units:</b>  <b>Monthly inspection:</b></p> <ol style="list-style-type: none"> <li>1. Inspect all water pumps</li> <li>2. Check all seals, glands and pipelines for leaks and rectify as necessary</li> <li>3. Re-pack and adjust pump glands as necessary</li> <li>4. Check all pump bearings and lubricate with oil or grease as necessary</li> <li>5. Check the alignments and condition of all rubber couplings between pumps and drive motors and rectify as necessary</li> <li>6. Check all bolts and nuts for tightness and tighten as necessary.</li> </ol>
<p><b>Water pumps &amp; Compressor units:</b>  <b>Annual inspection prior to expiry of AMC period:</b></p> <ol style="list-style-type: none"> <li>1. Perform all function for monthly checks</li> <li>2. Check motor earthing, megger Motor and connection wiring on each leg.</li> <li>3. Tighten motor terminals/legs/starters and terminals</li> <li>4. Check starter contacts</li> <li>5. Test and calibrate overload setting</li> </ol>
<p><b>Expansion tank:</b>  <b>Annual inspection prior to expiry of AMC period:</b></p> <ol style="list-style-type: none"> <li>1. Inspect expansion tank, Drain, clean and flush out tanks as necessary</li> </ol>
<p><b>Air handling units, fan coil units, Evaporators units &amp; Cassette units:</b>  <b>Monthly inspection:</b></p> <ol style="list-style-type: none"> <li>1. Inspection all air handling, fan coil units, evaporator units &amp; cassette units.</li> <li>2. Check all air filters and clean or change filters a necessary.</li> <li>3. Check all water coils, seals and pipelines for leaks and rectify as necessary.</li> <li>4. Check and re-calibrate modulating valves and controls. Adjust and rectify as necessary to ensure compliance to the original specifications.</li> <li>5. Purge air from all water coils.</li> <li>6. Check all fan bearings and lubricate with grease as necessary.</li> <li>7. Check the tension of all belt drives and adjust as necessary.</li> <li>8. Check and clean all the condensate pans, trays and drains.</li> <li>9. Check measure and re-calibrate all sensors if necessary.</li> <li>10. Check, clean and service smoke detectors. Carry out a system test to ensure that the smoke detector will trip the AHU's.</li> <li>11. Checking and ensuring of communication cables and terminal blocks etc.,</li> <li>12. Check spring vibration isolators for abnormal vibration. Rectify if necessary.</li> <li>13. Coil to be cleaned by (a) spray of high-pressure clean water (not exceeding 30 psi) (b) with chemical, spray, if necessary.</li> </ol>
<p><b>Air handling units, fan coil units, Evaporator units &amp; Cassette units:</b>  <b>Annual inspection prior to expiry of AMC period:</b></p> <ol style="list-style-type: none"> <li>1. Perform all functions for monthly checks</li> <li>2. Tighten motor terminals</li> <li>3. Check starter contacts</li> <li>4. Test and calibrate overload settings</li> </ol>
<p><b>Air cooled packaged units and precision computer air condition equipment:</b>  <b>Monthly check:</b></p> <ol style="list-style-type: none"> <li>1. Check condenser fan motor load ampere</li> <li>2. Check fan and motor mounting brackets</li> <li>3. Check shafts and bearings. Lubricate with grease as necessary</li> <li>4. Check the tension of all belt drives and adjust as necessary</li> <li>5. Check for refrigerant leaks with electronic leak detector.</li> <li>6. Check electrical terminals and contactors operation and connections for tightness</li> </ol>

<ul style="list-style-type: none"> <li>7. Check compressor motor current</li> <li>8. Check refrigerant line driers and moisture indicators.</li> </ul>
<p><b>Air cooled packaged units and precision-ac equipment:</b></p> <p><b>Monthly and Annual inspection prior to expiry of AMC period:</b></p> <ul style="list-style-type: none"> <li>1. Check operation of all modulating and fixed dampers controlling air flow through unit. Lubricate all damper bearings and linkages as necessary</li> <li>2. Carry out space temperature checks on air-conditioned areas with thermos hydrograph. Balance air flow as necessary to compliance with requirements of original specifications. These checks include the calibration of sensors, thermostat, etc.</li> <li>3. Check noise level of discharges air from diffusers.</li> </ul>
<p><b>VENTILATION:</b></p> <p><b>Monthly check and annual inspection prior to expiry of AMC period:</b></p> <ul style="list-style-type: none"> <li>1. Check adjust as necessary the air flow of all fans are in compliance with the original specifications.</li> <li>2. Check the tension of all belt drives and adjust as necessary</li> <li>3. Check and lubricate all fan bearings</li> <li>4. Tighten motor terminals</li> <li>5. Check starter contacts</li> <li>6. Test and calibrate overload settings.</li> <li>7. A system check shall be carried out for all Mechanical ventilation (MV), Pressurization and Exhaust system to verify the performance of the systems.</li> </ul>
<p><b>SWITCH BOARD:</b></p> <p><b>Six-monthly and annual inspection prior to expiry of AMC period:</b></p> <ul style="list-style-type: none"> <li>1. Clean and adjust all switch gear, contactors, relays and associated electrical equipment at intervals not exceeding six months.</li> <li>2. Check and prove operation of thermal over load and protection devices.</li> <li>3. Check and ensure tightness of all equipment fastenings and cable terminations within switch boards,</li> <li>4. Vacuum clean of all switch board cubicles.</li> </ul>
<p><b>PIPING SYSTEM:</b></p> <p><b>Monthly and annual inspection prior to expiry of AMC period:</b></p> <ul style="list-style-type: none"> <li>1. Check all piping systems for leaks and repair these where they have occurred.</li> <li>2. Check for damage &amp; deterioration of insulation or sheathings rectification as necessary</li> </ul>
<p><b>CONSUMABLE MATERIALS:</b></p> <p><b>The contractor shall supply the following consumable materials as and when required:</b></p> <ul style="list-style-type: none"> <li>1. All oils and greases required for lubrication of compressors, fan bearings, motor bearings, pivots and other moving parts.</li> <li>2. All refrigerant required for topping up. Refrigerant loss if due to manufacturing defect or due to negligence shall be made good by the contractor.</li> <li>3. All consumable filter elements/rolls</li> <li>4. All chemicals for the correct chemical treatment of the cooling tower and chilled water system</li> <li>5. All carbon brushes required to replace worn bushes in electric motors.</li> <li>6. Chiller Air Handling Unit, Fan coil unit and its starter panel, VFD, soft starters, power and control cables, pipe lines and gauges, etc.</li> <li>7. All starter panels and its terminals, lugs, cables, control wires, etc.</li> <li>8. All motor winding repair and replacement with necessary items like bearings, oil seals, etc.</li> <li>9. All electric contact point required to replace worn electric contact points in switchgears, motor starter gears, electronic control gears and electric relays</li> <li>10. All electric fuses required to replace blown fuses.</li> <li>11. Just before the expiry of the AMC period, the contractor shall carry out a complete system operability test on all the systems or sub systems as called for in the contract.</li> <li>12. The purpose of the test is to verify that the performance of all the systems or sub-systems in the contract is in accordance to the specifications.</li> <li>13. All test shall be carried out in the presence of the Engineer-in-Charge or his representative of IIITDM.</li> </ul>