

Ref: ICTS/TIFR/2021-22/SER-32

Tender Notice No. 06/JUL/2021

**TENDER FOR ANNUAL MAINTENANCE CONTRACT FOR
GENERAL MAINTENANCE AND HVAC SYSTEMS AT ICTS
SURVEY NO. 151, SHIVAKOTE VILLAGE, HESARAGHATTA HOBLI, BANGALORE NORTH**

Sealed tenders are invited (in 2 Part system) by Centre Director, ICTS-TIFR, from experienced HVAC Maintenance Contractors for operation and maintenance of 4 x 120 TR HVAC Plant with associated equipment, Water-cooled & Air-cooled split AC, and General HVAC systems in ICTS-TIFR, Bangalore Campus. Agency/Contractor who has done similar type of work of AMC nature with proven technical and financial capacity, possessing required infrastructure for the above work only will be considered.

Item Description	Annual Maintenance Contract for General Maintenance and HVAC Systems at ICTS
Estimated Cost	Rs. 49.11 Lakhs (Rupees Forty Nine Lakhs Eleven Thousand only)
EMD Amount	Nil
Documents Download Period	17 July 2021 to 16 Aug 2021
Pre-bid Meeting Date	11.00 Hrs on 03 Aug 2021
Last Date For Submission of Tender	15.00 Hrs on 17 Aug 2021
Date of Opening	15.30 Hrs on 17 Aug 2021

Tender documents can be downloaded from the ICTS website <https://www.icts.res.in/tenders> or CPP Portal.

Important Note: All bidders are requested to attend the online Pre-bid meeting on 03 Aug 2021 at 11.00 hrs by joining the link given below. It is important for the vendors to attend the pre-bid meeting to understand the exact requirements.

Join the meeting:

<https://zoom.us/j/93849131304?pwd=SE9vQ0dGZVRRWkRrSWN6b2tuNHc2Zz09>

Meeting ID: 938 4913 1304

Passcode: WJuSG2

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TENDER SUBMISSION:

Tenders shall be submitted in the manner aforementioned up to 15.00 hrs on 17 August 2021, at International Centre for Theoretical Sciences, Survey 151, Shivakote, Hessarghatta, Bangalore – North – 560 089

TENDERS SHALL BE DROPPED IN THE 'TENDER BOX' KEPT IN THE RECEPTION AT THE ENTRANCE OF ICTS-TIFR, BANGALORE.

COVER-I of the tender will be opened on the same day at 15.30 hrs in the presence of attending tenderers. Opening of COVER-II (Price bid) will be intimated only to those tenderers who are qualified after evaluation of Technical Bid.

THE CENTRE RESERVES THE RIGHT to verify the particulars furnished by the applicant independently and accept/ reject the tender without assigning any reason thereof. Shortlisting of the agencies shall be subject to thorough verification of their credentials and inspection of works carried out by them, through a Technical Evaluation Committee of experts, constituted by ICTS. The Centre reserves the right to split the order based on the technical evaluation.

IF ANY INFORMATION FURNISHED by the applicant is found to be incorrect at a later stage, they shall be liable to be debarred from tendering/taking up work in ICTS.

All the intending contractors are urged to visit the ICTS Campus, in order to have a clear idea and to see the area of work and have discussions before submitting the bids.

If clarifications are sought by the contractor during the bidding period the same should be in writing. Both the clarifications from the tenderer and the response to the clarifications from **ICTS** should be in writing and all such correspondence should be enclosed along with **COVER-I**.

Centre Director does not bind himself to accept the lowest or any other tender and reserves the authority to reject any or all the tenders or to allot parts of the works to different agencies without assigning any reason thereof.

NOTE: Each and every page of the offered bid shall bear the dated signature and seal of the contractor.

The following minimum manpower is required to be deployed at ICTS for ensuring zero breakdowns.

Tenders shall be submitted in two parts simultaneously in separate sealed covers, superscribed as “COVER-I - Technical Bid” and “COVER-II – Price Bid”

1. **PRICE BID (Cover-II), shall be submitted in a separate cover and shall not be placed in TECHNICAL BID (Cover-I)**
2. The indicative manpower is as follows:-
 1. Supervisor - 1 person (Highly Skilled)
 2. Senior AC Technicians - 1 person (Highly skilled)
 3. Plumber - 1 person (Highly skilled)
 4. Technician HVAC - 4 persons (Skilled)
 5. Helpers – 4 persons (Unskilled)

This is the bare minimum manpower requirement, to maintain the system. However, contractors can specify the manpower deployment pattern they propose to adopt for this work after thoroughly studying the scope of the work and clearly understanding the same by attending the PRE-BID meeting. The vendors shall have all their doubts cleared in the PRE-BID meeting. It is completely the contractor's responsibility to fix the staff deployment pattern and to fulfill the requirements of ICTS as per EIC. But manpower deployment shall not be less than the figures indicated above.

COVER-I shall contain the following:

1. Bid Securing Declaration in lieu of Earnest Money Deposit. In lieu of EMD, the bidder shall submit "Bid Securing Declaration" as per the format in Annexure F. The declaration should be submitted on the company letter head duly signed by the officer authorized to submit the bid
2. Entire tender document (Inclusive of Annexure-A to Annexure-F), duly signed & sealed on every page by the contractor, along with technical information.
3. Any deviations from the tender conditions in Annexure -C.
4. Reference of similar completed & ongoing works with proof in the form of up to 3 major work orders of the highest value for the last 3 years.
5. Confirmation that Schedule I & II (Annexure G) is completely filled and kept in price bid.
6. Valid labour license to undertake HVAC AMC works.
7. PF, ESI registration copies.
8. PAN Card and Service Tax Registration Certificate.
9. Latest solvency certificate issued by the Bank.
10. Financial statements for the last three years and turn over details.
11. Organisation details, proprietorship/ownership details along with details of organization staff Matrix.
12. Major client list where HVAC maintenance works were carried out in the last 3 years with their address, contact person/s name and contact details.

COVER-II- Shall contain the following:-

1. **Annexure - G -**

SCHEDULE - 1 - Price Bid as per the given format

SCHEDULE – 2 - Commercial bid for consumable items / tools/ equipment and services
(optional but mandatory to quote all items)

QUALIFYING REQUIREMENTS AND TENDER EVALUATION

1. Qualifying requirements:

The bidder shall meet all the following minimum prerequisites and provide documentary proof for the same in the 'technical bid';

1. HVAC AMC work experience of at least one work of minimum WO value of Rs. 45.00 Lakhs OR 2 works of minimum WO value of Rs. 34.00 Lakhs each OR 3 works of minimum WO value of Rs. 23 Lakhs each (annual cost), in the last 3 years. A tolerance of 5% is allowed on the WO value to take care of marginal short falls.
2. Valid Registration Certificate of the Firm and Contractor license.
3. Shall have adequate technical manpower on its rolls in the form of supervisors, highly skilled, skilled & unskilled staff. The details on the type of organization (i.e., sole-proprietor or partnership or company), organization matrix etc. shall be provided.
4. PAN CARD / GST Registration Certificate.
5. Registration for ESIC and PF/PPF (statutory requirements)
6. Average turnover for the previous year shall be at least 60% or more of the estimated cost. The financial statements for the last three years of the company shall be enclosed.
7. Latest Solvency certificate issued by the bank for at least Rs. 12 Lakhs.
8. The bidder should provide an "Authorisation Letter" from M/s. Kirloskar Chillers India Pvt. Ltd. certifying that the agency is authorised for operation and maintenance services and supply of spare parts of Kirloskar make chillers compressors.
9. The bidders should have at least 3 years of experience in erection, commissioning, operation and maintenance of a >450Tr capacity HVAC system through BMS. Proof for the same in the form of a work certificate shall be enclosed.
10. Performance certificate issued by clients for the services rendered by the bidder.
11. List of clients with their address and details of contact person/s along with their contact details like telephone, e-mail address etc.
12. Any other document proving the credentials and suitability for the HVAC AMC work.

2. Vendor and Bid Evaluation

The Vendors and their bids will be evaluated as per the table given below. All the pre-qualification requirements indicated above will be checked. Depending upon the vendors meeting all the basic prerequisites, their bid will be further evaluated on the 'marks based' system given in the table below. The vendors/bids **scoring 70 or more marks** will be considered for the 'price bid' opening.

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NOTE:

1. The vendor shall score a minimum of 70 marks in the evaluation for qualifying for 'price bid opening'. The pre-qualification checks & marks evaluation pattern is given below.
2. Among the price bids opened, the lowest offer will be considered for further processing. No additional weightage will be given for the marks scored in excess of 70.
3. ICTS reserves the right to rearrange the pattern of marks for evaluation and revise the ceiling of qualifying marks as deemed fit in the given situation. The decision of ICTS will be final and binding on all. The aim is to have sufficient proposals to compare, in the event of fewer than 3 vendors scoring 70 & above.
4. Issuance of tender documents shall not automatically imply qualification of the firm for bidding, which shall be determined during bid evaluation.
5. ICTS reserves the right not to accept the lowest rate quoted by a bidder and may reject any or all the tenders without assigning any reason whatsoever.
6. Any addendum/corrigendum/extension, if required, pertaining to the NIT will be posted on the ICTS website. Bidders are requested to visit the ICTS website regularly for any addendum/ corrigendum/ extension, till the opening of the bid.
7. If the last date of sale of tender or date of submission of tender is declared as a holiday, the due dates will be the next working day accordingly.
8. All legal suits arising out of the enquiry and subsequent letter of intent/work order, if any, are subject to jurisdiction in the Court of Law of City of Bangalore, India and no other court.

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Sl No.	Particulars		Rating
1.	Pre-Qualification Checklist- Vendor to qualify in all the prerequisites with sufficient proof (Yes/No)		
I	1	Valid Registration Certificate of the Firm and Contractor license.	Y/N
	2	PAN CARD / GST Registration Certificate.	Y/N
	3	Latest Solvency certificate issued by the bank not before 01 Feb 2021	Y/N
	4	Financial Statements of the last 3 financial years.	Y/N
	5	Registration for ESIC and PF/PPF (statutory requirements)	Y/N
	6	Acceptance of all terms and conditions - tender document duly signed on all pages (Annexures should be duly filled and signed)	Y/N
	7	Any technical deviation indicated? If so, are they acceptable to ICTS?	Y/N
	8	Bid Securing Declaration enclosed?	Y/N
	9	Does the vendor meet the previous minimum work experience criteria?	Y/N
	10	Does the manpower deployment meet the minimum requirement indicated?	Y/N
	11	Has the 'Undertaking Form' (Annexure-E) been duly filled and signed?	Y/N
	12	Any special Information or conditions indicated by the firm? If so, are they acceptable to ICTS?	Y/N
	13	Does the firm meet all the above minimum criteria to evaluate further?	Y/N

2.	Evaluation of Vendor- Agencies fulfilling minimum criteria will be given minimum marks. The highest among the available bidders will be given maximum marks and the rest will be given pro-rata marks.	Min Marks	Max Marks
I	Attended the pre-bid meeting? (Indicates seriousness & interest shown in understanding the Institute's requirements/the scope of work)	0	5
II	The contractor should have a minimum of 5 years of experience in AMC of HVAC Systems in Government / Semi-Government / Private Institutions.	10	20
III	Financial performance: Minimum Annual turnover of the previous year shall be at least 60% of the estimated cost.	15	15
IV	Contractor should have minimum work experience of one work of minimum WO value of Rs. 45.00 Lakhs OR 2 works of minimum WO value of Rs. 34.00 Lakhs each OR 3 works of minimum WO value of Rs.23.00 Lakhs each (annual cost), in the last 3 years, for AMC of HVAC systems in Government / Semi-Government / Private firms.	20	30
V	Minimum two Performance Certificates from their clients.	10	10
VI	Is the Proposed Qualified technical staff pattern matching the minimum as prescribed in the tender conditions?	5	10
VII	Organisational structure: Whether indicated type and organisation matrix will be strong enough to handle the contract?	5	5
VIII	Authorization Certificate by M/s Kirloskar Chillers Ltd.	5	5
	Total	70	100

Annual Maintenance Contract of Centralized HVAC Plant and General HVAC Systems at ICTS Campus.

1. Scope of Contract

1.1 The Contractor will provide services at International Centre for Theoretical Sciences, Shivakote, Hesaraghatta Bangalore.

Annexure – A – Scope of work & Tentative Guidelines for the Work Involved in the Scope

Annexure – B – General Terms and conditions.

Annexure – C – Schedule of Deviations

Annexure – D – Statutory Obligation.

Annexure – E – Undertaking from the contractor

Annexure – F – Bid securing Declaration

Annexure – G – Schedule - I - Price bid as per the given format

Schedule - II - Commercial bid for consumable items/ tools/ equipment and services
(optional but mandatory to quote for all items)

1.2 The details of rates and the number of personnel required for carrying out the work shall be indicated by the Contractor in Annexure “B”.

1.3 Once the Work Order is issued, the Contractor will receive instructions from an Officer designated for this purpose (Officer-in-Charge) or his authorized nominee and the Contractor hereby undertakes to abide by his/her suggestions/instructions, etc. as regards services covered in this contract.

1.4 Addition/ alterations in the scope of work: Any alterations or additions to the scope of work will be communicated to the Contractor and the Contractor shall carry them out. For any reduction/increase in the Scope of work, the increase/decrease in the rates shall be negotiated and finalized on a mutually agreed basis.

2. Quality and scope of services

2.1 The Contractor shall appoint trained staff having a good bearing and maintain high standards of turn out, maintain adequate staff to ensure there is no hold up of any service for any reason whatsoever. Any deficiency in the number of staff deployed will entail penal reduction from the compensation payable as decided by the Centre. The successful Contractor as soon as the agreement is signed shall submit a list of their workmen/supervisor/others along with a copy of the appointment order issued to them. As and when there is a change in the staff posted, a revised list shall be submitted along with a copy of the appointment order issued to the new appointee/appointees, simultaneously.

2.2 It is normally understood and agreed between both the parties that the Centre will not be responsible or be liable for any laws that are in force / that may come into force from time to time in respect of personnel engaged by the Contractor and he will be solely responsible for the terms and conditions of their services, safety, health, statutory requirement, etc.

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2.3 The Contractor shall depute such officers and supervisors as proposed by him, who shall be available on-site to supervise the Contract employees and interact on a daily basis with Officer-in-Charge regarding delivering the specified services.

2.4 It is understood and agreed that the Contractor will be held responsible for any disciplinary matters arising out of their employees and the Contractor will take appropriate disciplinary action against those employees found indulging in any act of indiscipline in Center's premises or in connection with the services referred to herein.

2.5 The Contractor will immediately replace any employee found to be unfit in any manner immediately or on receipt of advice from any authorized person in ICTS.

2.6 The Contractor shall maintain a proper and detailed record for the job carried out by their employees and shall also maintain all records and returns as necessary for carrying out the work smoothly and as provided under the Contract Labour Act, Minimum Wages Act, ESI Act, PF Act, etc, as relevant and applicable from time to time.

2.7 The Contractor shall be solely responsible to comply with all legal and statutory requirements that arise out of this agreement and in respect of the employees engaged by the Contractor in fulfilment of the contractual obligations stated herein. An indicative list of these statutory obligations is at Annexure "D". It is understood and agreed that the Contractor will provide suitable uniforms with company insignia, badges/ID cards with photos and safety equipment and shoes to their employees. It is the Contractor's responsibility to have them **periodically checked medically** so as to ensure that medically fit staff only is deployed for the work.

2.8 a) The Contract employees should be covered under all statutory requirements like ESI, PF, ELI etc. by the Contractor and the Contractor shall comply with all the formalities in this regard. Copy of challan and Schedule of Contract Employees for payment of ESI/PF/ELI, etc. to be furnished (whether running/monthly or final) by the contractor for reimbursing the same every month.

b) The Contractor shall pay salary and other allowances/benefits as indicated by the Contractor in their tender and accepted by ICTS. Such salary shall be equal to or more than minimum wages.

c) The Centre will have the right to inspect/call for books/registers, documents in relation to all matters referred to, in this tender or agreed later on. The Centre will also have all rights to make recoveries from the compensation if any, that any statutory agency imposes upon the Centre due to the Contractor's non-compliance with statutory obligations. A list of these as applicable at present is set out in Annexure 'D' attached. All the Contract employees should be covered under all statutory requirements like ESI, PF, etc. by the Contractor and the Contractor shall comply with all the formalities in this regard. Copy of challan and Schedule of Contract Employees for payment of ESI/PF/ELI, etc. will be furnished by the contractor for reimbursement.

d) The contractor shall maintain a muster roll, wages register of all men employed by them and all other documents and submit it to the Centre on the 1st of every month for the previous month or as necessary for inspection. The Contractor shall provide all facilities for inspection /books/personnel on demand by ICTS or any Statutory Authority.

e) The contractor should provide PF A/c number, ESI Card and Photo Identity Card to the contract employees posted at ICTS. This should be done **immediately** but not later than 15 days from the date of signing the joint agreement.

2.9 It is clearly understood and agreed upon that neither the Contractor nor Contract employees shall have any claim on employment with Centre at any point of time and this arrangement is purely between the Contractor and the Centre for specific services for the period specified.

2.10 The successful Contractor shall indemnify/deemed to have indemnified the Centre for all claims/losses arising out of this tender. The Contractor is deemed to have indemnified the Centre against any claim by any authority once the work order is awarded. In the event the Centre has to pay any individual, statutory body or any agency for reasons directly or indirectly attributable to this tender, the Contractor only shall pay such claim/damages and even if the Centre is called upon to pay, such damages/penalties and or cost shall be recovered from the contractor's dues /amount payable or shall be paid by the Contractor on demand from ICTS.

2.11 The Contractor shall follow all rules as may be existing or may be framed from time to time at ICTS on all aspects covering this tender. Material movement, entry/exit of personnel, identity card, safety, etc. shall be according to procedures existing in ICTS as amended from time to time.

2.12 **Bid Validity:** The rates quoted shall remain valid for a period of 180 days from the date of opening of Price Bids.

3. Tenure & Termination

3.1 The contract with the Centre will be initially for a period of 12 months and if the services are found to be satisfactory, the contract may be extended for a further period of **two more years (one year at a time) on the same terms and conditions**. The Centre reserves the right to terminate the Contract during the pendency of the Contract period if the performance is found unsatisfactory.

3.2 Except as provided in Clause 3.6 below, the Contract could be terminated by either side by giving one month's notice in writing. If the notice period is not given or if shorter notice is given by the Contractor, the entire security deposit would be forfeited. Any other costs and/or damages incurred by the Centre to maintain the services contracted to the Contractor, on account of such short notice will be deducted from the dues payable to the Contractor or shall be paid by the Contractor on demand if such dues fall short of such costs.

3.3 In the case of failure to complete the contract in terms of such contracts within the contract period specified in the tender and incorporated in the contract and if such work is got done by the Centre from any party at a higher rate the Contractor shall be liable to pay the Centre the difference between existing rate and the rate of the new Contract.

3.4 Risk Clause: Notwithstanding the other terms therein, the Centre at its option will be entitled to terminate the contract and to avail service from elsewhere at the risk and cost of contractor either the whole of the contract or any part which the contractor has failed to perform in the opinion of the Centre within the time stipulated or

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if the same performance is not available, the best and the nearest available substitute thereof. The contractor shall be liable for any loss which the Centre may sustain by reason of such risk in addition to the penalty.

3.5 Insolvency and breach of contract: The Centre may, at any time, by notice in writing summarily terminate the contract without compensation to the Contractor in any of the following events:

- (a) If the Contractor being an individual or a firm if any partner in the contractor's firm shall be adjudged insolvent or shall have a receiving order or order for the administration of his estate made against him or shall take any proceedings for liquidation or composition under any insolvency act for the time being in force or make any conveyance or assignment of his effects or enter into an arrangement or composition with his creditors or suspend payment, or if the firm be dissolved under the Partnership Act, or
- (b) If the contractor being a company shall pass a resolution or the court shall make an order for the liquidation of its affairs or a receiver or manager on behalf of the debenture holders shall be appointed or circumstance shall have arisen which entitle the court or debenture holders to appoint a receiver or manager, or
- (c) If the contractor commits any breach of contract not herein specifically provided always that such determination shall not prejudice any right of action or remedy which shall have then accrued or shall accrue thereafter to the Centre provided also that the contractor shall be liable to pay the Centre for any extra expenditure he is thereby put to but shall not be entitled to any gain on re-tender.
- (d) In the event of inadequate or unsatisfactory performance of duties by the Contractor, the Centre shall have the right to bring to the notice of the Contractor the default (s) on their part and the Contractor shall ensure that the said default (s) is/are not repeated and/or are duly remedied, within a period of three days from the receipt of the said notice. Failing such remedial action, or in the event of the said default(s) being inadequately corrected, the Centre shall have the right to immediately terminate the agreement.

3.6 Notwithstanding any other clause herein, if there is any act or omission by the Contractor or the Contract employees which jeopardizes the safety/security of the Centre including, but not limited to :

- a) Theft or pilferage of property of ICTS
 - b) Fire, flooding, breakage or damage
 - c) Violence or physical attack on the Campus
 - d) Any act or incident which may prove detrimental to the interests of ICTS -
- the contract would be terminated without any notice. Further, the Contractor would be levied penalties, as found appropriate by the deemed authority. The decision of the Centre Director shall be final in such matters.

4. Payment Terms:

4.1.1 The contractor shall submit bills after the completion of every calendar month and normally payment will be released within 15 working days from the date of submission of the bill if the bill is complete and correct in all respects and in accordance with the terms and conditions of the contract. All payments will be made after deduction of taxes and duties at source as applicable from time to time.

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4.1.2 The monthly bills submitted by the contractor shall be only for actual salary, uniform content and margin. The other benefits like PF, ESI, ELI, S.T etc., can be claimed every month separately with proof of documents and the same will be reimbursed. The contractor will not be entitled for any of the above benefits.

4.1.3 PF, ESI and ELI will be reimbursed to the contractor only on production of registration No./ ESI card/ payment of ELI premium.

4.1.4 **Bonus:** Bonus shall be payable by the contractor to his contract employees monthly or once in a year before Diwali or when a contract employee's service is discontinued. The amount of bonus payable is 8.33 % subject to a maximum of Rs. 6,999/- per annum.

4.1.5 Leave Wages : Maximum of 6% and ½ reliever charges as applicable shall be paid as quoted.

4.1.6 The monthly running bill of the Contractor will become payable at the end of each month on submission of a monthly claim to the Accounts Officer, and on due certification by the Engineer-in-Charge of satisfactory services against the claim. The Contractor's payment will be released only after disbursing the salary to contract employees every month.

4.1.7 The Engineer-in-Charge is authorized to deduct any amounts as determined by the Centre Director from the amounts due to the Contractor for any deficiency in services, provided by the Contractor.

4.1.8 Payments to the contract employees shall be transferred to the bank accounts of the **contract employees' by the 7th of the succeeding month**. The Contractor shall notify all his employees/workers of this date in their appointment order, and follow this very strictly, whether the Centre has paid the Contractor's bill or not. The proof of payment of salary and all other benefits such as bonus and overtime to the contract employees shall be submitted to accounts along with the monthly bills.

4.1.9 No claims will be entertained in respect of any discrepancy or defect or short claim if such demand is not made within 90 days of payment of the final bill.

4.2 Security Deposit:

The person/persons whose tender(s) may be accepted shall permit ICTS at the time of making any payment to him for work done under the contract to deduct a sum at the rate of 3% of the gross amount of each running bill till the sum along with the sum already deposited as earnest money, will amount to a security deposit of 3% of the tendered value of the work. Such deductions will be made and held by ICTS by way of Security Deposit unless he/they has/have deposited the amount of Security at the rate mentioned above. Alternatively, a Bank Guarantee from a Commercial Bank for 3% of the contract value may be furnished for the period of agreement with a 3 months grace period.

Security Deposit will be released only after the completion of the defect liability period of 3 months after the date of completion of the contract.

Security Deposit will not be refunded till a clearance certificate from the labour officer is obtained by the Contractor. However, if there is genuine difficulty to obtain a clearance certificate, the Engineer – In – Charge will make a reference to the Labour Officer before releasing the Security Deposit. If no reply is received within a reasonable period, say 1 month from the date of such reference then Engineer-In-Charge may make his decision to release based on his discretion.

4.6 It is important for the Contractor to note that the rate quoted shall be inclusive of all taxes and duties/escalation and shall remain valid for the period of the agreement, i.e. 3 years from the date of Work Order. Any increase or decrease in the rates shall be only in respect of statutory duties/levies and such claims shall be valid only with adequate documentary evidence. Any decrease in the duties/levies during the period of agreement, shall entail corresponding reduction in the contract amount. If no details or break-up of taxes, duties/levies, etc. are indicated, it will be assumed that the quote submitted is inclusive of all taxes/levies/duties, etc.

4.7 The Contractor shall pay any claim made by the Centre for any deficiency (both tangible and intangible) in service. Such an amount may also be deducted from bills payable to the Contractor. It may be noted that the Centre shall have the right to forfeit the Security Deposit in full or part for any due/damages caused by the Contractor. If the Security Deposit or outstanding bills of the Contractor is found inadequate, then such monetary recoveries shall be effected from any amount payable to the Contractor against this or any other contract until the dues of the Centre are fully settled. If the claim of the Centre could not be met in this manner, the Contractor shall pay up all such claims if a demand is made by ICTS.

5. Safety, Security and Insurance

5.1 The Contractor shall follow all security rules of the Centre and instructions received from time to time regarding personnel, identity cards, material movement, etc, of the Contractor.

5.2 During the pendency of the agreement, the contractor shall be liable fully to compensate all concerned for any loss, damage of construction of works, construction, plant & machinery, person, property, etc. including third party risks arising due to causes attributable to the agreement. The decision of the Centre Director will be final & will be binding on both parties.

The contractor shall take Employees Liability Insurance of prescribed value for their employees. It must adequately cover all employees/workers under Workmen Compensation Act, 1928 as amended from time to time. Before starting the work, the Contractor shall produce the original insurance policy and the license of the workers where applicable to the Centre.

6. Miscellaneous

6.1 The work mentioned in the schedule is only indicative. The Centre reserves the right to increase or decrease the quantum of work. The contractor shall execute the work on the same terms and conditions and rates throughout the period of agreement.

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6.2 The contractor or his supervisor shall meet the designated Officer of the Centre every day to receive the details of issues / complaints to be attended and after attending to these complaints, a report on the same has to be submitted to the concerned Officer.

7. Dispute and Resolution

7.1 Any dispute or differences that may arise between the parties shall be referred to the sole arbitration of the Centre Director or his nominees and the Contractor shall have no right to object to the appointment of the Director or his nominee as the sole arbitrator. The decision of the arbitrator shall be final and binding on the parties. The venue for arbitration shall be Bangalore and no other place. The provisions of the Arbitration and Conciliation Act, 1996 as / amended from time to time shall apply. The courts in Bangalore shall have exclusive jurisdiction to deal with any or all disputes between the parties.

8. Primacy of Documents

The tender documents, subsequent communication exchanged, the work order and all annexures shall be part and parcel of this agreement. If there is any discrepancy between the above documents, following order of primacy will apply: any communication issued after the work order, any pre-order correspondence as accepted jointly, followed by work order, tender documents and annexures thereof, i.e. tender documents and annexures have least primacy.

9. Amendments to Work Order / Agreement:

Any amendment to the Work Order/agreement shall be valid only if both parties have agreed to such amendment(s) in writing duly authenticated by authorized personnel of both parties.

For and on behalf of International Centre for Theoretical Sciences

Administrative Officer

ANNEXURE - A

Scope of Work for Annual Maintenance Contract of Centralized 4 x 120 TR HVAC Plant at ICTS Campus, Shivakote, Hesaraghatta hobli, Bangalore North (24Hrs X 365 days)

General Guidelines for Quoting the Tender

Operation and Maintenance of HVAC Systems for various facilities at ICTS

ICTS has 76,500 Sqft of Academic, Seminar Room space, residential area, Utility Buildings, Sports and Dining complex, Pump houses, Playgrounds etc., and associated Electrical, Air conditioning, Fire Alarm, Fire fighting Systems, Sewage Treatment Plant and Water Sump Tanks. The Electrical work has been done by M/s J M C and Air-conditioning by M/s JMC & M/s Associated Engineers . There are also off campus hostels and a study center in IISc. The Scope of work includes (but not restricted to) the following.

ICTS has critical requirements for Air-Conditioning. It has various air-conditioned facilities i.e Data Centre, Multi purpose lab, Seminar hall, Auditorium, Academic & Visitors' Offices etc. Air conditioning is a critically required parameter. **In no case, an outage of Air Conditioning and appropriate temperature with Rh%, \pm 5% (for critical areas) is acceptable.**

Hence, the essence of this contract is to achieve 'Zero Break-down' and to maintain the system such that it is always normal, available and can be used for its optimum performance. All efforts are to be made with up to date maintenance in achieving this, by using predictive & proactive maintenance techniques at all times, and, by strictly adhering to preventive maintenance practices & schedules.

Air-conditioning contractors with proven track record & confident in achieving this task are only eligible to compete in this AMC tender & only such firms will be considered for contract engagement. Please enclose the documents supporting the AMC track records etc.

Contractors shall engage and deploy technical staff on every day basis, who have hands-on experience in AC system maintenance and troubleshooting to meet our kind of requirement. So engaged supervisors / technicians shall have ability to read AC system drawings, understand the requirement & provide trouble free maintenance.

Scope of work

SITE: ICTS-TIFR Campus, Shivakote, Hesaraghatta hobli, Bangalore North (24Hrs X 365 days)

MAINTENANCE OF CHILLED WATER OPERATED AC SYSTEM

Daily Operation / routine monitoring, scheduled preventive maintenance (servicing), breakdown maintenance of all the Air-conditioning systems in the campus working on chilled water supply, using all necessary spares. The system has Air handling units (AHU), Fan coil units (FCU), with necessary electrical power and controls, air distribution system with air-ducts, dampers, grills, diffusers, chilled water lines, drain system etc. installed and working at various labs & facilities.

Round the clock Chiller operation 4X120TR screw chillers in utility block as and when required.

Following is the indicative detail of the existing system;

AC systems in the ICTS campus :-

1. AC systems in the Admin block
2. AC systems in Seminar Block
3. AC systems at Guest House, VIP guest house, Divisible conference room, Data center
4. AC systems at other facilities
5. 4 no of 120 tr capacity chiller (Kirloskar made, water cooled)
6. 4 Primary and 4 secondary pump, 4 condenser pump, 4 no cooling tower, 8 No Air handling unit , BMS control panel, Electrical panel, DDC panel etc.
7. Operation of motorized butterfly valve, Gate valve, Globe Valve, Motorized Valve.
8. 145 water-cooled high wall units, 26 water-cooled cassette units, 39 air-cooled high wall split units, 21 air-cooled cassette units.
9. Total no of Electrical panel (15)
10. Cold storage of 2X 10 tr capacity
11. Kitchen ventilation system 24000 CFM capacity

Details Of Work:

Daily operation / monitoring, scheduled annual preventive / routine & predictive maintenance, breakdown maintenance including repair / replacement of all spare parts and consumables of the entire existing AC system in the campus working on chilled water. The system has chilled water supply & return lines, AHU / FCU, air supply & return ducts, grills, diffusers, dampers, control & protection system. Work shall be carried out by continuous deployment of competent, experienced & trained staff members at site. This is a continuous mode operation & maintenance. All emergencies at all times to be attended without fail.

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The AHU / FCU units which are to be maintained will be consisting of Cooling coils (heat exchangers), blowers, motors, heaters, 3 way mixing valves, humidistat, thermostats, pressure & temperature gauges, pulleys, V-belts, flexible hoses, hose clamps, hydraulic hoses with fixtures, water flow control valves, fasteners with all accessories, pre-filters, micron/HDPE class filters, canvas, thermo coal & foam insulation, tar sheet, control transformer, fuse units, contactor, TOLR, push-buttons, connectors, control units & control schemes, drain system, plenum area, etc. complete set.

The chilled water lines, related control valves & accessories are also to be maintained. Problems anywhere in the entire network of chilled water supply & return lines like airlocks, line blocks, leakages etc. are to be attended & rectified by the contractor, to bring the system to normalcy.

All the air ducts, diffusers, dampers, grills, flow control valves, air filters etc. in the system are to be cleaned & maintained periodically.

ADDITIONAL & ALTERATION WORKS:

All addition & alteration jobs have to be carried out as per requirement at the campus. **No staff in regular shift duties (I, II, III and General shift) shall be used for these works.** If shift staff are used (allowed only in emergencies), only material supply charges will be paid for such executed works.

Any additions or alterations made in the system during the tenure of this contract (whether by the AMC contractor or any other firm or by ICTS), have to be maintained by the contractor.

Works/Jobs in the air conditioning system shall be carried out by the operation & maintenance contractor at the agreement rates/schedule rates. If the prices are not available in the agreement, the same shall be paid at departmentally estimated rates (based on market rates). Rate analysis shall be produced by the contractor whenever asked by the department.

All fabrication works, repairs, pipe repairing/replacement servicing of machines / equipment / parts therein (or arrangement for the same) within the purview (entire AC system) of this contract, shall have to be carried out by the contractor within specified time. Contractor shall oblige to any of the requirements of ICTS, which is in the area of AMC's technical services, as found reasonable to be entrusted onto the contractor by Engineer In charge (HVAC).

While carrying out any of the works, it should be ensured that the area is thoroughly cleaned during and after the completion of the work. Vacuum cleaner and wiping materials shall be used in cleaning to ensure no dust or dirt or marks remain after completion of the work. All attempts to be made in avoiding dust / dirt / markings etc., while working.

If the contractor fails to carry out the assigned or entrusted work, the department shall get the work done by engaging any other agency and the entire cost incurred shall be recovered from the AMC contractor.

The entire existing AC system (working on chilled water) is covered under the scope of this AMC. Any additions and alterations made in the system (whether by the contractor or by any other agency or by ICTS), up to an extent of 15% of existing installed AHU & FCU capacities are covered under the scope of this contract for operation & maintenance.

A log book shall be maintained for each shift for work done, problems arising and pending works to be completed by next shift operators. Schedule of testing and amc of equipment will be issued on a day to day basis. Computer knowledge is a must for skilled operators for handling bms systems.

Providing all kinds of labour and the expertise required to attend to the above work is included in the scope of work. However, consumable, workshop expenses, new addition and alteration work will be paid extra as per actual rate or agreed rate as applicable.

Special Conditions:

1. All works to be carried out in accordance with relevant Indian Standards and as per CPWD rules/norms/standard work manual as amended. The contractor has to obtain necessary clearance from the Electrical Inspectorate. Panels, Fittings, Equipment, Systems etc., all the components, accessories, Sub-Assembly, assemblies etc. which are attachments or parts needed for the purpose. Any other work which is incidental or part of the above, but not specifically spelt out will also be included in the scope.
2. To carry out the above job the contractor has to make his own arrangements for tools, tackles and measuring equipment, measuring meters, safety and protective devices for carrying out the work.
3. ICTS is a research institute and has critical power requirements. Please note maintenance should be in such a way that power failure should not be more than 3 minutes in any case.
4. For some of the emergency load points power availability has to be monitored round the clock.
5. Contractor will ensure that the deployed staff should have basic qualifications and are capable of handling work as stipulated in scope of work. Contractors should deploy electrical staff having experience in handling such power shutdown situations and have ability to read continuous drawing of 30 pages or more and capable of troubleshooting and rectification.
6. As the work involved is quite specialized and continuous monitoring is required, absenteeism of the contractor's employees will not be tolerated. **The Engineer In-Charge (HVAC) is authorized to make penal deductions in the bills for the absenteeism and non-compliance of the work.** The contractor will ensure proper supervision all the time. In case of deficiency, a penalty will be imposed.
7. It is presumed that contractors will deploy skilled manpower as required. All the labour and expertise are included in the scope of work. No extra payment will be made for carrying out wiring work, routine breakdown and preventive maintenance.
8. All the breakdown calls should be attended immediately. In case frequency / work demands more manpower, the contractor will arrange additional manpower, at no extra cost, so as not to disturb the research activities.

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9. It is fully the contractor's responsibility to deploy a qualified Supervisor, Sr. technicians and Technicians & helper with relevant Qualifications, License, hands on experience mentioned in eligibility criteria to handle electrical, Fire alarm System and Equipment specified in the scope of work. They should be well conversant with Indian Standard, Indian Electricity Rule and Acts as applicable and should have knowledge of electrical and Industrial safety practices.
10. Contractor will ensure consistency of work and workforce, correct troubleshooting, good workmanship, follow all safety procedures and will make all necessary efforts to maintain a healthy environment and reliable services.
11. It is purely the contractor's responsibility to get his staff acquainted with the site condition, operation and maintenance procedures, equipment details, safety devices, Scope of work etc.
12. Contractor shall depute adequate number of staff to carry out routine work, wiring work, additional project work, attending fuse call, preventive and breakdown maintenance so as not disturb research activity.
13. Minimum wage of the staff should not be less than minimum Wage Act applicable to the respective category/experience. Contractor will submit the details of minimum wages as per Minimum Wage Act, as applicable to the respective category/Experience at the time of submission of Tender bid.

SCHEDULING

In a broad manner, the work can be scheduled as follows;

I) Routine Maintenance

Daily

- Check for any complaints that are reported and troubleshoot them immediately.
- AC system of the important & critical facilities are to be continuously monitored and corrective actions are to be taken immediately so as not to affect the facility concerned
- If any important activities like seminars / lectures / meetings / interviews are planned in the campus, the concerned AC system has to be inspected and normal functioning of the AC system is to be ensured.
- Adjustments in the system to achieve required temperature & RH level as required by the user. Release of air locks / blocks in the system.
- If there is any instruction to operate the AC systems in the specific timings, the same has to be materialized.
- General inspection of the AC system and rectification if any abnormality exists.
- Attending to the planned / scheduled preventive maintenance
- Updating all the relevant documents, logs, history books etc.
- Reporting of day's work and progress to the Engineer-in-charge.

Monthly

- Cleaning of filters (pre filters, superfine filters, 5 micron filters, wherever installed and which requires cleaning)
- Checking the performance of important AHUs (like Date Centre, Multi purpose labs, Lecture halls, Seminar halls, guest houses, Academic & Visitors' Offices etc.)

Quarterly

- Inspect connection for any water leaks in the coil and connection. Check the tightness of hose, fittings & tighten if necessary. There should not be any flooding of water from the AHU.
- Check and clean drain pan, condensate drain pipe and floor drains to ensure no choking and flooding.
- Cleaning of cooling coils, fins and filters, air & water flow, release of air lock etc.
- Open up the electrical control panel, inspect for any blackening of contacts, loosening of connections, component condition etc. rectify if any abnormality is noticed.
- Inspect the conditions of the thermometers and pressure gauges for proper function.
- Check for proper operation of the associated measuring, control and safety device like thermostat, humidistat, 3 way actuating valves etc. Reset if required.
- Check, report and rectify, if any abnormal noise / vibration is observed.
- Check and re-tighten any loose bolts and nuts in proper sequence.
- Clean all the type air filters.
- Check the fan belts for proper tension, and replace if necessary, and examine the fans for correct alignment, lubricate the bearing as required.
- Check the heater bank condition and rectify if any problem exists.
- Inspect the condition of insulation materials and rectify if necessary.
- Clean the water strainer of the chilled water system if installed.
- Entire AHU room to be thoroughly cleaned with vacuum cleaner & to be made clean & dust free.
- Recording the values of settings & temperature & RH levels maintained in each lab / facility / area
- Necessary documentation

Yearly

- Perform quarterly services
- Overall servicing of the unit, cleaning, reduction of noise level, checking of mechanical assemblies, foam insulators over the pipes.
- Descaling of copper tubes of the cooling coil (the water circuit) by suitable means as per manufacturer's recommendation and general standards. Procedural details for this work are enclosed.
- Parameter checking before & after servicing
- Air flow checking & adjustment / balancing, if required
- Checking of IR value for motor and heater banks.
- Checking and calibration of temperature and pressure gauges on supply & return chilled water lines and replacement of the same if required.

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- Checking of unit efficiency, total capacity delivery of the unit & bringing it to optimum performance level, air flow and water temperature measurements on supply & return ends, maintaining the lab temperature and temperature & RH adjustments.
- General checking of electrical switchgears, controls etc. All electrical systems should be checked through competent persons as per relevant Indian Standard and as per electricity Act 1910.
- Cleaning of the ducting system having diffusers, grills, dampers etc.
- Necessary documentation of parameters (before & after servicing work) and submission of checklist
- Since Kirloskar chiller parts are proprietary in nature, hence it becomes necessary to purchase parts and accessories from M/s Kirloskar itself. All advance payment irrespective of amount which may go upto 7 lakhs needs to be borne by Contractor itself at no profit no loss. The same can be reimbursed after submitting the bill to ICTS. The rate contracts for the parts will be decided by ICTS in conjunction with M/s Kirloskar.
- Kirloskar chillers and compressor maintenance and services are outsourced to M/s kirloskar itself and the advance payment should be borne by the contractor . The same amount will be reimbursed to the contractor quarterly or half yearly by ICTS. ICTS will not make any advance payments to the contractor for any type of work.

NOTE:

1. If it is required to clean the cooling coil by water jet, the same has to be done by removing the cooling coil with all precautionary measures & taking it to a convenient place for full cleaning of water & air circuits. Coil to be cleaned with suitable chemical & water jet. This work is to be done carefully without damaging the AHU & the coil. This is also included in the AMC scope at no extra cost.
2. Coil, fins, filters etc. are to be thoroughly cleaned to achieve desired air and water flow rates.
3. All the maintenance / servicing works should be carried out in such a way so that the equipment / unit can be used for its optimum performances. Any work which is found to be required for optimum performance of the system has to be done.
4. Necessary care should be taken while carrying out all types of maintenance / servicing of equipment to avoid damages. Any damages of equipment / equipment parts during the services has to be replaced free of cost.
5. Contractor should supply all necessary materials like suitable grade of grease / lubricant, cotton waste, cleaning brush etc., to carry out servicing without any extra cost.

II) Breakdown Maintenance:

Any breakdown complaint should be attended immediately to avoid disturbance in the institute's activities. Spares & tools required to attend any breakdown have to be maintained. After attending to breakdowns, the unit / system shall be closely observed / monitored next day and parameters shall be checked & recorded.

PENALTY CLAUSE: If complaints are not attended within 4 hours penalty will be imposed at the rate of Rs.200.00 per hour.

Repair and Replacement of Parts:

During routine / periodic maintenance and during breakdown maintenance the tenderer shall repair faulty parts / equipment with his resources. Repair shall be done in such a way that it should not affect the performance & life of the equipment, and while doing maintenance work, care should be taken that water should not come out from the unit to the lab area.

Material, equipment, part thereof which is beyond repair shall be replaced and will be paid separately as approved by Engineer-in-Charge. Please refer Annexure-I for replacement of parts / equipment.

All the works to be done as per daily / monthly/ half yearly or yearly schedule. In case, if it requires the same work to be done in-between, the same shall be attended without any extra cost, in the interest of the system.

This contract includes supply and replacement of all genuine spare parts / consumables of the unit like blower, motor, V-belts, bearings, shaft, key ways, grip screws, fastener items, cooling coil, filters, hoses, hose clamps, switchgear & control items, OLRs, contactors, push button stations, wing nuts, indication lamps, 3 way actuator control valves, tar felt, elemex connections, wiring accessories, nipples, water flow valves, foam insulation, acoustic insulation, canvas, dampers, diffusers, grills etc.,

The essence of the contract is to maintain the Air-conditioning system in such a way that it gives desired optimum performance. Repair / replacement of all the parts / equipment required for proper functioning of the machine, whether specified or not, are included in the scope of work.

Descaling & Cleaning of Cooling Coils & Fins:

It is a once in a year activity. The work procedure is as follows:

- Ensure that the power supply of the unit should be disconnected / switched off and caution board to be fixed at the main isolation of power supply.
- Take pre-service system running parameter readings (Air flow, DB, WB temp. readings, electrical parameters etc.)
- Ensure that main valves (ball valves of the unit) should be in closed condition.
- Arrange to cover & ensure that water should not fall on electrical control box, motorised 3 way valves, pressure gauges, etc. Failure to cover electrical control boxes, 3 way valves and other electrical circuits where water fall on such items may lead to serious injury / death / damage to the equipment accessories etc., for which the contractor is solely responsible.
- Loosen the hose clips and remove the connections from the cooling coil.
- Prepare the chemical mixture & keep it ready in a container / tank. Circulate it through the cooling coil for a specified time as recommended by the manufacturer. (Note: Contractor should arrange for container / tank etc.,)
- After circulation of chemical mixture through the cooling coil, flush out the coil using fresh water before connecting the hose connections.
- Coil fins should be cleaned using fins cleaning chemical, brush & should be cleaned to remove the sediments & dust particles of the entire coil.

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- Should ensure there should not be any folding of coil fins which may result in improper flow of air through the coil.
- Should ensure that always air should be passed through the coil, any bypass of airflow should be attended immediately and rectified.
- Ensure that cooling coil filters are in good / clean condition, if the filter is choked, the same should be cleaned and fixed.
- Reconnect all the systems & take the post service running parameter readings.
- After completing the work, it should be ensured that the entire unit & the surrounding area are cleaned thoroughly.

NOTE:

- Any accidents that occur due to negligence / inexperience during work is purely the responsibility of the contractor
- Contractor should also ensure that water should not come inside the lab while executing the work.
- Prior approval should be obtained from Engineer-in-Charge for the chemical / solution being used for descaling. The chemical shall be recommended by the manufacturer.
- Arrangement of pump, chemical tank, a small power distribution board with back up protection of MCB/Fuse/ELCB required for operation of motors pump sets is the responsibility of the contractor without extra cost.

PERSONNEL TO WORK AT ICTS:

The contractor has to manage & execute all the entrusted work.

For the purpose of continuous monitoring and maintenance of the system throughout the year, the contractor has to deploy an adequate number of qualified and experienced staff members (Supervisor, technicians, helpers) at site on every day basis to carry out the dedicated work.

These staff members shall carry out the works as per the plans & schedules in consultation with the concerned engineer. These staff members shall also carry out all other works as entrusted by the concerned engineer pertaining to AC related work of ICTS and shall never say 'no' to any of the requirements of ICTS.

Depending on the quantum of work and exigencies, the manpower deployed shall vary as required. The contractor, after studying and understanding / gauging the requirements of ICTS, shall fix a staff pattern at his/her discretion for normal running of the system, and strictly adhere to it (which may increase during emergencies). The following are the qualification & experience pre-requisites of the staff deployed;

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Supervisor with thorough AC Knowledge	1
Sr. Technicians (Highly Skilled): Air-conditioning Technicians	1
Technicians (Skilled): Air-conditioning Technicians	4
Plumber (Highly Skilled)	1
Helpers (Unskilled) preferably with HVAC maintenance experience	4

The following are the qualification & experience pre-requisites of the to be staff deployed:

QUALIFICATIONS & EXPERIENCE:

Supervisor: Degree (Mechanical Engineering) with more than 2 year experience or Diploma (Mechanical Engineering) with more than 4 year experience or ITI (fitter/R& AC) having more than 8 years Experience, in relevant fields. Highly skilled.

Sr. Technicians: AC Technicians :Degree (Mechanical Engineering) with more than 1 year experience or Diploma (Mechanical Engineering) with more than 2 year experience or ITI (Fitter/R& AC) having more than 5 years Experience in relevant fields.. Highly skilled

Technicians: AC Technicians : ITI (Fitter/R& AC) having more than 2 years Experience In relevant fields.. Skilled

Helper: Literate with 2 or 3 years experience, preferably in HVAC in relevant fields.of maintenance (Unskilled)

***Note: All staff proposed to be deployed by the vendor shall be examined and approved for such deployment/replacement by the Engineer in Charge.**

This is the bare minimum manpower requirement, to maintain the system. *However, contractors can specify the manpower deployment pattern they propose to adopt for this work after thoroughly studying the scope of the work and clearly understanding the same by attending the PRE-BID meeting. The vendors shall have all their doubts cleared in the PRE-BID meeting. It is completely the contractor's responsibility to fix the staff deployment pattern and to fulfill the requirements of ICTS. The figure mentioned above is indicative only.*

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The contractor has to provide the following mandatory listed items of ISI standards to each deployed staff at no extra cost for workplace safety.

Table - A Uniform & PPE Kits

S No.	Item Description	Quantity
1	Uniform	2 Sets per year
2	Mechanical Safety Shoes	1 Pair Per Year
3	Transparent Safety Goggles	1 Pair Per Year
4	Chemical Proof Gloves	1 Pair Per Year
5	Mechanical hand gloves	1 pair once in 6 Months
6	Inhalation Mask	1 per Month
7	Hand Nerve Safety Cover	1 Pair Per Year
8	Reflective Jacket	1 in 6 Months
9	PVC ID Card(Computer printed)	1 per Year

It is fully the responsibility of the contractor to deploy qualified staff with hands on experience, relevant License/permits to handle electrical, Air conditioning works. They should be fully conversant with relevant Indian Standards and should follow electrical & Industrial safety norms / practices.

If any of the staff members appointed by Contractor is found to be 'not competent', he has to be replaced by a right person within a stipulated time as instructed by Electrical Engineer- In-charge, ICTS.

Contractor will ensure consistency of work and workforce, correct troubleshooting, good workmanship, follow all safety procedures and will make all necessary efforts to maintain a healthy environment and reliable services. High attrition rate of staff is not acceptable, and shall remain less than 25% per year

Any air-conditioning work / exigency of ICTS, even if it is not specifically mentioned in this document and do not incur cost in spares / material, shall be carried out by the deployed staff at no extra cost.

If any of the staff members appointed by Contractor is found to be 'not competent', he has to be replaced by a right person within a stipulated time as given by Engineer In charge, ICTS.

All the relevant documents pertaining to staff deployed, like copies of job appointment order with the contractor, address proof, photocopy of ID card etc. and any other details as sought shall be provided to ICTS, by the contractor under his responsibility for the correctness.

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Wages of the staff deployed should not be less than as that mentioned in Minimum Wage Act applicable to the respective category/experience, as on date. The ESI, PF, gratuity, bonus etc., labour law, other rules & norms requirements as found required for contracts of this nature should be met. The same details shall be submitted along with a tender bid.

In no case, the contractor or his/her employees shall claim job / employment with ICTS. No transport facility shall be provided for the contractors employees by ICTS.

It is purely the contractor's responsibility to get his staff acquainted with the site condition, operation and maintenance procedure, Equipment detail, Safety devices, Scope of work etc.

In case of delay, repetition of work, non compliance, and inadequate staff etc. fine will be imposed as per the fine clause mentioned.

Safety aspects in work places have to be followed as per relevant standards & codes. Any accident or damage to death will be treated as negligence & it is purely the responsibility of the contractor. ICTS is not responsible for any accidents or damages to death. Safety of all the staff under this contract is the sole responsibility of the contractor.

Contractor is responsible for the behavior & conduct of his workmen and hence they should be properly educated and controlled.

TESTING, MEASURING EQUIPMENT, TOOLS & TACKLES:

All the tools required for carrying out the work stipulated in this document shall be provided by the contractor at site. But, the following minimums are a must at all times.

Table B (Mandatory Tools for deployed Manpower)

All the Technicians, Sr- Technician & Supervisors should be given with the following;

1. Test lamp set each (3ph. & 1 Ph.)
2. Three Screwdrivers (one light duty(Star-Flat) & one heavy duty)
3. Combination Pliers, 500V grade
4. Live line tester, 500V
5. Knife
6. Wire stripper
7. Nose Plier
8. Toolkit Pouch

Note: All above mentioned tools and accessories should be ISI standard make.

Table- C (Mandatory Equipment Needed for work Site)

a. Following calibrated, well maintained instruments should always be available at site:

1. AC/DC tong testers/Clamp meter - 1 Nos
2. Multimeter - 1 Nos
3. Anemometer - 2 Nos
4. Digital thermometers & one RH meter - 2 Nos + 1 Nos
5. One mercury thermometer-1Nos
6. Deciblemeter-1Nos
7. Laser Thermometer-1Nos

b. Following tools should always be available at site:

1. 6-7 to 30 – 32 size 9 metric 0 double end open spanner- 2 Set
2. 6-7 to 30 – 32 size (metric) double end ring spanner- 2 Set
3. Adjustable wrenches (8 &12 inch)- 2 set
4. Allen keys inch/mm- 2 Set
5. Box Spanner 6-7 to 30 – 32 size- 1 Set
6. Star screwdriver set- 1 Nos
7. Flat Screwdriver set- 1 No
8. Heavy Duty Star & Flat Screw Drive- 2 Nos Each
9. Hexa Frame- 1 nos
10. Two Nos. of hammers (0.5 lb,1lb & 2lb)- 2 nos each
11. Impact electric drill machine with drill bits (up to 13mm drill bits for SS grade)-1 set
12. Hammering Electrical drill Machine with bit (Up to 25 mm)- 1
13. Suitable bearing puller - 2 No
14. Air Blower - 1 No
15. Wet & dry Vacuum Cleaner -1
16. Oil Gun-1
17. Grease Gun-1
18. Pipe Wrench-1 set (12-24 inch)
19. Brazing Torch-1
20. Brass Manifold Gauge set-1
21. Light weight Ladder (5ft-1Nos & 8 ft- 1 Nos)- 2
22. Flaring Tools Set-1
23. Copper Pipe Bending Tools set-1
24. Jet Spray Pump-1

Other tools & tackles, instruments etc. as and when required, shall be arranged by contractor at no extra cost. All these shall be suitably kept at site, with contractors own security arrangement. These items should always be available for work. No work shall be partially or fully stopped for want of personnel or tools or instruments. If such an event occurs, the fine will be levied.

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‘PENALTY’ CLAUSE :

The availability & functioning of the AC system is very essential and critical. Non-availability may result in many tangible & intangible losses in research work, equipment etc.

Hence all the work routine, servicing, breakdown maintenance has to be carried out in accordance with all standards and statutory norms with minimum time and maximum accuracy to ensure maximum availability. Failure in meeting the above requirements will attract the ‘fine’ clause as below.

Contractor should depute experienced personnel to carry out maintenance work both low & high side in such a way that the repetition of the problem should be avoided.

- a) **Absenteeism:** No absenteeism shall be allowed. In case of absence of any staff in the agreed staff pattern, a fine will be imposed at double the rate of wages or salary for the day the staff remains absent.
- b) **Non-Compliance of work:** In the event of failure of compliance of awarded work in stipulated time, a fine will be imposed as per double of actual expenditure incurred in attending the same by another agency.
- c) In case of repeated problems where the service personnel fail to diagnose the problem properly, a fine will be imposed at the rate of Rs.1000.00 per repeat.

ICTS / Engineer-In-Charge will be authorised to deduct the amount from the contractor bill or security deposit or initiate any other action as found suitable.

Specific Note

Contractor must visit the site, understand the site condition, type of work involved, quantum of work etc., for carrying out works, before quoting.

Quoting firms should have similar kind of experience of having maintained at least two sites with minimum 50 Nos. of AHU / FCU units. Supporting certificates in this regard to be enclosed with the technical bid.

TOTALITY: All the AC related works in ICTS are covered in this contract. ICTS is looking at a total work / trouble shooting solution through this contract, which shall be met by the contractor. Contractor shall never say ‘no’ to any of the AC related work requirements of ICTS which is found to be reasonable to be entrusted onto him by Engineer In charge.

Quoting firms, familiar with working in similar kinds of installation & proven technical & financial record & having PF, ESI registration & labour license only shall quote. Previous month paid challans to be produced every month to claim the bills.

Contractor will ensure that all routine and preventive maintenance is done in a systematic and controlled manner so as not to disturb the lab activities.

All necessary tools, tackles and necessary spares inventory are to be maintained by the Contractor to meet to avoid / reduce down time of each unit.

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Documentation – Submission of daily / monthly / quarterly / yearly reports as per ICTS formats for:

- a) Maintaining Individual maintenance checklist / Service card for all equipment / units.
- b) Preparation of schedule of work / updating of records.
- c) The performance details, observation remarks
- d) Inventory and history records.

The contractor & the staff deployed are to assist in replacement of HEPA filters, prefilters, micron filters which are procured by ICTS.

Minor assistance of staff shall be provided for any other AC related work of ICTS

The contractor should ensure that the staff deployed will come by wearing uniforms, safety shoes and displaying identity cards in person.

The deployed staff shall report to the concerned engineer and carry out work as per plan & schedule. They should submit the report of work done during the day which shall be inspected & accepted by the concerned engineer.

All works to be carried out in accordance with relevant Indian Standards.

For carrying out the above job the contractor has to make his own arrangements for men, tools, tackles, spares, materials, testing and measuring equipment, safety and protective gear/devices, transportation, etc.

If any small value items (value of the item less than 5000/- and not covered in annexures) to be supplied, the same need to be supplied at the market rate/manufacture's price list in consultation with the Engineer in charge. For all such works rate analysis shall be provided.

Any air-conditioning related work / requirement of ICTS, even if it is not specified in this document & does not incur cost in spares / materials, shall be carried out by the staff deployed at site, at no extra cost.

As the work involved is specific in nature, the contractor will ensure proper supervision at all times. In case of deficiency, a fine will be imposed.

Since we are entering into a separate Annual Maintenance Contract for specialized Critical systems like Chiller Units, breakdowns of these equipment is not covered in the scope of work. However, Operation and minor maintenance, preliminary troubleshooting, minor repairs, replacement of minor parts etc. are included in the scope of this work, but the contractor shall ensure that these works shall not implicate with the main AMC's of these equipment / systems.

Running of the system under abnormal conditions or in risk will attract fines.

Contractor will be responsible for any act of sabotage, misdeed, in-discipline, negligence on the part of the contractor or his employees. Penalty or fine or legal action, as decided by the Director, ICTS-TIFR shall be imposed on the contractor.

IMPORTANT: Cleanliness and aesthetic finish are very important in ICTS. Hence whatever kind of work whether maintenance, shifting, new work etc. area and generated dust & debris should be properly cleaned. Work finish should be neat and appealing.

All areas where work is carried out shall be cleaned and left spic & span after completion of work.

Terms & Conditions

1. **PAYMENT TERMS:** After satisfactory completion of work on a monthly basis.
2. Contractor shall take necessary precautions to ensure safety of his crew, materials, equipment, tools & equipment, during the period of contract in ICTS.
3. ICTS will not be responsible & liable for any accident, damage, loss to his men & materials
4. Any act of commission or omission which jeopardizes the safety / security of the centre, the contractor will be fined by the centre and any expenses whatsoever incurred towards the work that need to be discharged by the centre on account of this, shall be suitably recovered from the contractor, as deemed fit and as decided by ICTS.
5. ICTS reserves the right to not to consider the lowest bid.
6. The contract is initially for a period of 3 months. Based on the satisfactory performance, it may be extended for another 9 months. ICTS may extend the contract for a period of one more year at the same cost, terms & conditions.
7. Salary to the employed staff to be paid before 7th of every month, irrespective of the issues related to pending bills, statutory deductions etc.
8. Monthly bills to be submitted by 10th of every month.
9. Statutory deduction as per the wages act to be paid & Challans, Receipts to be submitted for reimbursement of the same.

Annexure – B

GENERAL TERMS AND CONDITIONS OF CONTRACT

Note:

1. The employees/ workers employed shall be trained and experienced to handle the services as per the Scope of work mentioned in the Annexure 'A'. If such experienced hands are not available, either because the service is extremely specialized and only in house training is possible, at least a certain percentage of employees/workers shall be experienced / trained who shall be able to impart training / expertise to others.
2. The Contractor shall provide the name and details of his personnel. A list of all the names shall be submitted at the beginning of the contract, along with a copy of each appointment order and whenever there is a change. No personnel will be changed unless ICTS has asked for it or without advance approval of ICTS.
3. The Contractor shall ensure that no contract employees nor anyone from his side use ICTS transport to come to the work spot or return. The Contractor shall use emergency services like medical help and emergency vehicles of ICTS in the event of any accident or emergency to his employees, though all responsibility for such accidents and any injury / death and or loss / damage will fully rest with the Contractor.
4. At all points of time, there must be a minimum of 90% workers attendance per day. In any case there shall be 100% daily attendance to be ensured. Any absence or shortage beyond this may be managed by giving over time; shortage or absenteeism beyond this percentage will be penalized including termination of the contract. Payment will however be restricted to the actual number of people as physically provided in each month.
5. The Tenderer must indicate the deviation in Annexure – C, with reasons thereof and only if such deviation (s) is/are part of the work order issued by ICTS, will the deviation (s) become part of the agreement.
6. The rates quoted shall be valid for 2 years from the date of Work Order followed by joint agreement.

The Contractor shall supply as per Table-A (Uniform & PPE Kits), Table-B (Mandatory Tools for deployed Manpower), Table-C (Mandatory Equipment for work Site) within a month of award of contract and a fresh set of Uniform & PPE Kits to be issued if the contract is renewed beyond one year by the 13th month on renewal for 2nd year and 25th month on renewal of 3rd year .

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ANNEXURE – C

SCHEDULE OF DEVIATIONS

Sl. No.	Requirement of the Centre	Sl. No. As per schedule	Deviation Proposed.

Name and Address of the Tenderer

Signature of the Tenderer

ANNEXURE – D

STATUTORY OBLIGATIONS:

The Contractor will strictly observe and follow the following statutory regulations/acts as well as any new rules / changes as applicable, during the period of this contract. He shall be solely responsible for failure to fulfill these statutory obligations. The successful bidder shall indemnify / is deemed to have indemnified ICTS against all such liabilities which are likely to arise out of the Contractor's failure to fulfill such statutory obligations. All documents, registers pertaining to this contract shall be maintained meticulously and shall be provided periodically for inspection. The salient features of the statutory regulations/acts are listed below and it is the responsibility of the selected Contractor that these regulations/acts and their amendments from time to time are strictly adhered to in totality. Even if the Contractor appointed for this contract may be exempt from any or all of the following employee-friendly legislation, it is incumbent on all Contractors to cover all their employees / workmen covered by this tender with these cover / benefits.

1. The Contract Labour (Abolition & Regulations Act, 1970):

The Contractor shall obtain and produce a license from the Labour Commissioner's office. They will maintain and submit to us for inspection on demand such records as Muster Roll, Payment Register, Advance Register, Fines Register, etc.

2. Payment of Wages Act:

It is necessary that the Contractor's employees are paid their wages payable for one month of working by 7th of the succeeding calendar month.

The Contractor will receive payment from us only after you have disbursed in full the wages payable to his employees. The wages shall be distributed in our premises and one of the representatives from the Centre will be nominated to witness the disbursement of the wages, and sign the disbursement report.

3. Provident Fund Act:

The contracts shall cover their employees under the Provident Fund Scheme. The premia shall be paid as per existing rule partly deducted from their employees and the balance shall be from contribution from the successful bidder, proof of such payment shall be submitted (including employee's and employer's contribution) every month as provided under Section 12 of the Act. The PF contribution of the Employer will be 13.61% on (Basic + VDA), but restricted to Rs.6,500/- (Basic + VDA) per month.

4. Employees State Insurance Scheme:

The contract shall cover all your employees under Employees State Insurance Scheme as provided for under the relevant rules and shall remit the premium without default. In case the ESI coverage is not possible, they have to be covered under equivalent and suitable insurance.

5. Minimum Wages Act:

The contract shall pay well above the minimum wages to each of their employees. Such rates shall be the rate implied or agreed between ICTS and the Contractor.

6. Workmen's Compensation (ELI):

All employees/ workers shall be covered for injury / depth under Workmen's Compensation Act 1923 by an Employer's Liability Insurance in the name of the Contractor to cover all employed by the Contractor in ICTS. ELI premia is of the order of 3% on (salary + DA) subject to a maximum salary of Rs.4,000.00

7. Payment of Bonus Act, 1965:

Bonus shall be paid to all employees who have worked for a minimum of 30 days in the relevant accounting year. Bonus will be limited to 8.33% of total salary earned in the relevant accounting year or Rs. 6,999/- whichever is less. Bonus shall be paid by the Contractor to his contract employees monthly or once in a year before Dussehra/Diwali.

8. Karnataka Labour Welfare Fund Act 1965.

9. General:

Contribution towards PF, ESI & ELI shall be paid to the Contractor only in succeeding months on submission of proof of having paid the premium / subscription. Premia towards ELI shall be paid to the Contractor on a pro-rata basis every month on submission of original policy and receipt. All premia/ contribution / subscription collected towards such benefits shall be/shall have been promptly paid towards the purpose for which it is collected. If for any reason this has not been possible, the Contractor shall promptly inform ICTS, which will suggest ways and means to put such unpaid amounts to proper use.

10. Karnataka Shops and Establishment Act 1961: Relevant for contract employee's Earned Leave

Miscellaneous

ICTS will not be responsible for death, accident or injury to the Contractor's employees engaged by him, which may arise in the course of their duty at our premises, nor shall we be responsible and be liable to pay damages or compensation to such persons or to third parties. The Contractor shall at all times indemnify and keep ICTS indemnified against all claims which may be under the Workmen's Compensation Act, 1923, or any statutory modifications thereof or otherwise for or in respect of any damages or compensation payable in consequence of any accident or injury sustained by any workman or other person/ person at the Centre or premises, building, equipment etc. is attributable to the Contractor or his workmen, such damages shall be made good by the Contractor or his workmen, such damages shall be made good by the Contractor.

IN WITNESS WHEREOF the parties hereto have set and subscribed their respective signatures and seal to the writing herein above on the date, month and year mentioned herein.

“CONTRACTOR”

ANNEXURE – E

**International Centre for Theoretical Sciences
Tata Institute of Fundamental Research
Engineering Services & Maintenance**

UNDERTAKING BY THE TENDERER

1. I /we intend to carry out the subject work by resorting to engage..... Nos. of work force in a month.

Details of Operations	No of Persons Proposed
a. Supervisor	
b. Senior AC Technicians (Highly Skilled)	
c. AC Technicians (Skilled)	
d . Plumber (Highly Skilled)	
e. Helpers with experience in HVAC (Unskilled)	
TOTAL WORKFORCE	

2. I/We undertake to pay the wages equal to or more than the minimum wages as applicable (Wages fixed by Ministry of Labour, Government of India (or) Government of Karnataka (or) Department recommended wages whichever is higher)
3. I/We undertake to contribute for workers towards PF,ESI, and ELI from the employer's side as fixed by the relevant authorities.
4. I/We undertake to pay the Bonus at the rate of 8.33 % of the total wages or Rs. 6,999/- whichever is less.
5. I/We are fully responsible for the safety and security of the men, material, tools & equipment used in the scope of the contract.

Name and Address of the Tenderer

Signature of the Tenderer

Annexure - F

Bid Securing Declaration

(to be submitted on company's letter head)

I/We the undersigned hereby declare that if we withdraw or modify the bids during the period of its validity, or if we are awarded the contract and fail to sign the contract, or to submit a performance security before the deadline defined in the request for bid document or fail to execute the contract, we will be suspended for the period of time specified in the request for bids document from being eligible to submit bids for contracts with the entity that invited the bids.

Name and Signature of Authorized Signatory

Company Seal

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Annexure – G
PRICE BID

Schedule 1

TABLE A

Sl No	Statutory Benefits	% to be collected from employee	% to be collected by the Contractor	Total %
1	PF	As per the statutory law in force		
2	ESI	As per the statutory law in force		
3	Bonus	-	8.33*	8.33*
4	ELI (Workman's Comp)	Optional		

* The amount of bonus payable is 8.33% subject to maximum of Rs. 6,999/- per annum (the ceiling for calculation purpose from the salary or Wages of Rs. 21,000/- per month as per Section 2(13) of Bonus Act, 1965.

Total bid amount per month inclusive of all taxes and duties as per Scope of Work and other details as contained in the tender document (please furnish in table below based on scope of work as shown in Annexure-A):

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TABLE B

Sl No	Description	Supervisor (Highly skilled)	Sr. Technicians (Highly skilled) AC Tech/ Plumber	Technicians (Skilled) AC Tech / Elec/ Plumber	Helpers (Unskilled)
1	Total Salary per month (Basic +VDA)	(853*26) 22178	(853*26) 22178	(784*26) 20384	(645*26) 16770
2	Accommodation allowance (Max 7% on Sl No. 1)				
3	Leave Salary (Max 6%) and ½ reliever charges				
4	Uniform, safety shoes, ID cards, washing etc.	700	700	700	700
5	Any other Allowances (Mandatory for Supervisor, optional for others)				
6	Sub Total (1+2+3+4+5)				
7	Consolidated Monthly Service/ Admin Charges/ Contractor's Margin (to be quoted as percentage of Sl No. 6) (Pl mention both as % and amount)	%	%	%	%
8	Total direct expenditure per month (6+7)				
	Reimbursable Expenditure				
9	PF (13% on Sl No. 1)				
10	Bonus (8.33% on Basic or 6,999/- whichever less)	583	583	583	583
11	ESI (3.15% on Sl No. 1)				

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12	ELI (Workmen compensation) (3% on SI No. 1 - Optional)				
13	Total Reimbursable expenditure (9 to 12)				
14	Total Expenditure (8 + 13)				
15	GST @ 18% on SI no. 14				
16	Expenditure per person/ per month (14 + 15)				
17	No.of employees proposed				
18	Total expenditure per month (16*17)				
19	Total expenditure per year = (12 months * Exp as per 18)				
		A	B	C	D
20	Total p.a (A+B+C+D)	Rs.			
	In words	Rupees			

- Specify designation and experience in the field with level for each column.
 - Please specify and attach separate sheets, if necessary.
 - All efforts have been made to indicate our requirement. However it is the responsibility of the contractor to fulfil the scope of work as per our requirement without any extra cost. Therefore adequate care must be taken before bidding to ensure that all items are covered.
 - In order that the bidders have a clear idea, it is important that prospective contractors visit ICTS to see the area and work and have discussions before submitting the bids.
- All amounts in Table-B to be indicated in figures. In the event of any discrepancy/erasures only the lowest figure will be considered.

(SIGNATURE OF THE CONTRACTOR)

(DATE)

(COMPANY SEAL)

Schedule 2

Commercial Bid for Consumable items/ Tools/ Equipment and Services

(Optional but Mandatory to quote)

All rates to be filled up by the Agency

(L1 bidder shall match the lowest price quoted by other bidders for items in Schedule 2)

Sl. No.	Tools	Size	Rate
1	Double open end Spanner set	6 to 34	
2	Ring Spanner set	6 to 34	
3	Box Spanner set	6 to 34	
4	Combination Plier	Nos	
5	Nose plier	Nos	
6	Circlip type nose plier	Nos	
7	Tongue-and-groove pliers	Nos	
8	Locking pliers	Nos	
9	Wire striper	Nos	
10	Tin cutter	Nos	
11	Crimper	Nos	
12	Screw driver	Nos	
13	Heavy duty flat screwdriver	Nos	
14	Heavy duty star screwdriver	Nos	
15	Heavy Screwdriver set	Nos	
16	Normal screw driver set	Nos	
17	Flat File	flat	
18	Round File	Round	
19	Triangular File	Triangle	
20	T – Spanner	Nos	
21	Hexa frame with blades	150mm	
22	Hexa frame with blades	900mm	
23	Oil Gun	Nos	
24	Grease gun	Nos	
25	Pipe wrench	12"	
26	Pipe wrench	14"	
27	Pipe wrench	18"	
28	Pipe wrench	24"	
29	Adjustable Spanner	8"	
30	Adjustable Spanner	10"	
31	Adjustable Spanner	12"	
32	Hammer set	Nos	

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33	Chisels set	Nos	
34	Allen key set	in mm size	
35	Allen key set	in inch size	
36	Angular Allen key set	Nos	
37	Flaring, cutting & swaging tool box	Nos	
38	copper tube spring bender set	Nos	
39	Brazing torch single gun	Nos	
40	Brazing torch double gun	Nos	
41	Brass Manifold gauge set	Nos	
42	Puller	Nos	
43	Puller	Nos	
44	Puller	Nos	
45	Air Blower	Nos	
46	Dry & wet vacuum cleaner	Nos	
47	Decibel meter	Nos	
48	Twin step ladder - 5 ft.	Nos	
49	Twin step ladder - 8 ft.	Nos	
50	Twin step ladder - 12 ft.	Nos	
51	Front step ladder - 5 ft	Nos	
52	Front step ladder - 8 ft	Nos	
53	Front step ladder - 12 ft	Nos	
54	Stool - 5 ft.	Nos	
55	Stool - 8 ft.	Nos	
56	Spirit level	Nos	
57	Digital Vernier calliper	Nos	
58	Digital Micrometer	Nos	
59	Metal Cutting wheel	Nos	
60	Concrete cutting wheel	Nos	
61	Wood cutting wheel	Nos	
62	Impact Drill machine with drill bit set (MS,SS)	Nos	
63	Heavy duty drill machine	Nos	
64	Grinding & cutting machine	Nos	
65	Infrared Thermometer	Nos	
66	Whole saw cutter	Nos	
67	Jet spray machine	Nos	
68	Shaft Alignment Tools	Nos	
69	Psychrometer	Nos	
70	Tachometer Contact/Non-contact	Nos	
71	Refrigerant leak detector	Nos	
72	Vacuum pump	Nos	
73	Refrigerant scale	Nos	

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74	Gas pressure controllers/regulator for high pressure	Nos	
75	Recovery unit	Nos	
76	Welding Machine with MS/SS nozzle set	Nos	
77	Laser distance meter	Nos	
78	Hygrometer	Nos	
79	Thermal imaging camera	Nos	
80	Hydraulic trolley	Nos	
81	Anemometer	Nos	
82	Puff generator	Nos	
83	Silicone gun	Nos	
84	Hand seamer	Nos	
85	mallet hammer	Nos	
86	Copper tube pinching machine	Nos	
87	Digital weighing machine	Nos	
88	Air compressor	Nos	
89	Water Spray gun	Nos	
90	Chain pulley	Nos	
91	Laser self leveling meter	Nos	
92	Multimeter	Nos	
93	Clamp meter AC/DC	Nos	
94	Continuity tester	Nos	
95	Bench vice	Nos	
96	C Clamp	Nos	
97	Universal socket	Nos	
98	Non contact voltage detector	Nos	
99	Heat gun	Nos	
100	Mechanical tools table	Nos	
101	Hammering & Chipping machine	Nos	
102	Jug with measurement mark upto 2 ltr.	Nos	
103	Ratchet box – small	Nos	
104	Ratchet box – big	Nos	
105	Tools carrying box	Nos	

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Sl. No.	Equipment	Make	Rate
1	Sump oil heater		
2	Thermal expansion valve		
3	V.P.D		
4	E.V.D		
5	V.F.D		
6	Flow switch		
7	Water pressure gauge meter		
8	Water temperature gauge meter		
9	Pump coupling		
10	Pump Nose pipe		
11	Pump Shaft		
12	Pump Mechanical seal		
13	Paper gasket		
14	Ball bearing for pump		
15	Pump stud nut-bolts		
16	Pump stuffing box		
17	Pump spare parts		
18	Ball valve		
19	Actuator		
20	Expansion valve of Cold store outdoor		
21	Split A/C Display		
22	Split A/C filters		

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23	Split A/C Vane swing motor		
24	Cassette A/C drain motor		
25	Cold Storage Digital controller display		
26	A.H.U Door locker		
27	Duct Louvers (Rectangular/ROUND)		
28	Cooling tower fins		
29	Fresh Air Filters		
30	Drier for cold storage outdoor units		
31	Cooling tower spare parts:- fins, mesh, fan, v belt, gear box, bearing, nozzle, oil can with pipe		
32	Damper		

Sl. No.	Sensors	Make	Rate
1	Water temperature sensor in condenser pipes		
2	Water temperature sensor in evaporator pipes		
3	Refrigerant temperature sensor for Discharge line in chiller		
4	Refrigerant temperature sensor for liquid line in chiller		
5	Refrigerant temperature sensor for Evaporator		
6	Refrigerant temperature sensor for Condenser		
7	Actuator		
8	CO2 gas detector sensor in AHU cabin		
9	Water temperature sensor in Water Cooled Split A/C units		
10	Room temperature sensor in Veg & non veg cold store		
11	AHU Humidity sensor		
12	Cooling tower water sensor		

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Sl. No.	Repair & Services	Unit	Rate per Unit
1	Gate valve service	Nos	
2	Globe valve service	Nos	
3	Butterfly valve service	Nos	
4	Motorised valve service	Nos	
5	Gauge meter calibration	Nos	
6	Condenser Descaling service	Nos	
7	Primary Pump service	Nos	
8	Secondary Pump service	Nos	
9	Condenser Pump service	Nos	
10	Cooling Tower Repair & service	Nos	
11	Exhaust & Fresh Air Duct cleaning with motor, blower repair & service	Sqft	
12	Split A/C Indoor & Outdoor Repair with PCB and Accessories	Nos	
13	Non returnable valve & Flexible connectors Repair	Nos	
14	Cold storage cooling fans indoor and outdoor repair	Nos	
15	Cold storage doors & insulated wall repairing (replacement / installation) with dismantling	Nos	
16	MS pipe for plant water line(replacement/re-installation)	Mtr	
17	Motor rewinding up to 5 Hp	Nos	
18	Motor rewinding 5.1 to 10 Hp	Nos	
19	Motor rewinding 10.1 to 15 Hp	Nos	
20	Motor rewinding 15.1 to 20 Hp	Nos	
21	Motor rewinding 20.1to 30 Hp	Nos	
22	Enamel painting for MS Pipe and Supporting Structure	sqm	
23	Chilled Water line insulation painting	sqm	
24	Copper piping with insulation Replacement /Installation	Mtr	
25	Insulation of Air duct	sqm	
26	Chiller evaporator insulation	Nos	
27	Insulated MS Pipe Replacement/Installation	Mtr	
28	Non Comprehensive maintenance of 120 TR Chiller By OEM	Nos	
29	Chiller Compressor Oil replacement with oil filter	Nos	

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Sl. no.	Consumable Material	Rating/Size	Unit	Make	Rate
1	Insulation Tape (Red, Black, Blue, Yellow, Green)	1 inch	Nos	3M or Equivalent	
2	Brown Tape	2 inch	Nos	3M or Equivalent	
3	White Tape	2 inch	Nos	3M or Equivalent	
4	Masking tape	2 inch	Nos	3M or Equivalent	
5	Adhesive A/C Insulation tape	2 inch	Nos	3M or Equivalent	
6	Transparent Tape	2 inch	Nos	3M or Equivalent	
7	White waterproof Insulation Tape	2 inch	Nos	3M or Equivalent	
8	Black Plastic Tape	2 inch	Nos	3M or Equivalent	
9	Black Waterproof Tape	2 inch	Nos	3M or Equivalent	
10	Copper pipe size with outside diameter	7/8"	Kg	ISI Standard	
11	Copper pipe size with outside diameter	5/8"	Kg	ISI Standard	
12	Copper pipe size with outside diameter	3/4"	Kg	ISI Standard	
13	Copper pipe size with outside diameter	1/2"	Kg	ISI Standard	
14	Copper pipe size with outside diameter	3/8"	Kg	ISI Standard	
15	Copper pipe size with outside diameter	1/4"	Kg	ISI Standard	
16	Elastomeric Insulation for copper pipe, size with outside diameter	7/8"	Nos (2 Meter Each)	ISI Standard	
17	Elastomeric Insulation for copper pipe, size with outside diameter	5/8"	Nos (2Meter Each)	ISI Standard	
18	Elastomeric Insulation for copper pipe, size with outside diameter	3/4"	Nos (2Meter Each)	ISI Standard	
19	Elastomeric Insulation for copper pipe, size with outside diameter	1/2"	Nos (2Meter Each)	ISI Standard	
20	Elastomeric Insulation for copper pipe, size with outside diameter	3/8"	Nos (2Meter Each)	ISI Standard	

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21	Elastomeric Insulation for copper pipe, size with outside diameter	1/4"	Nos (2Meter Each)	ISI Standard	
22	4C X 4 sqmm Copper flexible cable	1100V	Meter	Polycab or equivalent	
23	1C X 16 sqmm. flexible copper cable	1100V	Meter	Polycab or equivalent	
24	1C X 25 sqmm. flexible copper cable	1100V	Meter	Polycab or equivalent	
25	3C X 2.5 sqmm. flexible copper cable	1100V	Meter	Polycab or equivalent	
26	4C X 2.5 sqmm. flexible copper cable	1100V	Meter	Polycab or equivalent	
27	3CX 4 sqmm flexible copper cable	1100V	Meter	Polycab or equivalent	
28	Metal Clamp	25 sqmm	Nos	ISI Standard	
29	Metal Clamp	40 sqmm	Nos	ISI Standard	
30	R-32 Refrigerant		Kg	ISI Standard	
31	R-22 Refrigerant		Kg	ISI Standard	
32	R-410 A Refrigerant		Kg	ISI Standard	
33	R-134 A Refrigerant		Kg	ISI Standard	
34	R-404 A Refrigerant		Kg	ISI Standard	
35	Nitrogen gas		Kg	ISI Standard	
36	Brass Fairing Nuts		Nos	ISI Standard	
37	Brazing Rod brass/Cross		Nos	ISI Standard	
38	Welding Rod MS/SS/Cast iron		Nos	ISI Standard	
39	Puff Refill		Nos	ISI Standard	
40	Brazing gas(Butane) can		Nos	ISI Standard	
41	PVC Pipe - 25 mm dia.		Meter	Astral or Equivalent	
42	PVC Pipe - 50 mm dia		Meter	Astral or Equivalent	
43	PVC Pipe - 110 mm dia		Meter	Astral or Equivalent	
44	CPVC Pipe - 25 mm dia		Meter	Astral or Equivalent	
45	CPVC Pipe - 50 mm dia		Meter	Astral or Equivalent	
46	CPVC Pipe - 110 mm dia		Meter	Astral or Equivalent	
47	UPVC Pipe - 25 mm dia		Meter	Astral or Equivalent	
48	UPVC Pipe - 50 mm dia		Meter	Astral or Equivalent	
49	UPVC Pipe - 110 mm dia		Meter	Astral or Equivalent	
50	G I Wire	8 gauge	Meter	ISI Standard	
51	NC Thinner		Ltr	ISI Standard	
52	Lip washer		Nos	ISI Standard	
53	Gland dori		Meter/Kg	ISI Standard	

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54	Plastic flexible pipe	25mm	Meter	ISI Standard	
55	Fire extinguisher Co2	4-5 Kg	Nos	ISI Standard	
56	Fire extinguisher DCP	4-5 Kg	Nos	ISI Standard	
57	Fire extinguisher Foam	4-5 Kg	Nos	ISI Standard	
58	HDPE Pipe	40 mm	Meter	ISI Standard	
59	Metal Sealant Paste		Kg	ISI Standard	
60	Instant Glue	3 Gm tube	Nos	Feviquick or equivalent	
61	PVC Gum		Kg	ISI Standard	
62	CPVC Gum		Kg	ISI Standard	
63	UPVC Gum		Kg	ISI Standard	
64	WD-40 spray		Big Can	ISI Standard	
65	CRC 2-26 spray		Big Can	ISI Standard	
66	Wire tie all size - 140x3.6 mm	100 Nos/Package	Pkt	ISI Standard	
67	Wire tie all size - 200x3.6 mm	100 Nos/Package	Pkt	ISI Standard	
68	Wire tie all size - 300x4.8 mm	100 Nos/Package	Pkt	ISI Standard	
69	Wire tie all size - 430x4.8 mm	100 Nos/Package	Pkt	ISI Standard	
70	Lubricant Oil - Servo System-68		Ltr	Servo or equivalent	
71	Grease - Longlife premium		Kg	Servo or equivalent	
72	Araldite Quick		Kg	ISI Standard	
73	Araldite Normal		Kg	ISI Standard	
74	M-seal		Kg	ISI Standard	
75	Thread Sealant paste		Kg	ISI Standard	
76	Emery paper - P220		Meter	ISI Standard	
77	Emery paper - P100		Meter	ISI Standard	
78	Emery paper - P60		Meter	ISI Standard	
79	Plug top		Meter	ISI Standard	
80	Industrial plug top		Nos	Anchor/GM or Equivalent	
81	Caution tape		Meter	ISI Standard	
82	Caution sticker radium based		Nos	ISI Standard	
83	Teflon		Nos	ISI Standard	
84	PVC Elbow - 25 mm dia		Nos	Astral or Equivalent	
85	PVC Elbow - 50 mm dia		Nos	Astral or Equivalent	
86	PVC Elbow - 110 mm dia		Nos	Astral or Equivalent	
87	CPVC Elbow - 25 mm dia		Nos	Astral or Equivalent	

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88	CPVC Elbow - 50 mm dia		Nos	Astral or Equivalent	
89	CPVC Elbow - 110 mm dia		Nos	Astral or Equivalent	
90	UPVC Elbow - 25 mm dia		Nos	Astral or Equivalent	
91	UPVC Elbow - 50 mm dia		Nos	Astral or Equivalent	
92	UPVC Elbow - 110 mm dia		Nos	Astral or Equivalent	
93	MS Elbow - 25 mm dia		Nos	Astral or Equivalent	
94	MS Elbow - 50 mm dia		Nos	Astral or Equivalent	
95	MS Elbow - 110 mm dia		Nos	Astral or Equivalent	
96	CPVC "T" - 25 mm dia		Nos	Astral or Equivalent	
97	CPVC "T" - 25x50 mm dia		Nos	Astral or Equivalent	
98	CPVC "T" - 25x100 mm dia		Nos	Astral or Equivalent	
99	CPVC "T" - 50x100 mm dia		Nos	Astral or Equivalent	
100	CPVC "T" - 50 mm dia		Nos	Astral or Equivalent	
101	CPVC "T" - 100 mm dia		Nos	Astral or Equivalent	
102	MS "T" - 100 mm dia		Nos	Astral or Equivalent	
103	MS "T" - 50 mm dia		Nos	Astral or Equivalent	
104	MS "T" - 25 mm dia		Nos	Astral or Equivalent	
105	MS "T" - 25X50 mm dia		Nos	Astral or Equivalent	
106	MS "T" - 50X100 mm dia		Nos	Astral or Equivalent	
107	CPVC "FT" - 50 mm dia		Nos	Astral or Equivalent	
108	CPVC "MT" - 20X25 mm dia		Nos	Astral or Equivalent	
109	PVC Collar - 25 mm dia		Nos	Astral or Equivalent	
110	PVC Collar - 50 mm dia		Nos	Astral or Equivalent	
111	PVC Collar - 110 mm dia		Nos	Astral or Equivalent	
112	CPVC Collar - 25 mm dia		Nos	Astral or Equivalent	
113	CPVC Collar - 50 mm dia		Nos	Astral or Equivalent	
114	CPVC Collar - 110 mm dia		Nos	Astral or Equivalent	
115	UPVC Collar - 25 mm dia		Nos	Astral or Equivalent	
116	UPVC Collar - 50 mm dia		Nos	Astral or Equivalent	
117	UPVC Collar - 110 mm dia		Nos	Astral or Equivalent	
118	MS Collar - 25 mm dia		Nos	ISI Standard	
119	MS Collar - 50 mm dia		Nos	ISI Standard	
120	MS Collar - 110 mm dia		Nos	ISI Standard	
121	Brass collar - 12.7 mm dia		Nos	ISI Standard	
122	Brass collar - 25 mm dia		Nos	ISI Standard	
123	PVC Dummy - 25 mm dia		Nos	ISI Standard	
124	PVC Dummy - 50 mm dia		Nos	ISI Standard	
125	PVC Dummy - 110 mm dia		Nos	ISI Standard	
126	CPVC Dummy - 25 mm dia		Nos	ISI Standard	
127	CPVC Dummy - 50 mm dia		Nos	ISI Standard	

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128	CPVC Dummy - 110 mm dia		Nos	ISI Standard	
129	MS Dummy - 25 mm dia		Nos	ISI Standard	
130	MS Dummy - 50 mm dia		Nos	ISI Standard	
131	MS Dummy - 110 mm dia		Nos	ISI Standard	
132	Brass Dummy - 25 mm dia		Nos	ISI Standard	
133	Brass Dummy - 50 mm dia		Nos	ISI Standard	
134	Brass Dummy - 20 mm dia		Nos	ISI Standard	
135	Brass Dummy 12.7 mm dia		Nos	ISI Standard	
136	Brass pipe fitting - 12.7 mm dia		Nos	ISI Standard	
137	Brass pipe fitting - 25 mm dia		Nos	ISI Standard	
138	Copper pipe connectors - 7/8 "		Nos	ISI Standard	
139	Copper pipe connectors - 5/8 "		Nos	ISI Standard	
140	Copper pipe connectors - 3/4 "		Nos	ISI Standard	
141	Copper pipe connectors - 1/2 "		Nos	ISI Standard	
142	Copper pipe connectors - 1/4 "		Nos	ISI Standard	
143	Copper pipe connectors - 3/8 "		Nos	ISI Standard	
144	Flair connector - 7/8"x 3/4"		Nos	ISI Standard	
145	CPVC Float valve - 20 mm dia		Nos	ISI Standard	
146	CPVC Float valve - 25 mm dia		Nos	ISI Standard	
147	Brass Float valve - 25 mm dia		Nos	ISI Standard	
148	Brass Float valve - 20 mm dia		Nos	ISI Standard	
149	CPVC Ball valve - 25 mm dia		Nos	ISI Standard	
150	CPVC Ball valve - 50 mm dia		Nos	ISI Standard	
151	MS/SS Ball valve - 25 mm dia		Nos	ISI Standard	
152	MS/SS Ball valve - 50 mm dia		Nos	ISI Standard	
153	MS/SS Ball valve - 20 mm dia		Nos	ISI Standard	
154	MS/SS Ball valve - 1/2 " dia		Nos	ISI Standard	
155	Brass Ball valve - 50 mm dia		Nos	ISI Standard	
156	Brass Ball valve - 25 mm dia		Nos	ISI Standard	
157	Brass Ball valve -12.7 mm dia		Nos	ISI Standard	
158	Cotton waste Baniyan Type		Nos	ISI Standard	
159	Paint brush		Nos	ISI Standard	
160	Hand brush		Nos	ISI Standard	
161	Metal brush		Nos	ISI Standard	
162	Acid for Strainer Cleaning		Ltr	ISI Standard	
163	Bucket		Nos	ISI Standard	
164	Chemical for Condenser Descaling		Ltr	ISI Standard	
165	Coil cleaner liquid for air conditioner units		Ltr	ISI Standard	
166	AHU cleaning chemical		Ltr	ISI Standard	

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167	Cooling tower cleaning chemical		Ltr	ISI Standard	
168	Gatta		Nos	ISI Standard	
169	Screw - 3/4 "		Nos	ISI Standard	
170	Screw - 1 "		Nos	ISI Standard	
171	Screw - 1-1/4 "		Nos	ISI Standard	
172	Screw - 1-1/2 "		Nos	ISI Standard	
173	Screw - 2 "		Nos	ISI Standard	
174	Screw - 2-1/2 "		Nos	ISI Standard	
175	Screw - 3 "		Nos	ISI Standard	
176	Screw (Ss countersunk head)		Nos	ISI Standard	
177	Screw (Hp self drilling) - 5.5x55 mm		Nos	ISI Standard	
178	Screw - Metric		Nos	ISI Standard	
179	Screw - FKE hex socket head		Nos	ISI Standard	
180	Machine screw - 1 "		Nos	ISI Standard	
181	Machine screw - 1-1/2 "		Nos	ISI Standard	
182	Nut-Bolt (Stud)		Nos	ISI Standard	
183	G I Nut-Bolt (16 mm to 300 mm)		Nos	ISI Standard	
184	Hex Nut-Bolt (16 mm to 300 mm)		Nos	ISI Standard	
185	Eye bolt (1 " to 6 ")		Nos	ISI Standard	
186	Hook Bolt (1 " to 6 ")		Nos	ISI Standard	
187	U Bolt (1 " to 6 ")		Nos	ISI Standard	
188	Wing Bolt		Nos	ISI Standard	
189	Metal Washer (Inner dia - 2.2 mm. 2.7 mm, 3.2 mm, 3.7 mm, 4.3 mm, 5.3 mm, 6.4 mm, 7.4 mm, 8.4 mm, 10.5 mm, 12 mm, 13 mm, 15 mm, 17 mm, 19 mm, 21 mm, 23 mm, 25 mm, 28 mm)		Kg	ISI Standard	
190	Rubber Washer (Inner dia - 2.2 mm. 2.7 mm, 3.2 mm, 3.7 mm, 4.3 mm, 5.3 mm, 6.4 mm, 7.4 mm, 8.4 mm, 10.5 mm, 12 mm, 13 mm, 15 mm, 17 mm, 19 mm, 21 mm)		Kg	ISI Standard	
191	Screw Anchor Fastener bolt - 8 mm		Nos	ISI Standard	
192	Screw Anchor Fastener bolt - 12 mm		Nos	ISI Standard	
193	Screw Anchor Fastener bolt - 16 mm		Nos	ISI Standard	
194	Screw Anchor Fastener bolt - 20 mm		Nos	ISI Standard	
195	Threaded rod - 5 mm dia		Nos	ISI Standard	
196	AC remote cell - AAA		Nos	ISI Standard	
197	Knife Blade - 18 mm		Nos	ISI Standard	

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198	Allen screw - M2		Nos	ISI Standard	
199	Allen screw - M2.5		Nos	ISI Standard	
200	Allen screw - M3		Nos	ISI Standard	
201	Allen screw - M4		Nos	ISI Standard	
202	Allen screw - M5		Nos	ISI Standard	
203	Allen screw - M6		Nos	ISI Standard	
204	Allen screw - M7		Nos	ISI Standard	
205	Allen screw - M8		Nos	ISI Standard	
206	Steel Nails - 2 "		Nos	ISI Standard	
207	Steel Nails - 3 "		Nos	ISI Standard	
208	Iron Nails - 2 "		Nos	ISI Standard	
209	Iron Nails- 3 "		Nos	ISI Standard	
210	Capacitors - 0.5µf		Nos	ISI Standard	
211	Capacitors - 1 µf		Nos	ISI Standard	
212	Capacitors - 1.25 µf		Nos	ISI Standard	
213	Capacitors - 1.5 µf		Nos	ISI Standard	
214	Capacitors - 2 µf		Nos	ISI Standard	
215	Capacitors - 2.25 µf		Nos	ISI Standard	
216	Capacitors - 2.5 µf		Nos	ISI Standard	
217	Tarpol		Nos	ISI Standard	
218	Motor v belts A-54		Nos	ISI Standard	
219	Motor v belts A-63		Nos	ISI Standard	
220	Motor v belts A-65		Nos	ISI Standard	
221	Motor v belts B-72		Nos	ISI Standard	
222	Motor v belts A-1120		Nos	ISI Standard	
223	Motor v belts A-900		Nos	ISI Standard	
224	Motor v belts B-1250		Nos	ISI Standard	
225	Motor v belts B-1320		Nos	ISI Standard	
226	Motor v belts B-128		Nos	ISI Standard	
227	Motor Coupling rubber bush - SW 150		Nos	ISI Standard	
228	Motor Coupling rubber bush - SW 110		Nos	ISI Standard	
229	Motor Coupling rubber bush - L 110		Nos	ISI Standard	
230	Motor Coupling rubber bush - L 150		Nos	ISI Standard	
231	Gland packing rope - 8 mm		Meter	ISI Standard	
232	Gland packing rope - 10 mm		Meter	ISI Standard	
233	Gland packing rope - 12.5 mm		Meter	ISI Standard	
234	Gland packing rope - 16 mm		Meter	ISI Standard	
235	Gland packing rope - 19 mm		Meter	ISI Standard	

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236	Rubber Gasket		Meter	ISI Standard	
237	Rubber pad		Meter	ISI Standard	
238	Caustic soda		Kg	ISI Standard	
239	Electric torch		Nos	ISI Standard	
240	Relief valve for water pipe line		Nos	ISI Standard	
241	Spray paint		Nos	ISI Standard	
242	High wall A/C unit Motors		Nos	ISI Standard	
243	High wall A/C unit Blowers		Nos	ISI Standard	
244	Actuator for High wall water cooled indoor A/C		Nos	ISI Standard	
245	Actuator for Cassette water cooled A/C		Nos	ISI Standard	
246	High wall A/C Air cooled indoor unit PCB Board - 1.5 TR		Nos	ISI Standard	
247	High wall A/C Air cooled indoor unit PCB Board - 2.0 TR		Nos	ISI Standard	
248	High wall A/C Water cooled indoor unit PCB Board - 1.5 TR		Nos	ISI Standard	
249	Cassette A/C Air cooled indoor unit PCB Board - 1.5 TR		Nos	ISI Standard	
250	Cassette A/C Water cooled indoor unit PCB Board - 1.5 TR		Nos	ISI Standard	
251	High wall A/C Air cooled indoor unit Digital display		Nos	ISI Standard	
252	High wall A/C Water cooled indoor unit Digital display		Nos	ISI Standard	
253	Cassette A/C Air cooled indoor unit Digital display		Nos	ISI Standard	
254	Cassette A/C Water cooled indoor unit Digital display		Nos	ISI Standard	
255	A/C Indoor units flexible drain pipes		Nos	ISI Standard	
256	A/C outdoor units fan		Nos	ISI Standard	
257	A/C outdoor units Throttle valve		Nos	ISI Standard	
258	A/C outdoor units compressor		Nos	ISI Standard	
259	A/C outdoor units cylinders		Nos	ISI Standard	
260	Sump oil heater for oil separator - 1/2 ", 250 w, 230 v		Nos	ISI Standard	
261	Oil separator sensor		Nos	ISI Standard	
262	Oil level switch - SG 08		Nos	ISI Standard	
263	Automatic relief valve - 1/2 ", 16 bar		Nos	ISI Standard	
264	Automatic relief valve - 1 ", 16 bar		Nos	ISI Standard	

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265	Automatic relief valve - 1 ", 13 bar		Nos	ISI Standard	
266	Oil Refiller (oil separator)		Nos	ISI Standard	
267	Refrigerant Refiller - 1/2 "		Nos	ISI Standard	
268	Suction line servicing valve - 150 mm		Nos	ISI Standard	
269	High pressure limit switch		Nos	ISI Standard	
270	Low pressure limit switch		Nos	ISI Standard	
271	Emergency stop button - NO/NC Element		Nos	ISI Standard	
272	Selector switch		Nos	ISI Standard	
273	Contactors		Nos	ISI Standard	
274	Voltage protection device - D2 VMR1, 380 - 440 VAC		Nos	ISI Standard	
275	MCB - 2 Amp, 2 pole		Nos	ISI Standard	
276	MCB - 2 Amp, 3 pole		Nos	ISI Standard	
277	MCB - 10 Amp, 2 pole		Nos	ISI Standard	
278	MCB - 6 Amp, 2 pole		Nos	ISI Standard	
279	EVD(Evolution twin)		Nos	ISI Standard	
280	MCCB - VL 250		Nos	ISI Standard	
281	Flow Switch - 150 psi, 100°C, 1"NPT, 15 A, 250 V		Nos	ISI Standard	
282	Analog Temperature Gauge		Nos	ISI Standard	
283	Analog Pressure Gauge		Nos	ISI Standard	
284	Pipe Flexible connector - 6"x150 mm		Nos	ISI Standard	
285	Pipe flange - 25 mm x 6" Inner dia		Nos	ISI Standard	
286	Pipe strainer - 150 mm		Nos	ISI Standard	
287	Gate valve - 150 mm, PN 16		Nos	ISI Standard	
288	Gate valve - 25 mm		Nos	ISI Standard	
289	Gate valve - 50 mm		Nos	ISI Standard	
290	2 Way valve - 1/2 "		Nos	ISI Standard	
291	2 Way valve - 3/4 "		Nos	ISI Standard	
292	Brass Reducer - 25x12.5 mm		Nos	ISI Standard	
293	Brass Air Reducer - 25 mm		Nos	ISI Standard	
294	Water sensor - (Supply -: 15-36 V, Output - 2 -10 V DC)		Nos	ISI Standard	
295	Globe valve - 150 mm, PN 16		Nos	ISI Standard	
296	Gate valve wheel - 150 mm		Nos	ISI Standard	
297	Globe valve wheel - 150 mm		Nos	ISI Standard	
298	Butterfly valve - 150 mm, PN 16		Nos	ISI Standard	

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299	Non Returnable valve - 150 mm, 06 AS		Nos	ISI Standard	
300	Motorized valve - 72 Nm, 240 VAC		Nos	ISI Standard	
301	Brass Air Reducer Nozzle - 1/2 "		Nos	ISI Standard	
302	3 phase motor - 18.5 KW, 1455 RPM		Nos	ISI Standard	
303	Termination gland - 16 mm		Nos	ISI Standard	
304	Termination gland - 25 mm		Nos	ISI Standard	
305	Centrifugal pump - UP 80/38		Nos	ISI Standard	
306	Mechanical seal (Model - UP 80/38)		Nos	ISI Standard	
307	Oil seal (Model - UP 80/38)		Nos	ISI Standard	
308	Coupling Set for shaft (Model UP 80/38)		Nos	ISI Standard	
309	Shaft (Model - UP 80/38)		Nos	ISI Standard	
310	Key set for shaft (Model - UP 80/38)		Nos	ISI Standard	
311	O ring (Model - UP 80/38)		Nos	ISI Standard	
312	Shoulder ring (Model - UP 80/38)		Nos	ISI Standard	
313	Gasket set (Model - UP 80/38)		Nos	ISI Standard	
314	Brass Impeller (Model - UP 80/38)		Nos	ISI Standard	
315	Drive end stuffing box set (Model - UP 80/38)		Nos	ISI Standard	
316	Pump Nose pipe (Model - UP 80/38)		Nos	ISI Standard	
317	Ball Bearing - 67048/10		Nos	ISI Standard	
318	Lock nut (Model - UP 80/38)		Nos	ISI Standard	
319	Check Nut (Model - UP 80/38)		Nos	ISI Standard	
320	Lock Nut washer (Model - UP 80/38)		Nos	ISI Standard	
321	3 phase motor - 5.5 KW, 1460 RPM, Duty - S1		Nos	ISI Standard	
322	Centrifugal pump - UP 80/24		Nos	ISI Standard	
323	Mechanical seal (Model - UP 80/24)		Nos	ISI Standard	
324	Oil seal (Model - UP 80/24)		Nos	ISI Standard	
325	Coupling Set for shaft (Model UP 80/24)		Nos	ISI Standard	
326	Shaft (Model - UP 80/24)		Nos	ISI Standard	
327	Key set for shaft (Model - UP 80/24)		Nos	ISI Standard	
328	O ring (Model - UP 80/24)		Nos	ISI Standard	
329	Shoulder ring (Model - UP 80/24)		Nos	ISI Standard	
330	Gasket set (Model - UP 80/24)		Nos	ISI Standard	
331	Brass Impeller (Model - UP 80/24)		Nos	ISI Standard	

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332	Drive end stuffing box set (Model - UP 80/24)		Nos	ISI Standard	
333	Pump Nose pipe (Model - UP 80/24)		Nos	ISI Standard	
334	Ball Bearing - 67048/10		Nos	ISI Standard	
335	Lock nut (Model - UP 80/24)		Nos	ISI Standard	
336	Check Nut (Model - UP 80/24)		Nos	ISI Standard	
337	Lock Nut washer (Model - UP 80/24)		Nos	ISI Standard	
338	3 phase induction motor - 7.5 KW, 2885 RPM, Duty - S1		Nos	ISI Standard	
339	MCCB - 32 Amp		Nos	ISI Standard	
340	MCB - 6 Amp		Nos	ISI Standard	
341	MCCB - 250 Amp		Nos	ISI Standard	
342	VFD for secondary pump - 7.5 KW		Nos	ISI Standard	
343	Cooling tower flower nozzle - 1/2 "		Nos	ISI Standard	
344	Cooling tower flower nozzle - "3/4 "		Nos	ISI Standard	
345	Cooling tower flower nozzle - 1 "		Nos	ISI Standard	
346	Cooling tower fan pulley		Nos	ISI Standard	
347	Cooling tower fan -		Nos	ISI Standard	
348	Cooling tower Metal bush - 25 mm outer dia		Nos	ISI Standard	
349	Cooling tower shaft box		Nos	ISI Standard	
350	Cooling tower shaft		Nos	ISI Standard	
351	Cooling tower bearing - Taper roller bearing		Nos	ISI Standard	
352	Cooling tower Fins		Nos	ISI Standard	
353	3 Phase motor - 3.7 KW, 1455 RPM		Nos	ISI Standard	
354	Cooling tower 'Net'		Nos	ISI Standard	
355	CO2 Detector		Nos	ISI Standard	
356	Air Damper		Nos	ISI Standard	
357	Limit switch - 10 Amp, 500VAC		Nos	ISI Standard	
358	AHU Blower stand		Nos	ISI Standard	
359	AHU Blower shaft - stainless steel		Nos	ISI Standard	
360	AHU Blower Shaft pulley set - 25 mm dia		Nos	ISI Standard	
361	Shaft Adapter sleeves - H2308		Nos	ISI Standard	
362	Shaft Adapter sleeves - H2309		Nos	ISI Standard	
363	AHU Motor Adjustable stand		Nos	ISI Standard	
364	AHU Blower fan - curve		Nos	ISI Standard	
365	Flexible Duct Connector		Nos	ISI Standard	

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366	DDC Panel for AHU		Nos	ISI Standard	
367	VFD Panel with control wiring and accessories		Nos	ISI Standard	
368	2 -Way Actuator valve		Nos	ISI Standard	
369	AHU Humidity sensor		Nos	ISI Standard	
370	AHU Filter - 610x610x48 mm - 34 No		Nos	ISI Standard	
371	AHU Filter - 610x305x48 mm - 10 No.		Nos	ISI Standard	
372	AHU Filter - 305x305x48 mm - 2 No.		Nos	ISI Standard	
373	AHU Filter - 590x590x100 mm - 5 No.		Nos	ISI Standard	
374	AHU Filter - 590x295x100 mm - 4 No.		Nos	ISI Standard	
375	Acoustic wall panel /sq.m		Nos	ISI Standard	
376	Rectangular Louvers		Nos	ISI Standard	
377	Circular Louvers		Nos	ISI Standard	
378	Duct Reducer		Nos	ISI Standard	
379	Duct Insulation		Nos	ISI Standard	
380	Flexible Duct		Nos	ISI Standard	
381	Duct Grills		Nos	ISI Standard	
382	Kitchen Duct chimney		Nos	ISI Standard	
383	Cold store Timer		Nos	ISI Standard	
384	Cold store Control Display - 230 V, 10 VDC		Nos	ISI Standard	
385	Chiller Compressor oil		Ltr	ISI Standard	
386	Chiller Display		Nos	ISI Standard	
387	Chiller Display Controller		Nos	ISI Standard	
388	Refrigerant Cylinder Empty	70 Kg	Nos	ISI Standard	
389	Refrigerant Cylinder Empty	10 Kg	Nos	ISI Standard	
390	Refrigerant Cylinder Empty	5 Kg	Nos	ISI Standard	
391	Refrigerant Cylinder Empty	2.5 Kg	Nos	ISI Standard	

(SIGNATURE OF THE CONTRACTOR)

(DATE)

(COMPANY SEAL)