



Tender No: CDACP/Chillier /2020/316, date: 17th February, 2021

C-DAC, Pune invites On-Line bids for Supply, Installation, Testing & Commissioning of AHRI/EUROVENT certified Water Cooled Screw Chiller, Cooling tower and allied HVAC system at C-DAC, Pune.

Prospective Bidders may download the Tender Document from www.cdac.in / <https://eprocure.gov.in/eprocure/app>. Bidders are advised to go through instructions provided at 'Instructions for online Bid Submission' before uploading the bids through <https://eprocure.gov.in/eprocure/app> as per terms and conditions given in the Tender Document. The Tender document fee of Rs. 1000/- (non-refundable) and Declaration of Bid Security as per Annexure need to be submitted.

Centre for Development of Advanced Computing
A Scientific Society of Ministry of Electronics & Information Technology,
Government of India
Innovation Park, Panchavati, Pashan Road, PUNE- 411008.
Tel: +91-20-25503673
mmg@cdac.in



TENDER SCHEDULE

Tender No: CDACP/Chiller/20-21/316,

Name of the Institute	Centre for Development of Advanced Computing, Innovation Park, Panchavati, Pashan Road, PUNE 411008.
Place of Supply, Installation & Commissioning, Support etc.	Centre For Development of Advanced Computing, Innovation Park, Panchavati, Pashan Road, PUNE 411008
Date of Release of Tender	17 th February, 2021
Date of pre-bid meeting	23rd February, 2021 1200 Hrs
Last date of submission of bids	15 th March, 2021, 1500 Hrs
Date of opening of Technical bids	15 th March, 2021, 1530 Hrs
Place of opening of technical bids	C-DAC, Pune 411008.
Bank Details for submitting Tender Fee	Bank Name : Bank of India Branch & Address: Pashan Road Branch, Pune-411008, Maharashtra, Tel: .+91-20-25697247 IFSC CODE : BKID0000516 Type of Account : Savings Account Number: 051610110002660

Instruction for Online Bid Submission:

The bidders are required to submit soft copies of their bids electronically on the CPP Portal, using valid Digital Signature Certificates.

REGISTRATION:

- Bidders are required to enrol on the e-Procurement module of the Central Public Procurement Portal (url: <https://eprocure.gov.in/eprocure/app>).
- As part of the enrolment process, the bidders will be required to choose a unique username and assign a password for their accounts.
- Bidders are advised to register their valid email address and mobile numbers as part of the registration process. These would be used for any communication from the CPP Portal.
- Upon enrolment, the bidders will be required to register their valid Digital Signature Certificate (Class II or Class III Certificates with signing key usage) issued by any Certifying Authority recognized by CCA India with their profile.
- Only one valid DSC should be registered by a bidder. Please note that the bidders are responsible to ensure that they do not lend their DSCs to others, which may lead to misuse.
- Bidder then logs into the site through the secured login by entering their user ID / password and the password of the DSC / e-Token.

PREPARATION OF BIDS:

- Bidder should take into account any corrigendum published on the tender document before submitting their bids.
- Please go through the tender advertisement and the tender document carefully to understand the documents required to be submitted as part of the bid. Please note the number of covers in which the bid documents have to be submitted, the number of documents – including the names and content of each of the document that need to be submitted. Any deviations from these may lead to rejection of the bid.



- Bidder, in advance, should get ready the bid documents to be submitted as indicated in the tender document / schedule and generally, they can be in PDF / XLS / RAR / DWF formats. Bid documents may be scanned with 100dpi with black and white option.
- To avoid the time and effort required in uploading the same set of standard documents which are required to be submitted as a part of every bid, a provision of uploading such standard documents (e.g. PAN card copy, annual reports, auditor certificates etc.) has been provided to the bidders. Bidders can use 'My Space' area available to them to upload such documents. These documents may be directly submitted from the 'My Space' area while submitting a bid, and need not be uploaded repeatedly. This will lead to a reduction in the time required for bid submission process.

SUBMISSION OF BIDS:

- Bidder should log into the site well in advance for bid submission so that he/she upload the bid in time i.e. on or before the bid submission time. Bidder will be responsible for any delay due to other issues.
- The bidder has to digitally sign and upload the required bid documents one by one as indicated in the tender document.
- The server time (which is displayed on the bidders' dashboard) will be considered as the standard time for referencing the deadlines for submission of the bids by the bidders, opening of bids etc. The bidders should follow this time during bid submission,
- The uploaded tender documents become readable only after the tender opening by the authorized bid openers.
- Upon the successful and timely submission of bids, the portal will give a successful bid submission message and a bid summary will be displayed with the bid no. and the date & time of submission of the bid with all other relevant details.

Note: Vendor is strictly advised/required to visit site prior to bid submission

ASSISTANCE TO BIDDERS:

Any query relating to the process of online bid submission or queries relating to CPP Portal in general may be directed to the 24*7 CPP Portal Helpdesk on :- 0120-4200 462, 0120-4001 002, 0120-4001 005, 0120-6277 787, e-mail for Technical - support-eproc@nic.in.



SECTION I: INVITATION FOR BIDS (IFB)

1. Introduction:

Centre for Development of Advanced Computing (C-DAC) - is a scientific society under the administrative control of Ministry of Electronics & Information Technology, Government of India.

To enhance the infrastructure, C-DAC invites the bids from eligible bidders for Supply, Installation, commissioning & Warranty Support of AHRI/EUROVENT certified Water Cooled Screw Chiller (Minimum 400 TR at design conditions) with twin compressors & Independent circuits configuration, CTI approved FRP Cooling tower, Pumps, Electrical panel & its integration with the existing central AC plant at C-DAC, Pune, as per terms and conditions specified in this document. The details technical specifications are given in "Section – IV: Schedule of Requirements" of this document.

2. Contact information:

Material Management Group
Centre for Development of Advanced Computing (C-DAC)
Innovation Park, PANCHAVATI, Pashan Road, PUNE 411008
Tel No.: +91-20-25503673
E-mail: cmkulk@cdac.in, Prasad@cdac.in

3. Two e-bids System:

The two e-bids system will be followed for this tender. In this system, bidder must submit their offer - online in separate packets as explained below:

Online e-Packet No. 1: "Technical e-Bid" shall contain following documents in .pdf format only:

- a. Covering letter, as per **Annexure – A**.
- b. Authority letter, as per **Annexure – B**.
- c. Scanned copy of Demand Draft /e-payment receipt towards tender fee of Rs. 1000/- (Rupees One Thousand Only) drawn in favour of C-DAC payable at Pune. The original DD must be submitted physically at the place of Opening of the Tender on or before the Due Date & Time of the Tender.
- d. Scanned copy Declaration of Bid security as per **Annexure- D**.
- e. A copy of Certificate of Incorporation, Partnership Deed / Memorandum and Articles of Association / any other equivalent document as applicable.
- f. Copies of PAN and GST registration certificates.
- g. Copies of audited Profit and Loss Account OR a certificate from the Chartered Accountant certifying the annual sales turn over for the years 2017-2018, 2018-2019 and 2019-2020.
- h. Document/s in support of bidders support/ service set-up in /around Pune.
- i. Duly filled Technical Bid (**as per Section – IV**) with proper seal and signature of the authorised person (with name, designation, email id & contact no.).
- j. Copies of supply orders successfully completed OR installation reports in support of eligibility requirement 4(7), Section – II of this document.
- k. The undertaking from the OEM OR/ their Authorized Dealer of Water Cooled Screw Chiller as per **Annexure – C**



- l. The detailed technical specification, make, model, part number & **compliance of each item offered** supported by the printed catalogue / leaflet published by the Principal Manufacturer.
- m. Details of service providers for providing support /warranty / after sales services.
- n. A photo copy of the commercial bid without prices (**prices blocked**) and copy of commercial terms & conditions (in details) as included in the commercial bid. C-DAC reserves the right to reject the bid in case of discrepancy observed in the un-priced commercial bid and the actual commercial bid.
- o. Certificate as per **Annexure - F**
- p. Other documents necessary in support of eligibility criteria, product catalogues, brochures etc.

Note: C-DAC reserves the right to reject the bid if any of the above listed document/s is not submitted.

On-line ePacket 2: “Commercial eBid “ shall contain: (.xls format only)

The Commercial e-Bid completed in all respects as per format given in **Section – V** of this document.

4. PRE-BID Meeting:

The pre-bid meeting will be held at C-DAC, Pune as given in schedule to sort out/resolve queries raised by the prospective bidders regarding the scope, technical specifications, terms & conditions etc. The prospective bidders requiring any clarification of the bidding document may send their queries in writing through e-mail. C-DAC will respond to these queries during the pre-bid meeting. The queries/doubt/clarifications etc. must be sent at least two days prior to the date of pre-bid meeting.

5. Last Date of uploading of ebids and opening of the Technical ebids:

Last date (DUE DATE) for uploading of e-bids through: www.eprocure.gov.in/eprocure/app - against the tender id, as per the Tender Schedule above.

Technical e-bids will be opened 'Online' through www.eprocure.gov.in/eprocure/app against the tender id, as per Tender Schedule.

The e-bids must be submitted on-line. The Tender Fees & EMD must be submitted/deposited in person or through post/ courier (C-DAC shall not be responsible for any postal delays or any other reason for not submitting the tender fees & EMD etc. in the specified time and resulting in disqualification / rejection of any bid) **so as to reach on or before the due date and time of the uploading of the tender.** The representatives (maximum two) of bidders are welcome to attend the opening of the technical bids.

In case bidder requires any clarifications / information, they may contact C-DAC address given in Tender Schedule.

Note: Please do not put "Commercial e-Bid" (prices quoted) in the technical bid packet. If the price quoted is submitted / leaked with technical e-bid the tender will be rejected at the sole discretion of C-DAC.

6. Opening of commercial ebids

Commercial e-bids of the qualified bidders only will be opened in the presence of the bidders or their authorized representative, who choose to attend, at the time, place and date to be informed later.



The authorized representative of bidders, present at the time of opening of the e-bids shall be required to sign an attendance register as a proof of having attended the bid opening.

The bidder's name, bid prices summary and other appropriate details will be displayed at the time of the opening of the commercial e-bids.

(END OF SECTION I)



SECTION II: INSTRUCTIONS TO BIDDERS (ITB)

1. Locations for Supply, Installation & Warranty Support etc.:

Centre for Development of Advanced Computing (C-DAC)
Innovation Park, Panchavati, Pashan Road,
Pune - 411008. INDIA.

2. Delivery Period:

The Chiller System must be supplied, installed & commissioned within 15 weeks from the date of placement of order(s), positively.

3. Order Placement & Release of Payment:

The Supply Order(s) and payments shall be released by:

Centre for Development of Advanced Computing (C-DAC)
Innovation Park, Panchavati, Pashan Road,
Pune - 411008. INDIA

4. Eligibility Criteria:

The bidders must comply with the eligibility criteria stipulated below.

- 1) Bidder must quote for all the items as per Price Bid format.
- 2) The bidder should be an entity registered in India under appropriate Indian Laws. Certificate for the same need is to be submitted along with the bid.
- 3) The bidder should have minimum average turnover of 1.5 Cr in last three financial years. (2017-18, 2018-19 & 2019-2020)
- 4) The bidder should be OEM of Water Cooled Screw Chiller or their Authorized Dealer.
- 5) The bidder shall submit Chiller Selection Sheet on OEM Letter head/Software generated selection sheet
- 6) Bidder must have Service Support setup/office at Pune location to extend proactive support to equipment breakdown and services.
- 7) Bidder must have successfully executed similar work project/s in last five years as given below -
 1. Three similar completed works each costing not less than the amount equal to 56 Lakhs with at least one work for chilled water work
or
 2. Two similar completed works each costing not less than the amount equal to 70 Lakhs with at least one work for chilled water work
or
 3. One Chilled Water System completed work costing not less than the amount equal to 113 Lakhs.

(Similar Work means Chilled Water System projects or HVAC projects consisting high side and/or low side work)



- 8) The bidder must not be blacklisted by C-DAC or any other Educational / R&D / Govt. Organizations, as on the date of Opening of the bids. A certificate or undertaking to this effect must be submitted.
- 9) The bidder must comply with the provisions stipulated in orders : F. No. 6/18/2019-PPD dated 23rd July, 2020 issued by Public Procurement Division, Department of Expenditure, Ministry of Finance and P-45021/2/2017-PP(BE-II), dated 4th June, 2020, issued by DPIIT, Min. of Commerce, GoI. The bidder must submit a certificate as per format given in **Annexure – F**.
- 10)

Note: Vendor is strictly advised/required to visit site prior to bid submission and understand site conditions.

5. Exemptions:

If in the view of bidder, any exemption / relaxation are applicable to them from any of the eligibility requirements, under any Rules / process/ Guidelines/ Directives of Government of India, bidder may submit their claim for the applicable exemption /relaxation, quoting the valid Rule/ process/ Guidelines/ Directives. In this case the bidder must submit necessary and sufficient documents along with the technical bid, in support of his claim. The decision about granting the exemption/ relaxation will be taken by the bid evaluation committee which is empowered to grant exemption/relaxation. The relevant and valid certificates in support of claim of exemption must be submitted.

The bidders should provide sufficient documentary evidence to support the eligibility criteria. C-DAC reserves the right to reject any bid not fulfilling the eligibility criteria.

6. Amendment to Bidding Documents

- At any time prior to the deadline for submission of bids, C-DAC may, for any reason, whether on its own initiative or in response to the clarification request by a prospective bidder, modify the bid document.
- The amendments to the tender documents, if any, will be notified by release of Corrigendum Notice on www.eprocure.gov.in/eprocure/app/ / www.cdac.in/tender against the tender id. The amendments/ modifications will be binding on the bidders.
- C-DAC at its discretion may extend the deadline/Due Date for the uploading of ebids if it thinks necessary to do so or if the bid document undergoes changes during the bidding period, in order to give prospective bidders time to take into consideration the amendments while preparing their bids.

7. Preparation of e-Bids

A neat and clean e-Bids is expected to be uploaded in the form of pdf. Bidder should avoid, as far as possible, corrections, overwriting, erasures or postscripts in the bid documents. In case however, any corrections, overwriting, erasures or postscripts have to be made in the bids, they should be supported by dated signatures of the same authorized person signing the bid documents. However, bidder shall not be entitled to amend/ add/ delete/ correct the clauses mentioned in the entire tender document.

8. Earnest Money Deposit (EMD)

The bidder should submit security declaration, as given in **Annexure-D**, subject to the conditions stipulated therein

9. Period of validity of bids

Bids shall be valid for minimum 120 days from the date of submission. A bid valid for a shorter period shall stand rejected.

C-DAC may ask for the bidder's consent to extend the period of validity. Such request and the response shall be made in writing only. A bidder agreeing to the request for extension will not be permitted to modify his bid.

The Bid documents shall be neatly arranged. They should not contain any terms and conditions, printed or otherwise, which are not applicable to the Bid. The conditional bid will be summarily rejected. Insertions, postscripts, additions and alterations shall not be recognized, unless confirmed by bidder's signature.

10. Deadline for Submission of e-Bids

- Bids must be uploaded, received by C-DAC before the due date and time at the address specified in the tender document.
- C-DAC will not be responsible for any issues arising/pertaining with the eprocure.gov.in/e-procure/app portal for non-submission, failure in submission of e-bids online.
- C-DAC may extend this deadline/Due Date for uploading of bids by amending the bid documents and the same shall be suitably notified.

11. Late Bids

C-DAC shall not be responsible and liable for the delay in receiving the e-bid for whatsoever reason.

12. Bid Opening & Evaluation of e-Bids

- The bids will be examined based on eligibility criteria stipulated at Para 4 of Section – II to shortlist the eligible bidders.
- The technical bids of only the short listed eligible bidders shall be evaluated based on technical specifications stipulated at **Section – IV**.
- The bidders whose technical bid is found to meet both the requirements as specified above will qualify for opening of the commercial bid and will be informed about the date and time of the opening of the commercial bid.
- The duly constituted Tender Evaluation Committee (TEC) shall evaluate the bids. The TEC shall be empowered to take appropriate decisions on minor deviations, if any.

13. Comparison of Bids

- Only the short-listed bids from the technical evaluation shall be considered for commercial comparison.
- The total prices, as per price bid format given in **Section – VI** (including GST) will be considered for commercial comparison.

14. Award of Order

- C-DAC shall award the order(s) to the eligible bidder whose technical bid has been accepted and determined as the **lowest** evaluated commercial bid based on the price of the Commercial Bid. However, C-DAC reserves the right and has sole discretion to reject the lowest evaluated bid.
- If more than one bidder happens to quote the same lowest price, C-DAC reserves the right to decide the criteria and further process for awarding the contract, decision of C-DAC shall be final for awarding the contract.
- Before placement of order, the successful bidder is required to submit a detailed Bill of Material, giving line item prices and GST. C-DAC will place order based on this Bill of Material keeping the total price(including GST) quoted by the bidder unchanged.

15. Purchaser's Right to amend / cancel

- C-DAC reserves the right to amend the eligibility criteria, commercial terms & conditions, Scope of Supply, technical specifications etc.
- C-DAC reserves the right to cancel the entire tender without assigning any reasons thereof.

16. Corrupt or Fraudulent Practices

- It is expected that the bidders who wish to bid for this project have highest standards of ethics.
- C-DAC will reject bid if it determines that the bidder recommended for award has engaged in corrupt or fraudulent practices while competing for this contract;
- C-DAC may declare a vendor ineligible, either indefinitely or for a stated duration, to be awarded a contract if it at any time determines that the vendor has engaged in corrupt and fraudulent practices during the award / execution of contract.

17. Interpretation of the clauses in the Tender Document / Contract Document

In case of any ambiguity/ dispute in the interpretation of any of the clauses in this Tender Document, the interpretation of the clauses by Director General, C-DAC shall be final and binding on all parties.

(END OF SECTION II)



SECTION III: SPECIAL CONDITIONS OF CONTRACT (SCC)

1. Prices

1.1. The price quoted shall be considered firm and no price escalation will be permitted. (Except Govt. levies/Taxes).

1.2. Bidder must offer in INR only.

1.3. The prices quoted must be “F.O.R.-CDAC, Pune” inclusive of Installation, packing, forwarding, freight, insurance, loading/unloading and allied charges till destination site(s).

2. Software Licenses (if applicable):

The software licenses, if any, shall be required in the name of C-DAC. The licenses shall contain paper licenses and at least one set of media (CDs), wherever applicable.

3. Performance Security:

A Performance Security needs to be submitted by the successful bidder, towards the Items supplied, in the form of a Bank Guarantee in INR equivalent to 3% amount of the Supply Order value, as per the format attached to this document (**Annexure – E**). This bank guarantee should be submitted within 15 days from the placement of order.. The Bank Guarantee shall remain valid for the entire warranty period. The PBG must be negotiable at a branch of issuing bank in India.

The PBG should be submitted by the vendor on whose name the Purchase Order is released.

In case of no warranty claims towards the Items under warranty, the PBG will be returned on completion of warranty period.

4. Completeness Responsibility:

Notwithstanding the scope of work, engineering, supply and services stated in bid document, any equipment or material, engineering or technical services which might not be even specifically mentioned under the scope of supply of the bidder and which are not expressly excluded there from but which – in view of the bidder - are necessary for the performance of the equipment in accordance with the specifications are treated to be included in the bid and has to be performed by bidder. The items which are over & above the scope of supply specified in the Schedule of Requirements may be marked as “Optional Items”.

5. Warranty:

The primary responsibility towards repairing, maintenance and providing the support services for satisfactory functioning and performance of the Chiller & allied HVAC system installed lies with the bidder.

The Supplier warrants that all the Goods supplied are new, unused, and of the most recent or current models, and that they incorporate all recent improvements in design and materials, unless provided otherwise in the Contract.

The supplier further warrants that all Goods supplied under this contract shall have no defect arising from design, materials or workmanship or from any act or omission of the supplier.

The warranty shall be comprehensive in nature for a period of two years from the date of installation and acceptance by Client. During the warranty period, the bidder should



arrange to carry out maintenance, repair, rectification work and replacement of the faulty/defective parts free of cost, as and when required.

The bidder shall provide 24x7 support during the warranty period with 4 hours response time and resolution time of 24 hours, covering all parts & labour, starting from the date after the successful installation, demonstration of performances and acceptance by C-DAC, Pune.

C-DAC reserves the right to invoke the Performance Bank Guarantee submitted by bidder, in case of the following:

- a. The Chiller & allied HVAC systems fail to achieve the performance as stipulated in this document or
- b. The bidder fails to provide the warranty and other services in scheduled time frame, as stipulated in this document
- or
- c. The bidder delays to provide the warranty services as stipulated in this document.

6. Payments:

An amount of 40 % of the order value of the supplied items will be released on receipt of respective material at site, on pro-rata basis.

50% amount of the order value will be released on successful installation & acceptance by C-DAC.

10% amount of the order value will be released within 30 days of successful commissioning & handing over of the system to C-DAC.

7. Penalty for delayed Delivery /Services

C-DAC reserves the right to levy penalty @ of 0.5 % of order value per week of delay beyond the scheduled deliveries / execution of the order successfully, subject to maximum of 5% of the order value. The delay in delivery not attributed to supplier viz. delay in site preparation, delay in submission of required documents by C-DAC etc. and the conditions arising out of Force Majeure will not be considered for calculating penalties.

8. Jurisdiction:

The disputes, legal matters, court matters, if any shall be subject to Pune jurisdiction only.

9. Force Majeure:

C-DAC may consider relaxing the penalty and delivery requirements, as specified in this document, if and to the extent that, the delay in performance or other failure to perform its obligations under the contract is the result of an Force Majeure. Force Majeure is defined as an event of effect that cannot reasonably be anticipated such as acts of God (like earthquakes, floods, storms etc.), acts of states / state agencies, the direct and indirect consequences of wars (declared or undeclared), hostilities, national emergencies, civil commotion and strikes at successful Bidder's premises or any other act beyond control of the bidder.

10. Arbitration:

In case any dispute arises between the C-DAC and successful bidder with respect to this RFP, including its interpretation, implementation or alleged material breach of any of its

provisions both the Parties hereto shall endeavour to settle such dispute amicably. If the Parties fail to bring about an amicable settlement within a period of 30 (thirty) days, dispute shall be referred to the sole arbitrator mutually appointed by both parties. If the sole arbitrator is not appointed mutually by both the parties then the District Court Pune shall have exclusive jurisdiction for appointment of sole arbitrator through court. Arbitration proceedings shall be conducted in accordance with the provisions of the Arbitration and Conciliation Act, 1996 and Rules made there under, or any legislative amendment or modification made thereto. The venue of the arbitration shall be Pune. The language of arbitration shall be English. The common cost of the arbitration proceedings shall initially be borne equally by the Parties and finally by the Party against whom the award is passed. Any other costs or expenses incurred by a Party in relation to the arbitration proceedings shall ultimately be borne by the Party as the arbitrator may decide. Courts in Pune only shall have the exclusive jurisdiction to try, entertain and decide the matters which are not covered under the Arbitration and conciliation Act.

11. Risk and Ownership:

Upon 90% of payment, C-DAC shall become owners of goods ordered but all risks, responsibilities; liabilities thereof in all goods shall remain with selected bidder till delivery of all goods to all end users. Part deliveries shall not be treated as deliveries. Only full deliveries of all items ordered will be considered as delivery.

12. Limitation of Liability:

The liability of the supplier arising out of breach by the supplier of any terms/conditions of the order and addendums/amendments thereto, misconduct, wilful default will be limited to the total order value.

However, liability of the supplier in case of loss of human life(if any), injury/damage caused to the personnel/property for the reasons attributed to the supplier or to any person deployed by supplier at C-DAC - will be at actuals.

In no event shall Party, its officers, directors, or employees be liable for any form of incidental, consequential, indirect, special or punitive damages of any kind.

13. Indemnity:

The successful bidder shall indemnify, protect and save C-DAC from/against any claims, losses, costs, damages, expenses, action suits and other proceeding, resulting from/arising out of infringement of any Law /Rule by the bidder, pertaining to the installation of Chiller & allied HVAC system at C-DAC, Pune.

14. Assignment:

Selected bidder/ Party shall not assign, delegate or otherwise deal with any of its rights or obligation under this Contract without prior written permission of C-DAC.

15. Severability:

If any provision of this Contract is determined to be invalid or unenforceable, it will be deemed to be modified to the minimum extent necessary to be valid and enforceable. If it cannot be so modified, it will be deleted and the deletion will not affect the validity or enforceability of any other provision.

(END OF SECTION III)

SECTION IV – SCHEDULE OF REQUIREMENT

1) Bill of Quantities, Features, Make list and Specifications Required:

Sr. No	Description	Unit	Qty
	Chiller Unit		
1	Supplying, installing, testing and commissioning of AHRI/EUROVENT certified Water Cooled Screw Chiller (Minimum 400 TR at design conditions) with twin compressors & Independent circuits configuration at Pune site conditions at specified design condition ,complete with R134a refrigerant compressor, first charge of refrigerant gas & oil etc, motor suitable for 415±10% 50 cycles. 3 phase AC supply, starter panel, water cooled condenser, insulated chiller, flow switch at chiller and condenser, spring loaded vibration isolators, flexible bellows, pressure gauge, thermometer, integral refrigerant piping and wiring, automatic and safety controls mounted in central console panel with necessary BAS card for compatibility with Building Automation System(BAS) /BMS and all mounted on frame complete as per specifications. Flanged coupling connection for inlet and outlet etc as required. Chilled water Leaving Temp : 7°C Chilled water Entry Temp. : 12°C Condenser Water IN :30°C Condenser Water OUT : 35°C Evaporator Fouling Factor 0.0000200 M2 °K/W Condenser Fouling Factor (FPS) : 0.0000440 M2 °K/W Maximum Power Consumed at full load : Not greater than 0.60 Kw/TR Minimum NPLV -0.45 kW/TR Minimum COP (At ARI conditions) : 6.4 Minimum IPLV (ARI 550/590)- 8.6 1 No: Matching shell and tube water cooled condenser of M.S. shell and integrally finned copper tubes. 1No.: Matching shell and tube flooded type chiller of MS shell an copper tubes. 1 No.: suitable capacity squirrel cage induction motor with class-F insulation suitable for operation on 415±10% volts, 50 Hz, A.C. supply 1No.: Automatic starter suitable for compressor motor complete with ammeter with over load protection, under voltage protection, against phase reversal & Independent single phase preventers etc complete as required. 1 Lot- Refrigerant piping fittings, valves and accessories to inter connect compressor, condenser, chiller and expansion valve. 1 Lot- Water flow switches at outlet & inlet of condenser & chiller, water drain valve & air purge valves wherever required. 1Lot- Suction line and chiller insulation with minimum 19mm thick polyvinyl nitrite rubber insulation.	No	1

	Pumps		
2	<i>SITC of End Suction Back Pullout centrifugal water pump with positive suction. C.I. casing, Bronze impeller, MS frame & Mechanical seal with 2 Pole motor Pump with motor, base frame , coupling ,spring mount, flexible bellows, coupling guard , foundation bolts, Mounting frame with Anti vibration pads, Suitable HP , TEFC squirrel cage induction motor with class 'F' insulations & efficiency class IE-3, synchronous speed ,operating on 415 +/-10% volts ,3 phase , 50 Hz A.C. supply. Min. pump efficiency at duty conditions shall not be less than 75%,All external and exposed cast iron parts of pumps have an epoxy-based coating made in a cathodic electro-deposition (CED) process which is high-quality dip-painting process and which would prevent rusting and corrosion. The Pump Shall be BMS Compatible. The noise level shall not exceed 75 dbA at 2 m from the source ,Expanded polystyrene (T.F. Quality) insulations of not less than 75mm thick duly cladded between aluminium sheets of 0.5mm thickness and properly clamped to pump in two semi-circular section as per specifications, commissioned to operate in (3W+1S) Mode with existing pumps</i>		
a	<i>Condenser water Pump Flow 288 CMH & Head 45 Mtr</i>	No	1
b	<i>Primary Chilled water Pump (Constant Speed) Flow 246 CMH & Head 20 Mtr</i>	No	1
c	<i>Secondary Chilled water Pump with VFD(Variable Speed-The pump selected for variable speed drive shall be capable of performing satisfactorily over a wide range of speed, allowing a speed variation from 20 % to 100 %) with dedicated microprocessor based pump controller with parallel pumping software duly downloaded, suitable to run on variable frequency drives as required and multiple differential pressure sensor / transmitters as necessary)Flow 246 CMH & Head 45 Mtr</i>	No	1
	Piping Work		
3	<i>Providing & fixing the following factory rolled MS Heavy Class (IS 1239) chilled water pipes with specified wall thickness cut to required lengths and installed with all welded joints, providing and fixing in position necessary fittings like bends, elbows, tees, reducers, sockets etc. fabricated to size and shape in workshop or brought out ready made where available of acceptable quality as per specification including painting(1 coat of red oxide with 2 coat of approved paint) .</i>		
a	<i>100 mm Dia C Class</i>	RMT	15
b	<i>150 mm Dia C Class</i>	RMT	15
c	<i>200 mm Dia (8 mm thick)</i>	RMT	8
d	<i>250 mm Dia (8 mm thick)</i>	RMT	120
	Valve Package		
4	<i>SITC of manual balancing valves for condenser / chilled water piping in position conforming to specifications provided.(PN16)</i>		
a	<i>150 mm</i>	No	1

b	200 mm	No	1
5	SITC of CI butterfly valves for condenser / chilled water piping in position conforming to specifications provided. (PN16)		
a	100 mm	No	1
b	250 mm	No	4
6	SITC of MS 'C' class Y-strainer for condenser / chilled water piping in position conforming to specifications provided.(PN16)		
a	150 mm	No	2
b	250 mm	No	1
7	Supply, installation, testing and commissioning of flexible connections (6" to 8" length) of suitable pressure rating to be installed at pump suction, discharge, chillers and at pipes crossing building expansion joints as per specification.(PN16)		
a	150 mm	No	6
b	200 mm	No	2
c	250 mm	No	2
8	SITC of CI Non return valve for condenser / chilled water piping in position conforming to specifications provided. (PN16)		
a	200 mm	No	0
b	250 mm	No	1
	Insulation & Accessories		
9	Supplying, installing, testing and commissioning of 50 mm thick closed cell elastometric nitrile rubber of class 'O' applied by suitable adhesive with aluminium based cladding on chilled piping and fitting like valves, flanges union, etc. of following size . Cladding shall be of Armaflex Armacheck silver 350/ K Flex AL CLAD or equivalent and insulation work to be carried out as per OEM specifications.	RMT	30
10	Insulation of chilled water valves closed cell elastometric nitrile rubber of class 'O' applied by suitable adhesive with aluminium based cladding	No	14
11	SITC of pressure gauge with siphon	EA	12
12	SITC of temperature gauge with siphon	EA	4
13	SITC of Flow Switch	EA	1
14	SITC of Thermocouple	EA	3
15	SITC Structural steel for supporting structures of piping,	Kg	2000
16	Shutdown Activity & Commissioning charges	Lot	1
17	COOLING TOWER		
	Supply, Installation, testing and commissioning of Induced Draft (Counter Flow Type) cooling Towers(CTI approved), Minimum Capacity- 80 LPS. The Cooling Tower shall be of Galvanised steel/FRP Construction with direct driven/ belt driven fans, Galvanised hardware complete with sump and drain connection with suitable valve, PVC fill, louvers, drift eliminator complete with spray nozzle having self rotating sprinklers, steel ladder, isolating switch and other accessories to make it fully operational and maintainable & positioning of cooling tower at Terrace of Building.	Nos	1
	Type of Fan: Propeller , weather proof IP 55. Direct driven.		
	The Cooling tower shall be capable to communicate effectively with BMS.		

	Range of CT: 5 deg C		
	Wet bulb approach: 3.9 Deg C Approach		
	Drift loss < 0.05%		
18	Civil Work& Miscellaneous		
a	Civil Modification work for Foundation of Pumps with isolation pads	Cum	2
b	Structural steel for Chiller, cooling tower	Lot	1
c	Scaffolding Charges for installation and Fixing MS Piping for Cooling Tower Piping Header replacement from chiller to C.T.	Lot	1
d	Supply and installation of spring Isolators for Chiller	Lot	1
e	Lifting of Condenser Pipe and Cooling Tower to terrace floor, Shifting of Chiller & Pumps to basement plant room	Lot	1
19	Electrical Work		
	Supply, installation, testing commissioning of following distribution panel board of various sizes on wall/column/floor, in flush / recessed mounting, with required hardware, fasteners etc. The DB should have appropriate no. of top & bottom knock outs for outgoing circuits & shall be complete with necessary bus bars, interconnection terminals & earth studs. All terminations be complete with ferruling, dressing & all circuits shall be properly labelled with PVC strip (sticker type) having identification as per the Panel drawing & final approval of Client/Consultant.(Specification of panel as below)	Nos	1
a)	Incomer section		
	Supply, installation, testing and commissioning of Mounted Raw Power Distribution Panel fabricated with 2 mm CRCA Sheet with Powder coating, IP 52 with Top Entry with provision of indication lamps, Digital Voltmeter and Ammeter, Auxiliary Contacts (On/ off),MCCB Spreader Links, Phase Barriers, MCB 6A SP 10KA, C type Multifunction meter CL-1 RS 415V 3PH 4w CTR/5A, CT 800/5A CI-1 15VA ,CT Shorting Terminals, Indicating Lamps 230V AC, in Incomer feeder,& Consisting of 1 x 800 A 4 pole 50KA MCCB with thermal magnetic overload, short circuit releases as Incomer with suitable size of crimped lugs, sleeves, ferules insulators and terminals etc and 6 outgoing section with VFD section with VFD Danfoss-make (chiller Panel -3) Schneider Make (with remote panel operation)-Number -01		
b)	Outgoing Section		
	Supply, installation, testing and commissioning 630Amp 4 pole MCCB with micro-processor based O/L, S/C & E/F release as outgoing panels along with all required accessories such as bus bar, metering (Digital Ammeter) & indication etc complete. with suitable size of crimped lugs, sleeves, ferules insulators and terminals with star delta Contactor & req. accessories etc (chiller)-Number -01		
	Supply, installation, testing and commissioning 63Amp TP,25KV MCCB with thermal magnetic overload, short circuit releases as Incomer with suitable size of crimped lugs, sleeves, ferules insulators and terminals with star delta Contactor req. accessories etc (25 HP primary pump)Number -01		

	Supply, installation, testing and commissioning 125Amp TP,25KV MCCB with thermal magnetic overload, short circuit releases as Incomer with suitable size of crimped lugs, sleeves, ferules insulators and terminals with star delta Contactor req. accessories etc (60 HP Secondary pump)Number -01		
	Supply, installation, testing and commissioning 63Amp TP, MCCB with thermal magnetic overload, short circuit releases as Incomer with suitable size of crimped lugs, sleeves, ferules insulators and terminals with star delta Contactor req. accessories etc (20 HP CT Fan)Number -01		
	Supply, installation, testing and commissioning 200Amp TP,25KV MCCB with thermal magnetic overload, short circuit releases as Incomer with suitable size of crimped lugs, sleeves, ferules insulators and terminals with star delta Contactor req. accessories etc (100 HP Condenser pump)Number -01		
20	CABLING SYSTEM		
	Supply, handling (shifting from place of unloading to place of storage & shifting from place of storage to place of installation including insurance), installation, testing, commissioning & performance demonstration of LV Cables of following sizes to be laid buried in ground or laid on cable trays or pipe rack. Miscellaneous items such as cable dressing accessories like nylon tie, Aluminium clamps, GI cleats, cable tags, cable route marker etc. are included in the scope. Removal of empty drums, cartons and making the site normal as instructed by Purchaser/client is included in scope. All the cut-outs made or civil work related to cable laying need to finished by the contractor matching with the existing finishing.		
20.1	Cables		
20.1 .1	1.1kV Grade multi-stranded Copper / Aluminium Conductor, XLPE Insulated, Extruded PVC (Type-ST2) Inner Sheathed, Galvanised Steel Flat Strip Armoured Cable. (As Per IS 7098, Part I)		
a	3.5C x300 sq.mm AL 2R x 65 mtr. (PCC Panel to Chiller Panel)	Mtr	130
b	3.5C x 300 sq.mm AL 2R x 45 Mtr.(Chiller Panel to Chiller)	Mtr	90
c	3.5 x 50 sq.mm AL 2R x 150 Mtr. (Chiller panel to Condenser pump)	Mtr	300
d	3.5C x 25 sq.mm AL 2R x 35 Mtr. (chiller panel to Primary Pump)	Mtr	70
e	3.5C x 25 sq.mm AL 2R x 35 Mtr. (chiller panel to Secondary Pump)	Mtr	70
f	4C x 6 sq.mm AL 2R x 190 mtr. (Chiller panel to CT fan)	Mtr	380
20.2 .2	1.1kV Grade multi-stranded Copper / Aluminium Conductor, XLPE Insulated, Extruded PVC (Type-ST2) Inner Sheathed, Galvanised Steel Flat Strip Unarmoured Cable. (As Per IS 7098, Part I)		
a	3C x 4 sq.mm CU	Mtr	25
20.2	CABLE TERMINATIONS FOR FOLLOWING POWER / CONTROL CABLES:		
	Cable end terminations for LV, XLPE/PVC insulated, PVC sheathed, armoured/ unarmoured flexible power / control cable		

	including supply and fixing of Ni plated Double compression cable glands, stripping of cable insulation, supply and fixing of aluminium lugs for aluminium cables and tinned plated copper lugs for copper cables for all phases and crimping the same to the conductor for the following cables. Miscellaneous items like cable lugs, G.I nut - bolts and G.I washers, consumables and other hardware materials as required to make the installation complete, are in the scope. All G.I Nut, bolt and washers shall be HDGI with 80 micron. All the cutouts made or civil work related to cable laying need to finished by the contractor matching with the existing finishing.		
2.1.1	1.1kV Grade multi-stranded Copper / Aluminium Conductor, XLPE Insulated, Extruded PVC (Type-ST2) Inner Sheathed, Galvanised Steel Flat Strip Armoured Cable. (As Per IS 7098, Part I)		
a	3.5C x 300 sq.mm AL	Nos	4
b	3.5C x 300 sq.mm AL	Nos	4
c	3.5C x 50 sq.mm AL	Nos	4
d	3.5C x 25 sq.mm AL	Nos	4
e	3.5C x 25 sq.mm AL	Nos	4
f	4C x 6 sq.mm AL	Nos	4
2.2.2	1.1kV Grade multi-stranded Copper / Aluminium Conductor, XLPE Insulated, Extruded PVC (Type-ST2) Inner Sheathed, Galvanised Steel Flat Strip Unarmoured Cable. (As Per IS 7098, Part I)		
a	3C x 4 sq.mm CU	Nos	6
21	SUPPLY & INSTALLATION OF CABLE TRAYS & Covers		
21.1	Supply & Installation of Readymade 2500mm standard length, prefabricated , perforated cable tray from 14 SWG MS sheet and then hot dip galvanised, of following sizes and associated accessories such as coupler plates, tees, elbow etc. 50mm side flanges shall be provided. Also the necessary hardware's and supports for the same are included in this item. All the cut-outs made or civil work related to cable laying need to finished by the contractor matching with the existing finishing.		
a	600 mm x 50 mm	Mtr	20
b	150 mm x 50 mm	Mtr	20
21.2	Readymade 2500mm standard length, prefabricated , cable tray cover from 14 SWG MS sheet and then hot dip galvanised, of following sizes and associated accessories such as coupler plates, tees, elbow etc. 50mm side flanges shall be provided. All the cut-outs made or civil work related to cable laying need to finished by the contractor matching with the existing finishing.		
a	600 mm x 50 mm	Mtr	20
b	150 mm x 50 mm	Mtr	20
22	SUPPLY & INSTALLATION OF EARTHING SYSTEM		
	GI earth conductor & Cables of the following sizes to be laid in ground / in cable trays / on wall including jointing by welding, connecting to equipments, painting to welded portion by black bitumen paint and with all necessary hardware. All the cut-outs		



	made or civil work related to cable laying need to finished by the contractor matching with the existing finishing.		
a	50 x 6 GI Strip	Mtr	50
b	25 x 3 CU Strip	Mtr	10
c	25 x 3 GI Strip	Mtr	10

LIST OF APPROVED MAKES		
S.N	ITEMS	APPROVED MAKES
A	Electrical Items	
1	SWITCHGEARS	L&T/Schneider/Siemens
2	AMMETER/ VOLTMETER/	SIEMENS/SCHNEIDER/ SOCOMEC
3	POWER CABLES	Polycab/RR/KEI
4	MS CONDUIT	ISI MARKED
5	PVC CONDUIT	BEC/ AKG/ POLYPACK
B	AIRCONDITIONING EQUIPMENTS	
1	CHILLER	YORK/TRANE/BLUE STAR
2	PUMPS	XYLEM/ARMSTRONG/GRUNDFOSS
3	COOLING TOWER	ADVANCE/PAHARPUR/MIHIR
4	BALANCING VALVE	ADVANCE/ SANT/CASTLE
5	SUCTION STRAINER/ POT STRAINER/ Y- STRAINER	LEADER/ SANT/ EMERALD ENTERPRISES
6	GI/ MS PIPES	PRAKASH SURYA/ TATA/ JINDAL
7	VALVES (BUTTERFLY/ SLUICE/ CHECK/ NRV/ FOOT/ GATE/ GLOBE/ NRV	ADVANCE/ SANT/CASTLE
8	VFD	DANFOSS/L&T/ABB
9	Nitrile Rubber Insulation	EASYFLEX/ ARMAFLEX /K-FLEX
10	PRESSURE GAUGE	H.GURU/ BOMER/PIONEER
11	TEMP GAUGE	H.GURU/ BOMER/PIONEER
12	CABLE TRAY	PROFAB/INDIANA/BALAJI ENTERPRISES

Section – V: Technical Specifications and Scope of Work

1. Scope:-

The Specification covers the general Design/Engineering, Materials, Construction features, Manufacture, Shop inspection and Performance testing at manufacturers works, delivery at site, handling at site, installation, testing, commissioning and carrying out performance test at C-DAC, Pune and integrating with our existing pipeline (existing Condenser and chilled water line) and integrating with Building Automation System (BAS).

The Suppliers are advised to visit our AC plant before participating in the tender to understand the prevailing site conditions, the exact requirements and shall discuss the related issues with C-DAC engineering team.

2. Codes and standards:-

The Design, materials, construction, manufacture, inspection, testing and performance of Water cooled Chiller & allied HVAC system shall comply with all currently applicable statutes, regulations, codes and standards in the locality where the equipment is to be installed. Nothing in this specification shall be construed to relieve the Contractor of this responsibility. In particular, the Water cooled screw chiller with twin compressor & allied HVAC system shall confirm to the latest edition of following standards.

(A) American society of mechanical Engineers (ASME)

- Boiler and Pressure Vessels Code, Section VIII, Division-1, “Rules for construction of Pressure Vessels”.
- Boiler and Pressure Vessel code, Section IX, “Welding and brazing qualifications”.
- B31.1, “Power Piping”
- B31.5, “Refrigeration Piping and Heat Transfer Components”

(B) Air-Conditioning and Refrigeration Institute (ARI)

- a. Standard 550/590, “Performance Rating of water chilling packages using the Vapour Compression Cycle”.
- b. Standard 575, “Method of measuring Machinery sound within equipment space”.

(C) American Society of Heating, Refrigeration and Air-conditioning Engineers (ASHRAE)

- (i) Standard 15, “Safety Standard for Refrigeration Systems”.
- (ii) Standard 147, “Reducing the release of Halogenated Refrigerants from Refrigerating and Air conditioning Equipment and Systems”.
- (iii) Standard 90.1, “Energy standard for Buildings except low-rise Residential Buildings”.

(D) American Society for Testing and Materials (ASTM)

(E) Standards of the Tubular Exchanger Manufacturers Association (TEMA)

3. General Requirements:

- (i) Water Cooled Screw Chiller (Minimum 400 TR at design conditions) with twin compressors & Independent circuits configuration at C-DAC , Pune site conditions

at specified design condition, complete with R134a refrigerant compressor, first charge of refrigerant gas & oil etc, motor suitable for $415 \pm 10\%$ 50 cycles. 3 phase AC supply, starter panel, water cooled condenser, insulated chiller, flow switch at chiller and condenser, spring loaded vibration isolators, flexible bellows, pressure gauge, thermometer, integral refrigerant piping and wiring, automatic and safety controls mounted in central console panel with necessary BAS card for compatibility with Building Automation System(BAS) /BMS and all mounted on frame complete as per specifications. Flanged coupling connection for inlet and outlet etc as required. Expansion device, complete interconnected refrigerant piping, oil cooler, oil separator, Microcomputer/Microprocessor control centre, VFD fully wired electrical panel and protective devices etc mounted on a common structural frame.

- (ii) Contractor shall install the Chiller at existing foundation at site and do necessary modification of existing foundation for installing the chiller and all civil works, if required.
- (iii) Contractor shall do Painting and insulation of all related parts (like Evaporator, Pipes, valves etc).
- (iv) Contractor shall do termination of cable wherever required.
- (v) Commissioning spares and consumables (like lube oil, Refrigerant Gas, Filter driers, oil filters etc) shall be in suppliers scope.
- (vi) Integration of the Chiller with existing BAS PC with all necessary hardware and software shall be done by the supplier.
- (vii) Required Software for programming and monitoring of VFD drive, communication cable to connect with PC (USB/RS232) are to be provided by supplier.
- (viii) Supplier shall provide option for client (C-DAC representative) to witness the testing at manufacturers end.
- (ix) The Machine shall be tested at manufacturers end. The load performance test shall be conducted at full load and part load and test certificates to be provided with the Machine.
- (x) Earthing for the equipment & panels shall be in supplier's scope.
- (xi) Operation and maintenance training to C-DAC personnel to be provided at site during installation, commissioning, testing, trial. Contractor shall have no objection for involving C-DAC employees in maintenance activities during warranty period.
- (xii) In addition to the features specified, if the CHILLER system requires any additional features for safe and efficient operation, the same shall be in the scope of supplier and shall not be paid separately.
- (xiv) Eco friendly (Non CFC, Non HCFC) refrigerants viz R-134a only shall be used.
- (xv) Packing, forwarding, loading, unloading and positioning of the unit to our site shall be done by supplier.

I. Compressor

- (a) The Compressor shall be twin compressor (screw type) & with independent circuits configuration.

- (b) **Capacity Control:** Compressor shall be equipped with automatic electrically/hydraulically operated capacity control device for closing or opening the inlet vanes located in the suction of the Compressor. Capacity control shall be of variable type from 10 to 100% together with indication meter. There shall be an inbuilt surge protection to sense and stop the machine from surging conditions damaging the machine. The machine shall be capable of operation in stable condition on all loads.
- (c) **Compressor Drive Motor:** Compressor motor shall be of IP55 enclosure VFD compatible squirrel cage induction type motor with class –F insulation suitable for operation on 415+/- 10% volts, 3Ph, 50 Hz A.C. supply and guaranteed for continuous operation, at the name plate rating. It shall be provided with a load limit mechanism so as to give positive protection against overloading. Motor shall be oversized by at least 10% over the full load requirement. Automatic starter suitable for compressor motor complete with ammeter with over load protection, under voltage protection, against phase reversal & Independent single phase preventers etc complete as required. The Compressor drive motor shall be high efficiency induction motor. Motor shall be suitable for the power supply system indicated above. Suitable internal RTD protection devices shall be embedded in the winding of each phase. Bearing temperature sensors with indication meter to be provided.

5. Lubrication system

The lubrication system of chiller parts shall be designed with minimum, but not limited to, oil separator, oil level switch, oil temperature sensor, oil heater, oil cooler, oil filter, oil flow switch, oil solenoid valve, oil sight glass. The lubrication system shall be forced type by pump. An immersion oil heater shall be provided with temperature actuation. A separate suitable power supply shall be arranged from unit mounted electrical panel to the oil heater so as to provide the power supply to the heater even while the unit is switched off for maintenance. The oil separator shall be manufactured and tested in accordance with ASME Boiler and Pressure Vessel code Section VII-Division 1.

6. Water Cooled Condenser

The shell and tube type water cooled condenser shall conform to all related requirements mentioned under codes and standards. Condenser design pressure shall be as per ANSI/ASHRAE 15 standard and shall be tested at minimum 1.5 times the design pressure on both refrigerant and water side. Air vents and drain points with Valves and Plugs shall be provided for the condenser. Appropriate provision for tube removal for maintenance and descaling shall be provided. The Vessel shall have a safety relief device for refrigerant side set at its design pressure conforming to ANSI/ASHRAE 15 standard. Pipe connection flanges shall be of ANSI standard. The companion flanges along with a set of fasteners and gaskets shall be a part of scope of supply of manufacturer.

7. Evaporator

The shell and tube type evaporator shall conform to all related requirements mentioned under codes and standards. Evaporator design pressure shall be as per ANSI/ASHRAE 15 standard and shall be tested at minimum 1.5 times the design pressure on both refrigerant and water side. Air vents and drain points with Valves and Plugs shall be provided for the

evaporator. The Vessel shall have a safety relief device for refrigerant side set at its design pressure conforming to ANSI/ASHRAE 15 standard. Pipe connection flanges shall be of ANSI standard. The companion flanges along with a set of fasteners and gaskets shall be a part of scope of supply of manufacturer. The entire shell shall be insulated with insulation of adequate thickness to prevent condensation.

8. Refrigerant Piping System

The refrigerant piping within the package shall be of seamless carbon steel or seamless copper. The refrigerant piping shall have isolation valves and charging port on liquid line. The refrigerant piping shall include necessary filter drier, sight glass, thermostatic/electronic expansion valve and solenoid. The suction line between evaporator and compressor shall be insulated with suitable insulation of adequate thickness to prevent condensation.

9. Micro-Processor/Micro-Computer Control Panel

- (i) The chilling package shall be equipped with micro-processor or micro-computer control panel in a locked enclosure, factory mounted, wired and tested. The control panel shall include an alpha-numeric back-lit liquid crystal display (LCD) or light emitting diode (LED) display showing all system parameters in English language with numeric data. The control panel and its entire wiring arrangement shall be kept isolated from the electrical starter panel, by locating in a separate enclosure or shall be separately compartmentalized.
- (ii) Status Message Indicating
 - (a) System ready to start
 - (b) System running
 - (c) System safety shutdown, safety/cycling messages
 - (d) Start inhibit etc
- (iii) Digital programming of essential set points through a colour coded, tactile-feel keypad shall include:
 - (a) Chilled water outlet
 - (b) Current limit in percentage
 - (c) Pull-down demand limiting
 - (d) Monthly schedule for starting and stopping of Chiller
- (iv) All safety and cycle shut-downs shall be annunciated through the alpha- numeric display and consist of day, time, cause of shut-down and type of re- start required. Safety shut downs shall include:
 - (a) Low oil pressure
 - (b) High Compressor discharge pressure (Condenser pressure)
 - (c) Low Evaporator pressure
 - (d) Motor fault (low amps, high amps, over voltage, under voltage, voltage unbalance, single phasing, Reverse phasing, Motor winding over heat etc)
 - (e) No flow (Evaporator & Condenser)
 - (f) High oil temperature
 - (g) Motor overload
- (v) System operating information shall include:

- (a) Evaporator pressure
- (b) Condenser pressure
- (c) Chilled water inlet temperature
- (d) Chilled water outlet temperature
- (e) Condenser water inlet temperature
- (f) Condenser water outlet temperature
- (g) Saturated evaporator temperature
- (h) Saturated Condenser temperature
- (i) Compressor discharge temperature
- (j) Suction super heat
- (k) Oil pressure
- (l) Oil temperature
- (n) Chilling package start-up sequence status Chilling package shut-down and operation status
- (o) Compressor Motor current in % RLA
- (p) Load in percentage
- (q) Date and time
- (r) Compressor ON/OFF
- (s) Number of Compressor starts
- (t) Total hours of operation
- (u) Fault history
- (v) Compressor Motor current (Instantaneous)
- (w) Compressor Motor Voltage (Instantaneous)
- (vi) Security access shall be provided to prevent unauthorized change of set points to allow local or remote control of the chilling package.
- (vii) The control panel shall have all the hardware/options required for interfacing with BAS. Control panel shall be provided with ports compatible for BAS, to output all system operating data, safety and cycling shut-down messages and a record of the last at least four safety shut-downs.
- (viii) Field instruments, sensors and control wiring from field instruments and sensors to control panel shall be contractor's scope. All instruments along with its enclosures, if any, shall be of weather proof nature.
- (ix) Control panel shall be suitable for location of installation and weather proof type to suit maximum ambient temperature of the location of installation.

10. Noise and vibration requirements

- (i) Noise level produced by any equipment individually or collectively shall not exceed 85dB (A) measured at a distance of 1.5 meters from the source in any direction. Acoustic jackets shall be provided on components causing excessive noise levels than specified.
- (ii) The overall vibration level shall be as per zones A and B of ISO 10816-1.
- (iii) The Chiller shall be installed on the designated structure with vibration isolators installed between structure and equipment base. The vibration isolators shall be as per manufacturer's recommendations. In all the cases, the isolation efficiency of vibration isolators shall not be less than 90%.

- (iv) Flexible pipe connectors (otherwise called as flexible rubber expansion joints) shall be installed at both inlet and outlet connections of chiller and condenser/Evaporator, to prevent vibration transmission from the unit to the piping.

11. Inspection, Factory Performance Tests and Quality Control

- (i) All equipment and components required for this plant shall be offered for factory inspection and testing before despatching to our site. Perform functional tests of Chiller before shipping. Manufacturer shall conduct factory performance test for chiller in accordance with latest ARI 550/590, to verify design capacity (at 100% load) and part load capacity. The tolerance on capacity and NPLV, other parameters are as per ARI 550/590 tolerance.
- (ii) Conduct test at approved ARI certified test facility of the manufacturer. Test for (a) Design conditions indicated (Capacity, NPLV, KW/TR etc) (b) Reduction in capacity from design to minimum load in steps of 10 with condenser fluid at design conditions.
- (iii) Prepare test report indicating test procedures, instrumentation, test conditions and results. Before shipment of chiller, all records (test certificates) and certifications approving testing requirements shall be submitted to and approved by C-DAC. Mere approval by C-DAC before shipment shall not be construed as acceptance. Acceptance is subjected to performance of the chiller in final acceptance test (FAT) that will be carried at our site.

12. Installation, Start-up, Commissioning and Testing

The Supplier shall install complete chilling unit on foundation as per recommendations of manufacturer. Necessary leveling shims/vibration isolators shall be provided by supplier. After installation of complete system, testing and commissioning of chilling units shall be carried out.

- (i) Demonstration and Training: Train C-DAC maintenance personnel to adjust, operate and maintain the chiller. The training shall be atleast 8 hours classroom training session and 24 hours shall be hands-on training for 20 persons of C-DAC after FAT.
- (ii) Commissioning
 - (a) The Supplier shall be present during all commissioning events.
 - (b) A factory-trained/authorized representative shall perform the start- up service, includes fill out start-up checklists.
 - (c) The Supplier shall complete installation and start-up checks according to manufacturer's written instructions. The check include no physical damage to the unit, unit is level, Chiller vibration isolation and flexible pipe connections are installed, Clearances have been maintained, chilled and condenser water pipes have been connected to correct ports, Labels and safety instructions are clearly visible, oil levels are as recommended by manufacturer, refrigerant charge is sufficient and chiller has been leak tested, shipping skids, blocks and straps are removed, thermometers, flow switches and pressure gauges are installed, control and safety interlocks are installed and connected.

- (d) The Supplier shall check and record performance of chiller protection devices.
- (e) The Supplier shall check and record performance of chilled and condenser water flow and interlocks
- (f) The Supplier shall operate chiller for run-in period as recommended by manufacturer
- (iii) Performance tests: Conduct Capacity/performance test at full load and part load conditions as per standards.

13. FAT (Final Acceptance Test) & FAC (Final Acceptance Certificate)

- (a) Upon completion of erection and commissioning work, C-DAC and supplier will jointly conduct the testing of Chiller for a period of 15 full working days fulfilling all the performance parameters as per the specifications in the tender. If any parameters are not fulfilled, the FAT shall be conducted again after rectification to the satisfaction of BRBNMPL and conduct the test as mentioned in the above clause(testing) .
- (b) FAC: Upon completion of FAT, C-DAC shall issue FAC (Final Acceptance Certificate).

14. Submittals

- (i) Product data:
 - (a) Performance at ARI standard conditions
 - (b) Minimum evaporator flow rate
 - (c) Refrigerant capacity of Chiller
 - (d) Oil capacity of Chiller
 - (e) Fluid capacity of evaporator, condenser
 - (f) Characteristics of safety relief valves
 - (g) Minimum entering condenser fluid temperature
 - (h) Performance at varying capacities with constant design condenser fluid temperature includes load test report at 25%,50%,75% and 100% conducted at factory and power consumption report KW/TR at 10%,20%,30%,40%,50%,60%,70%,80%,90% and 100% load (below 40% with ARI relief).
- (ii) Drawings: Include plans, elevations, sections, details and attachment to other works
 - (a) Detail equipment assemblies and dimensions, weights, load distribution, required clearances, method of field assembly, components, location and size of each field connection.
 - (b) Detailed individual assembly drawings of Compressor, Motor, Evaporator, Condenser.
 - (c) Lubrication system drawings.
 - (d) Tube dimension, tube arrangement, tube sheet and GA drawings for Evaporator and Condenser.
 - (e) Wiring diagrams: Complete electrical drawings include power, signal and control wiring, VFD control panel drawings.
 - (f) Instrumentation: List of temperature sensors, Flow switches and other



Instruments with part No & specifications along with calibration certificates and technical catalogues.

- (iii) Operation and Maintenance related
 - (a) Operation and maintenance Manuals (3 sets): Include start-up instructions, maintenance data, preventive/scheduled maintenance checklist with schedule, parts list, controls accessories and troubleshooting guide.
 - (b) Service instruction Manual/Service compressor overhauls Manual. Includes service photographs with instructions, parts list with part numbers, list of servicing/overhauling tools.
- (iv) Tools Kit: One set of tools include Operation & maintenance tools, Servicing and Overhauling tools shall be provided by supplier.

15. Warranty

- (i) Manufacturers stands for warranty for complete package in which manufacturer agrees to repair or replace components of Chiller that fails in materials or workmanship within specified warranty period. Complaints during warranty period should be attended within 24 hours from the date and time of lodging complaint. If not, the loss to C-DAC due to delay in rectification will be in to suppliers account.
- (ii) Warranty period: **Comprehensive in nature for Two year from the date of FAC**

16. Details/Documents to be submitted with technical Bid

- (a) GA drawings of the offered machine and panels.
- (b) The machine should be AHRI/EUROVENT certified and the certificate/computerized selection chart shall be provided.
- (c) Performance charts at full load and part loads.
- (d) Authorization/Dealership/Distributor certificate of the original manufacturer.
- (e) Complete catalogue of the offered model.
- (f) Mounting of the foundation detail.
- (g) Full technical data (as per -technical data) of all the equipment shall be furnished along with the tender without which tender will be rejected. The technical details shall be as requested under the head 'technical data'.
- (h) Optimum unit selection-Rating chart: The offer should include a computer printout of the selection of machine made as per the conditions specified herein justifying the same. It should bring out the performance of machine at 25%, 50%, 75% & 100% load. In addition, power consumption figures in KW/TR at 10%, 20%, 30%,40%,50%,60%,70%,80%,90%& 100% load shall also be furnished in chart/graph form for calculation of NPLV applicable to the system.
- (i) Guarantee letter to supply spares and service support for a period of 15 years from the date of commissioning of Chiller.

17. SHOP DRAWINGS, BUILDER'S WORK DRAWINGS AND MATERIAL SUBMITTALS

1. After award of Contract, submit programme of works in bar chart schedule and action plan along with the programme, submit a schedule detailing proposed submission



dates for all Material Submittals, Shop drawings and Builder's work drawings. Allow few days to review by the Consultant/Client for each such submission.

7. Contractor must obtain, from the Consultant/Client, approvals of all materials, equipment and Drawings within appropriate time to facilitate progress of work at site.
 8. Prepare composite construction drawings, fully dimensioned, of piping and equipment in shafts, Mechanical equipment rooms and areas, and all other critical locations to avoid any conflict arising thereof.
 9. Submission of technical submittals for all equipment and materials covered in the contract to be made upon finalization of the contract for approvals of Consultant/Client. The submission of samples, wherever raised by Consultant/Client, will be subject to the same procedure as that of shop drawings.
 10. The Client will mark the drawings "Approved / Approved with comments / Revise and Resubmit / Not Approved. Same practice will be followed for the material submittals. Contractor will take action based on the comments accordingly.
- Obtain Manufacturers' installation directions to aid in the proper execution of the work.

18. The minimum information required is as follows:

- a) Catalogs highlighting the Make, Model, Sr. No and other necessary details for all Material,
- b) test certificate, Manuals and Equipment installed.
- c) List of Local Agent / Supplier for all Materials and Equipment with Telephone, Fax and Email
- d) address.
- e) Detailed description of systems operation.
- f) Procedures for Preventive regular and the breakdown maintenance, with Manufacturer's
- g) Operation and Maintenance Catalog for all Systems / Equipments.
- h) Commissioning date for all Systems / Equipment.
- i) List of recommended spares.
- j) Trouble shooting – Cause / Remedy charts.
- k) Safety procedures.
- l) Start-up / Shutdown interlock sequence.
- m) Emergency / Shutdown log sheet format.

19. GENERAL WELDING REQUIREMENTS.

All welding shall be generally in accordance with ANSI B31. Tack welds shall be performed by fully qualified welders and all tack welds shall be of a length equal to twice the pipe thickness and shall fully penetrate the pipe walls wherever required. Where welding is carried out in the proximity of inflammable materials special precautions shall be taken to prevent risk of fire or other damage to the building fabric.

Where oxyacetylene cutting equipment or any welding equipment is being used by an operative for any of the works defined in the contract documents, then fire extinguishers shall be supplied and carried as part of the equipment. The operators of

cutting and welding equipment shall be trained in the use of the fire extinguishers, which they carry and all extinguishers shall be fully charged and ready for use. In all cases, extinguishers shall be positioned immediately adjacent to the position where cutting and welding is being carried out and shall be readily accessible for use in the event of an emergency.

All tools, welding m/c, acetylene, oxygen or electricity, filler rods and electrodes, which are necessary for installations where welding is required, shall be provided as part of this contract.

Welding shall not be done at a temperature of 5 degrees Centigrade or below unless the parent metal is preheated by torches or other approved means until it is warm to the hand (about 27 degrees C) for about 150mm either side of the joint. No welding shall be done below minus 18 degrees C. After preheating, the heated portion including the welded joints shall be covered with muffs or suitable insulation materials to allow cooling free from draughts. Any open ends of the pipe or assembly shall be effectively sealed to prevent heat flow by convection.

All welded pipe assemblies shall be constructed so that individual welded joints do not affect each other. The distance between the centres of adjacent welds shall be not less than twice the bore diameter of the pipe. No welded joints shall be left partially completed. Any joints tacked in position must be promptly finished within the working day. The Client will reject all work not done in accordance with this instruction.

20. PAINTING AND IDENTIFICATION.

All painting of plant, equipment, storage vessels, pipes, refrigerant piping, and the like shall be carried out by contractor.

Painting shall be applied to all exposed pipe work and associated components, valves, fittings, etc., equipment, supports of any kind, insulation, plain mild steel, copper, or cast iron surfaces. Steel piping shall be painted even if to be insulated, before insulation is carried out.

All the refrigerant & water piping should be painted as per the standard colour code.

21. FLUSHING AND CLEANING.

Flush all fluid-carrying systems after completion as specified elsewhere. Discharge the flushing fluid through all strainers and out through line sized valves. Clean all strainers. Repeat flushing operation to the approval of the Client until the water is running clear, colourless and odourless.

22. SUPERVISION.

The contractor will maintain at site, as necessary for the performance of the Contract, qualified personnel and supporting staff, with proven experience in erecting, testing, and adjusting projects of comparable nature and complexity. Such staff will be fully dedicated to the project and be available at site for continuous supervision activities.

Where the Contractor's staff becomes during the Contract deficient in performance, the Contractor is to remedy the situation by immediate and appropriate replacement, to

Consultant's/Client approval. Approval of the Contractor's Engineers or Staff shall in no way prevent the withdrawal of that approval at any time during the Contract should the Consultant /Client so desire. In the event of such disapproval, Contractor will be required to rectify the position as stated above. In the event of any negligent or severely detrimental behaviour the Client has the right to order the removal from site of any Engineer, Supervisor, or worker on a "forthwith" basis.

23. WORKMANSHIP.

Good workmanship and neat appearance are the prerequisites for completion with the various sections of this specification. Work shall be carried out in accordance with the statutory rules and conform to relevant rules and I.S Specifications.

Install equipment and piping in a workmanlike manner to present a neat appearance and to function properly to the satisfaction of the Client. Install ducts and pipes parallel and perpendicular to the building planes. Install all exposed systems neatly and group to present a neat appearance. Install all gauges, thermometers, etc., to permit easy observance. Install all equipment and apparatus which requires maintenance, adjustment, or eventual replacement with due allowance for this.

Install valves to guarantee proper sensing. Shield elements from direct radiation and avoid placing them behind obstructions. Install all panels and boards, etc., to permit easy operation. Include in the work all requirements of Manufacturers as shown on their drawings. Replace all work unsatisfactory to the Client without extra cost and to the standard required by the Consultant/Client. This applies to any item, which is found to be defective in service during the maintenance period, or extended maintenance period as appropriate.

If the contractor employs sub-contractors for works like equipment installation, piping, insulation etc., the same is to be communicated in advance to the consultant/Client with a detailed profile of the subcontractor including their experience, skilled personnel and machine/tools availability for undertaking such works. The sub-contractor can start work only after acceptance /clearance issued by Client.

24. MATERIALS AND EQUIPMENT

All materials used on the project shall be brand new and in compliance with the technical specification mentioned in the contract. Equipment/material Manufacturers mentioned in the list of makes alone will be accepted. Obtain approval of all manufacturers from the Client. Contractor is advised not to submit any brand, which does not appear in the "List of approved makes".

"New" is defined as newly manufactured, and delivered to site as such. Any Equipment which in Client opinion second hand or has been mishandled before delivery to site, shall be rejected. All materials used on this project shall bear the third party quality assurance stamp like British Standard kitemark, UL, FM, and/or other quality assurance authority as appropriate, in the opinion of the Client.

Each equipment should be factory tested and certified all QA/QC test certificates to be submitted for review of Client. If deemed necessary factory inspection may be



undertaken by client. Each equipment should be properly tagged, with name plates carrying all details relevant to the machine for ease of identity and reference.

25. CLEANING.

Each day as the work proceeds and on completion, clean up and remove from the premises all rubbish, surplus material, equipment, machinery, tools, scaffolds, and other items used in the performance of the work. Clean out dirt and debris and leave the buildings broom clean with no stains and in a condition acceptable to the Consultant/Client. Where electrical items form part of the visible finish in the rooms, protect from over-painting, etc. and give all items a final cleaning before handing over of the project.

26. CUTTING AND PATCHING.

Obtain the approval of the Client before doing any cutting. Supporting members of any floor, wall or the building structure shall only be cut and in such a manner as approved by the Client. All reinstatement work must be done to the same standard as the original work.

27. INSERTS, SLEEVES AND CURBS.

Under this section supply necessary sleeves and other inserts to other trades. Use only factory made, threaded or toggle type inserts as required for supports and anchors, properly sized for the load to be carried. Place inserts only in portions of the main structure and not in any finishing material. Supply and locate all inserts, holes, anchor bolts, and sleeves in good time when walls, floors, and roof are erected. Pass insulation unbroken where pipe is insulated. Size sleeves to provide adequate.

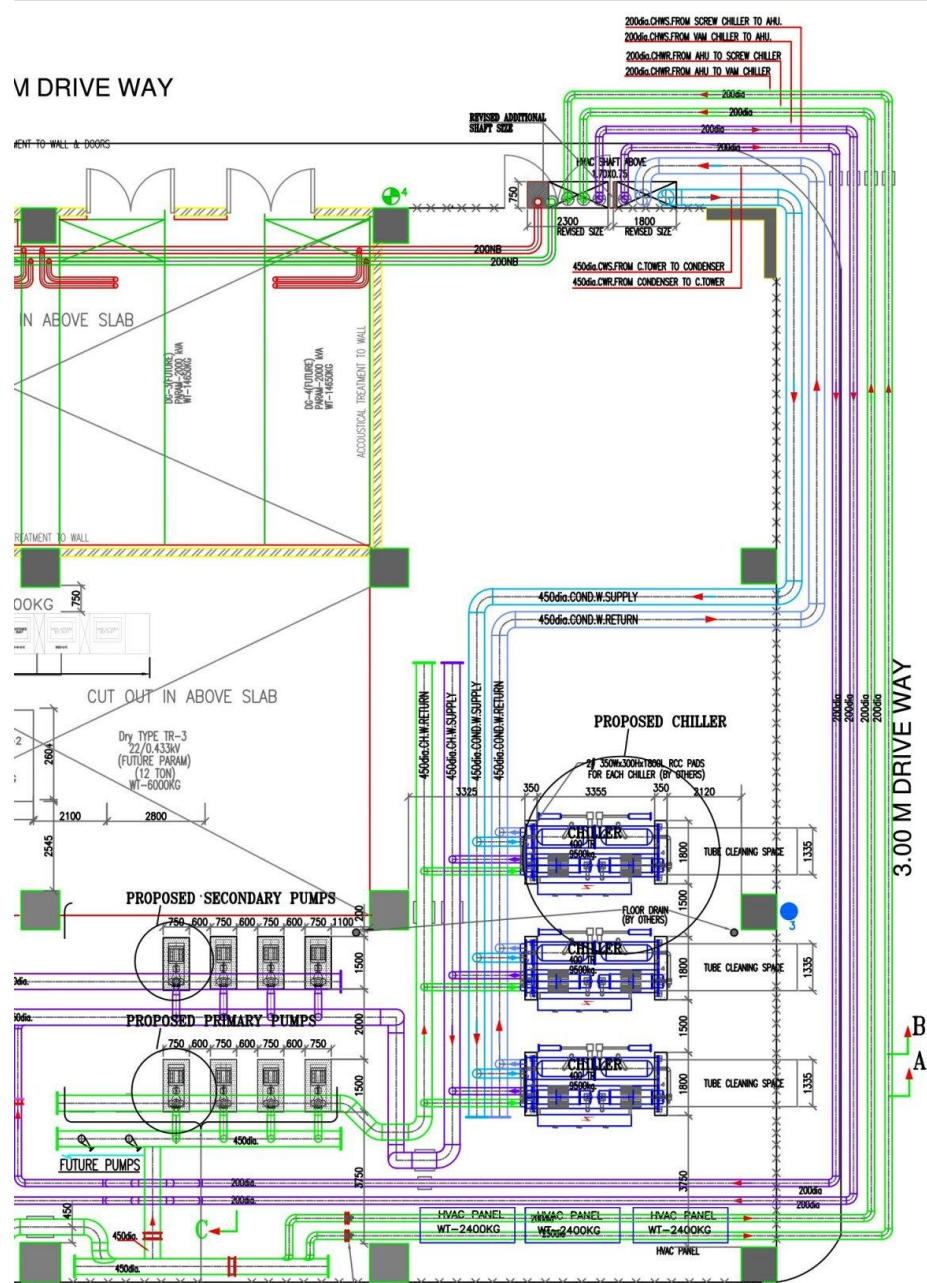
28. TECHNICAL DATA (to be submitted along with tech bid)

Water Cooled Screw Chiller (Minimum 400 TR at design conditions)			
SI No	Description	Unit (where ever applicable only)	Details
01	Make/Manufacturer/Model		
02	Type		
03	Place of Manufacture		
04	Overall Dimensions(L*W*H)	mm	
05	Operating weight	Kg	
06	Type of Vibration Isolators		
07	Refrigeration Capacity (at operating conditions)	TR	
08	Total power consumed at operating conditions	KW	
09	IKW/TR	IKW/TR	
10	IKW/TR (Part load)		
	(a) 100%	IKW/TR	
	(b) 75%	IKW/TR	
	(c) 50%	IKW/TR	
	(d) 25%	IKW/TR	
11	NPLV		
12	Refrigerant		
13	Operating Compressor speed	RPM	
14	Type of Drive		
15	Method of capacity control		
16	Noise level (at 1.5 mtrs distance)	DB	
17	AHRI/EUROVENT certification		YES/NO
18	Super Heating	Deg F	
19	Sub Cooling	Deg F	
MOTOR			
01	Make		
02	Type		
03	HP/KW		
04	Insulation Class		

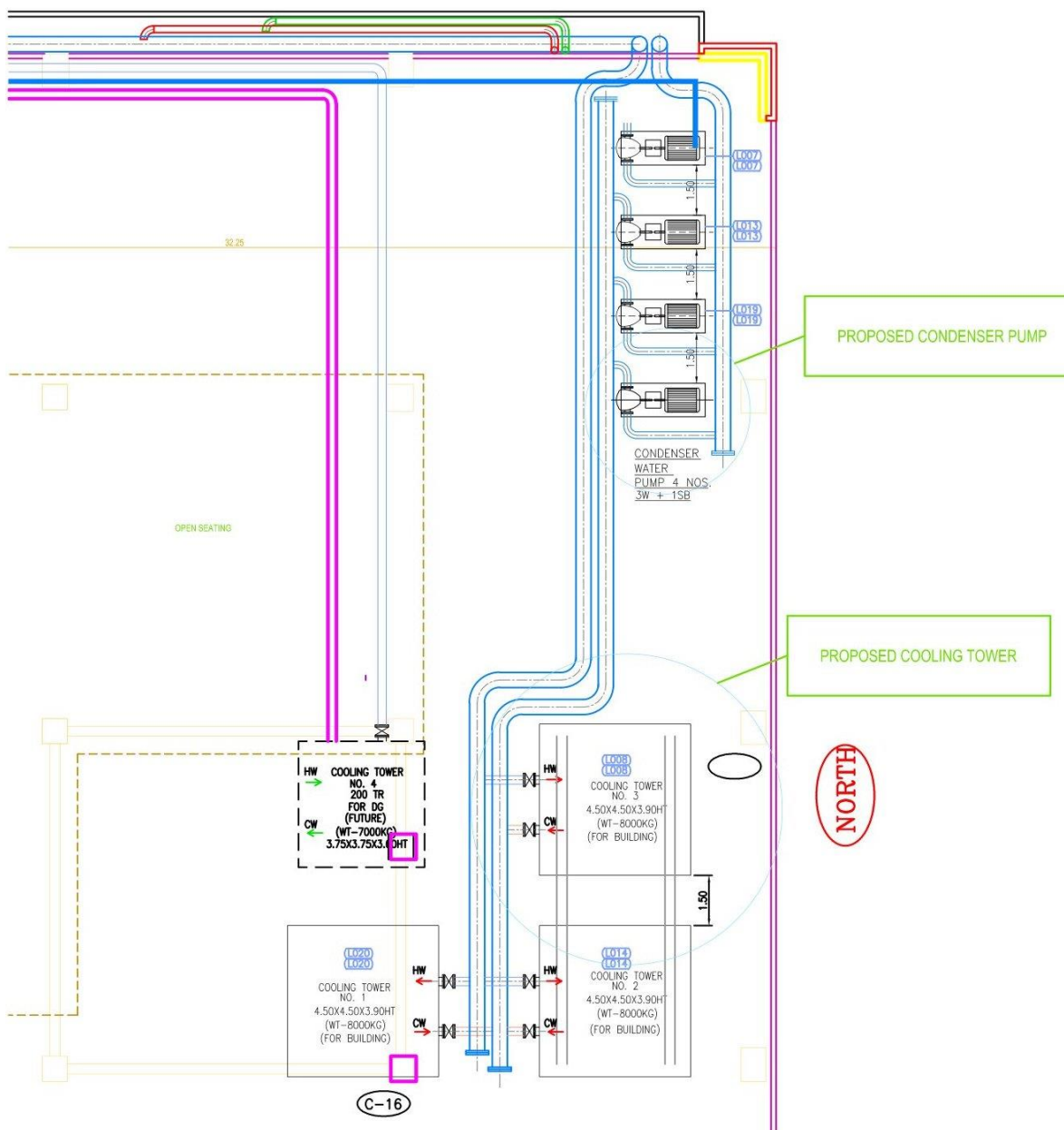
05	Operating Voltage		
06	Full Load Current (FLA)	Amps	
07	Starting Current	Amps	
EVAPORATOR			
01	Make/Model		
02	Type		
03	Capacity at Design Conditions	TR	
04	Total Heat transfer area-Refrigerant side	Sq-m	
05	Total heat transfer area- Water side	Sq-m	
06	Design Pressure-Refrigerant side	Kg/cm2 (gauge Pr)	
07	Design Pressure- water side	Kg/cm2 (gauge Pr)	
08	Test Pressure- Refrigerant side	Kg/cm2 (gauge Pr)	
09	Test pressure- Water side	Kg/cm2 (gauge Pr)	
10	Number of Passes	Nos	
11	Number of Tubes	Nos	
12	Tube material/Gauge		
13	Tube Dia	mm	
14	Water Flow rate	GPM	
15	Water inlet/outlet temperatures	Deg F	
16	Water velocity in tubes	m/s	
17	System refrigerant Charge	Kg	
18	Fouling factor	Sq.ft.hr F/BTU	
19	Super heating	Deg F	
20	Water side pressure drop		

CONDENSER			
01	Make/Model		
02	Type		
03	Total Heat rejection Capacity at Design Conditions	Kcal/hr	
04	Total Heat transfer area-Refrigerant side	Sq-m	
05	Total heat transfer area- Water side	Sq-m	
06	Design Pressure-Refrigerant side	Kg/cm ² (gauge Pr)	
07	Design Pressure- water side	Kg/cm ² (gauge Pr)	
08	Test Pressure- Refrigerant side	Kg/cm ² (gauge Pr)	
09	Test pressure- Water side	Kg/cm ² (gauge Pr)	
10	Number of Passes	Nos	
11	Number of Tubes	Nos	
12	Tube material/Gauge		
13	Tube Dia	mm	
14	Water Flow rate	GPM	
15	Water inlet/outlet temperatures	Deg F	
16	Water velocity in tubes	m/s	
17	Water side Pressure Drop		
18	Fouling factor	Sq.ft.hr F/BTU	
19	Sub Cooling	Deg F	

DRAWINGS



BASEMENT PLANT ROOM SCHEMATIC LAYOUT WITH PROPOSED CHILLER AND PUMP LOCATION(BASEMENT)



TERRACE FLOOR SCHEMATIC LAYOUT WITH PROPOSED COOLING TOWER AND PUMP LOCATION(TERRACE)



SECTION VI - Price Schedule:

Sr. No	Description	Unit	Qty	Unit Price Rs.	GST %	Amount (In INR) Including GST
	Chiller Unit					
1	Supplying, installing, testing and commissioning of AHRI/EUROVENT certified Water Cooled Screw Chiller (Minimum 400 TR at design conditions) with twin compressors & Independent circuits configuration at Pune site conditions at specified design condition ,complete with R134a refrigerant compressor, first charge of refrigerant gas & oil etc,motor suitable for 415±10% 50 cycles. 3 phase AC supply, starter panel , water cooled condenser, insulated chiller, flow switch at chiller and condenser, spring loaded vibration isolators, flexible bellows ,pressure gauge, thermometer, integral refrigerant piping and wiring, automatic and safety controls mounted in central console panel with necessary BAS card for compatibility with Building Automation System(BAS) /BMS and all mounted on frame complete as per specifications. Flanged coupling connection for inlet and outlet etc as required. Chilled water Leaving Temp : 7°C Chilled water Entry Temp. : 12°C Condenser Water IN :30°C Condenser Water OUT : 35°C Evaporator Fouling Factor 0.0000200 M2 °K/W Condenser Fouling Factor (FPS) : 0.0000440 M2 °K/W Maximum Power Consumed at full load : Not greater than 0.60 kW/TR Minimum NPLV -0.45 kW/TR Minimum COP (At ARI conditions) : 6.4 Minimum IPLV (ARI 550/590)- 8.6 1 No: Matching shell and tube water cooled condenser of M.S. shell and integrally finned copper tubes. 1No.: Matching shell and tube flooded type chiller of MS shell an copper tubes. 1 No.: suitable capacity squirrel cage induction motor with class-F insulation suitable for operation on 415±10% volts, 50 Hz, A.C. supply	No	1			

	1No.: Automatic starter suitable for compressor motor complete with ammeter with over load protection, under voltage protection, against phase reversal & Independent single phase preventers etc complete as required. 1 Lot- Refrigerant piping fittings, valves and accessories to inter connect compressor, condenser, chiller and expansion valve. 1 Lot- Water flow switches at outlet & inlet of condenser & chiller, water drain valve & air purge valves wherever required. 1Lot- Suction line and chiller insulation with minimum 19mm thick polyvinyl nitrite rubber insulation.					
	Pumps					
2	SITC of End Suction Back Pullout centrifugal water pump with positive suction. C.I. casing, Bronze impeller, MS frame & Mechanical seal with 2 Pole motor Pump with motor, base frame , coupling ,spring mount, flexible bellows, coupling guard , foundation bolts, Mounting frame with Anti vibration pads, Suitable HP , TEFC squirrel cage induction motor with class 'F' insulations & efficiency class IE-3, synchronous speed ,operating on 415 +/-10% volts ,3 phase , 50 Hz A.C. supply. Min. pump efficiency at duty conditions shall not be less than 75%,All external and exposed cast iron parts of pumps have an epoxy-based coating made in a cathodic electro-deposition (CED) process which is high-quality dip-painting process and which would prevent rusting and corrosion. The Pump Shall be BMS Compatible. The noise level shall not exceed 75 dbA at 2 m from the source ,Expanded polystyrene (T.F.Quality) insulations of not less than 75mm thick duly cladded between aluminium sheets of 0.5mm thickness and properly clamped to pump in two semicircular section as per specifications, commissioned to operate in (3W+1S) Mode with existing pumps					
a	Condenser water Pump Flow 288 CMH & Head 45 Mtr	No	1			
b	Primary Chilled water Pump (Constant Speed) Flow 246 CMH & Head 20 Mtr	No	1			

c	Secondary Chilled water Pump with VFD(Variable Speed-The pump selected for variable speed drive shall be capable of performing satisfactorily over a wide range of speed, allowing a speed variation from 20 % to 100 %) with dedicated microprocessor based pump controller with parallel pumping software duly downloaded, suitable to run on variable frequency drives as required and multiple differential pressure sensor / transmitters as necessary)Flow 246 CMH & Head 45 Mtr	No	1			
	Piping Work					
3	Providing & fixing the following factory rolled MS Heavy Class (IS 1239) chilled water pipes with specified wall thickness cut to required lengths and installed with all welded joints, providing and fixing in position necessary fittings like bends, elbows, tees, reducers, sockets etc. fabricated to size and shape in workshop or brought out ready made where available of acceptable quality as per specification. (1 coat of red oxide with 2 coat of approved paint)					
a	100 mm Dia C Class	RMT	15			
b	150 mm Dia C Class	RMT	15			
c	200 mm Dia (8 mm thick)	RMT	8			
d	250 mm Dia (8 mm thick)	RMT	120			
	Valve Package					
4	SITC of manual balancing valves for condenser / chilled water piping in position conforming to specifications provided.(PN16)					
a	150 mm	No	1			
b	200 mm	No	1			
5	SITC of CI butterfly valves for condenser / chilled water piping in position conforming to specifications provided. (PN16)					
a	100 mm	No	1			
b	250 mm	No	4			
6	SITC of MS 'C' class Y-strainer for condenser / chilled water piping in position conforming to specifications provided.(PN16)					
a	150 mm	No	2			
b	250 mm	No	1			
7	Supply, installation, testing and commissioning of flexible connections (6" to 8" length) of suitable pressure rating to be installed at pump suction, discharge, chillers and at pipes crossing building expansion joints as per					

	specification.(PN16)					
a	150 mm	No	6			
b	200 mm	No	2			
c	250 mm	No	2			
8	SITC of CI Non return valve for condenser / chilled water piping in position conforming to specifications provided. (PN16)					
a	200 mm	No	0			
b	250 mm	No	1			
	Insulation & Accessories					
9	Supplying, installing, testing and commissioning of 50 mm thick closed cell elastometric nitrile rubber of class 'O' applied by suitable adhesive with aluminium based cladding on chilled piping and fitting like valves, flanges union, etc. of following size . Cladding shall be of Armaflex Armacheck silver 350/ K Flex AL CLAD or equivalent and insulation work to be carried out as per OEM specifications.	RMT	30			
10	Insulation of chilled water valves closed cell elastometric nitrile rubber of class 'O' applied by suitable adhesive with aluminium based cladding	No	14			
11	SITC of pressure gauge with siphon	EA	12			
12	SITC of temperature gauge with syphon	EA	4			
13	SITC of Flow Switch	EA	1			
14	SITC of Thermocouple	EA	3			
15	SITC Structural steel for supporting structures of piping,	Kg	2000			
16	Shutdown Activity & Commissioning charges	Lot	1			
17	COOLING TOWER					
	Supply, Installation, testing and commissioning of Induced Draft (Counter Flow Type) cooling Towers(CTI approved), Minimum Capacity- 80 LPS . The Cooling Tower shall be of Galvanised steel/FRP Construction with direct driven/ belt driven fans, Galvanised hardware complete with sump and drain connection with suitable valve, PVC fill, louvers, drift eliminator complete with spray nozzle having self rotating sprinklers, steel ladder, isolating switch and other accessories to make it fully operational and maintainable & positioning of cooling tower at Terrace of Building.	Nos	1			
	Type of Fan: Propeller , weather proof IP 55. Direct driven.					
	The Cooling tower shall be capable to					

	communicate effectively with BMS.					
	Range of CT: 5 deg C					
	Wet bulb approach: 3.9 Deg C Approach					
	Drift loss < 0.05%					
18	Civil Work& Miscellaneous					
a	Civil Modification work for Foundation of Pumps with isolation pads	Cum	2			
b	Structural steel for Chiller, cooling tower	Lot	1			
c	Scaffolding Charges for installation and Fixing MS Piping for Cooling Tower Piping Header replacement from chiller to C.T.	Lot	1			
d	Supply and installation of spring Isolators for Chiller	Lot	1			
e	Lifting of Condenser Pipe and Cooling Tower to terrace floor, Shifting of Chiller & Pumps to basement plant room	Lot	1			
19	Electrical Work					
	Supply, installation, testing commissioning of following distribution panel board of various sizes on wall/column/floor, in flush / recessed mounting, with required hardware, fasteners etc. The DB should have appropriate no. of top & bottom knock outs for outgoing circuits & shall be complete with necessary bus bars, interconnection terminals & earth studs. All terminations be complete with ferruling, dressing & all circuits shall be properly labelled with PVC strip (sticker type) having identification as per the Panel drawing & final approval of Client/Consultant.(Specification of panel as below)	Nos	1			
a)	Incomer section					
	Supply, installation, testing and commissioning of Mounted Raw Power Distribution Panel fabricated with 2 mm CRCA Sheet with Powder coating, IP 52 with Top Entry with provision of indication lamps, Digital Voltmeter and Ammeter, Auxiliary Contacts (On/ off),MCCB Spreader Links, Phase Barriers, MCB 6A SP 10KA, C type Multifunction meter CL-1 RS 415V 3PH 4w CTR/5A, CT 800/5A CI-1 15VA ,CT Shorting Terminals, Indicating Lamps 230V AC, in Incomer feeder,& Consisting of 1 x 800 A 4 pole 50KA MCCB with thermal magnetic overload, short circuit releases as Incomer with suitable size of crimped lugs, sleeves, ferules insulators and terminals etc					

	and 6 outgoing section with VFD section with VFD danfoss-make (chiller Panel -3) Schneider Make (with remote panel operation)-Number -01					
b)	Outgoing Section					
	Supply, installation, testing and commissioning 630Amp 4 pole MCCB with micro-processor based O/L, S/C & E/F release as outgoing panels along with all required accessories such as bus bar, metering (Digital Ammeter) & indication etc complete. with suitable size of crimped lugs, sleeves, ferules insulators and terminals with star delta Contactor & req.accessories etc (chiller)-Number -01					
	Supply, installation, testing and commissioning 63Amp TP,25KV MCCB with thermal magnetic overload, short circuit releases as Incomer with suitable size of crimped lugs, sleeves, ferules insulators and terminals with star delta Contactor req. accessories etc (25 HP primary pump)Number -01					
	Supply, installation, testing and commissioning 125Amp TP,25KV MCCB with thermal magnetic overload, short circuit releases as Incomer with suitable size of crimped lugs, sleeves, ferules insulators and terminals with star delta Contactor req. accessories etc (60 HP Secondary pump)Number -01					
	Supply, installation, testing and commissioning 63Amp TP, MCCB with thermal magnetic overload, short circuit releases as Incomer with suitable size of crimped lugs, sleeves, ferules insulators and terminals with star delta Contactor req. accessories etc (20 HP CT Fan)Number -01					
	Supply, installation, testing and commissioning 200Amp TP,25KV MCCB with thermal magnetic overload, short circuit releases as Incomer with suitable size of crimped lugs, sleeves, ferules insulators and terminals with star delta Contactor req. accessories etc (100 HP Condenser pump)Number -01					
20	CABLING SYSTEM					
	Supply, handling (shifting from place of unloading to place of storage & shifting from place of storage to place of installation including insurance), installation, testing, commissioning & performance demonstration of LV Cables of following sizes to be laid					

	buried in ground or laid on cable trays or pipe rack. Miscellaneous items such as cable dressing accessories like nylon tie, Aluminium clamps, GI cleats, cable tags, cable route marker etc. are included in the scope. Removal of empty drums, cartons and making the site normal as instructed by Purchaser/ client is included in scope. All the cut-outs made or civil work related to cable laying need to finished by the contractor matching with the existing finishing.					
20.1	Cables					
20.1.1	1.1kV Grade multi-stranded Copper / Aluminium Conductor, XLPE Insulated, Extruded PVC (Type-ST2) Inner Sheathed, Galvanised Steel Flat Strip Armoured Cable. (As Per IS 7098, Part I)					
a	3.5C x300 sq.mm AL 2R x 65 mtr. (PCC Panel to Chiller Panel)	Mtr	130			
b	3.5C x 300 sq.mm AL 2R x 45 Mtr.(Chiller Panel to Chiller)	Mtr	90			
c	3.5 x 50 sq.mm AL 2R x 150 Mtr. (Chiller panel to Condenser pump)	Mtr	300			
d	3.5C x 25 sq.mm AL 2R x 35 Mtr. (chiller panel to Primary Pump)	Mtr	70			
e	3.5C x 25 sq.mm AL 2R x 35 Mtr. (chiller panel to Secondary Pump)	Mtr	70			
f	4C x 6 sq.mm AL 2R x 190 mtr. (Chiller panel to CT fan)	Mtr	380			
20.2.2	1.1kV Grade multi-stranded Copper / Aluminium Conductor, XLPE Insulated, Extruded PVC (Type-ST2) Inner Sheathed, Galvanised Steel Flat Strip Unarmoured Cable. (As Per IS 7098, Part I)					
a	3C x 4 sq.mm CU	Mtr	25			
20.2	CABLE TERMINATIONS FOR FOLLOWING POWER / CONTROL CABLES:					
	Cable end terminations for LV, XLPE/PVC insulated, PVC sheathed, armoured/ unarmoured flexible power / control cable including supply and fixing of Ni plated Double compression cable glands, stripping of cable insulation, supply and fixing of aluminium lugs for aluminium cables and tinned plated copper lugs for copper cables for all phases and crimping the same to the conductor for the following cables. Miscellaneous items like cable lugs, G.I nut - bolts and G.I washers, consumables and other hardware materials as					

	required to make the installation complete, are in the scope. All G.I Nut, bolt and washers shall be HDGI with 80 micron. All the cut outs made or civil work related to cable laying need to finished by the contractor matching with the existing finishing.					
2.1.1	1.1kV Grade multi-stranded Copper / Aluminium Conductor, XLPE Insulated, Extruded PVC (Type-ST2) Inner Sheathed, Galvanised Steel Flat Strip Armoured Cable. (As Per IS 7098, Part I)					
a	3.5C x 300 sq.mm AL	Nos	4			
b	3.5C x 300 sq.mm AL	Nos	4			
c	3.5C x 50 sq.mm AL	Nos	4			
d	3.5C x 25 sq.mm AL	Nos	4			
e	3.5C x 25 sq.mm AL	Nos	4			
f	4C x 6 sq.mm AL	Nos	4			
2.2.2	1.1kV Grade multi-stranded Copper / Aluminium Conductor, XLPE Insulated, Extruded PVC (Type-ST2) Inner Sheathed, Galvanised Steel Flat Strip Unarmoured Cable. (As Per IS 7098, Part I)					
a	3C x 4 sq.mm CU	Nos	6			
21	SUPPLY & INSTALLATION OF CABLE TRAYS & Covers					
21.1	Supply & Installation of Readymade 2500mm standard length, prefabricated , perforated cable tray from 14 SWG MS sheet and then hot dip galvanised, of following sizes and associated accessories such as coupler plates, tees, elbow etc. 50mm side flanges shall be provided. Also the necessary hardware's and supports for the same are included in this item. All the cut-outs made or civil work related to cable laying need to finished by the contractor matching with the existing finishing.					
a	600 mm x 50 mm	Mtr	20			
b	150 mm x 50 mm	Mtr	20			
21.2	Readymade 2500mm standard length, prefabricated , cable tray cover from 14 SWG MS sheet and then hot dip galvanised, of following sizes and associated accessories such as coupler plates, tees, elbow etc. 50mm side flanges shall be provided. All the cut-outs made or civil work related to cable laying need to finished by the contractor matching with the existing finishing.					
a	600 mm x 50 mm	Mtr	20			
b	150 mm x 50 mm	Mtr	20			

22	SUPPLY & INSTALLATION OF EARTHING SYSTEM					
	<i>GI earth conductor & Cables of the following sizes to be laid in ground / in cable trays / on wall including jointing by welding, connecting to equipments, painting to welded portion by black bitumen paint and with all necessary hardware. All the cut-outs made or civil work related to cable laying need to finished by the contractor matching with the existing finishing.</i>					
a	50 x 6 GI Strip	Mtr	50			
b	25 x 3 CU Strip	Mtr	10			
c	25 x 3 GI Strip	Mtr	10			

The above quoted prices are including freight, insurance, loading, un-loading, handling and allied charges to be incurred till installation at site.

(End of Section – VI)



ANNEXURE – A: COVERING LETTER

Date:

To:

**The Executive Director,
Centre for Development of Advanced Computing (C-DAC)
Innovation Park, Panchavati, Pashan Road,
Pune - 411008 Maharashtra, INDIA**

Subject: Submission of bid for Supply, Installation, Commissioning of **AHRI/EUROVENT certified Water Cooled Screw Chiller with allied HVAC system**

Dear Sir,

We, the undersigned, offer to supply of **AHRI/EUROVENT certified Water Cooled Screw Chiller with allied HVAC system** in response to your Tender No CDACP/Chiller/20-21/316. We hereby submit our proposal for same, comprising of Technical bid and the Financial Bid, through www.eprocure.gov.in

We hereby declare that all the information and statements made in this bid are true and we accept that any misinterpretation contained in it, may lead to our disqualification.

We undertake that the products offered are not nearing end-of-life / end-of-support five /three years down the line from the date of bidding, from OEM.

We undertake, that a PBG of 3% of the order(s) value will be submitted in case C- DAC decides to place any Purchase Order(s).

We hereby certify that my/ our firm has not been disqualified and / or blacklisted by any Office/ Department/ Undertaking of the State Government / Central Govt. of India, PSU/ Autonomous Body of Government of India, at the time of submission of this bid.

We agree to abide by all the terms and conditions of the tender document, including corrigenda. We would hold the terms of our bid valid for 120 days as stipulated in the tender document.

We understand you are not bound to accept any Proposal you receive.

The undersigned is authorized to sign this bid document. The authority letter to this effect is enclosed.

Yours sincerely,

Authorized Signatory:

Name and Title of Signatory:

e-mail:

Mobile No:



ANNEXURE – B: AUTHORITY LETTER

Date:

To:

**The Executive Director,
Centre for Development of Advanced Computing (C-DAC)
Innovation Park, Panchavati, Pashan Road,
Pune - 411008 Maharashtra, INDIA**

Subject: Authority Letter

Reference: Tender No **CDACP/Chiller /20-21/316**

Dear Sir,

We, M/s _____ (Name of the bidder) having registered office at _____
(address of the bidder) herewith submit our bid against the said tender document.

Mr./Ms. _____ (Name and designation of the signatory), whose signature is appended
below, is authorized to sign and submit the bid documents on our behalf against said RFP

Specimen Signature:

The undersigned is authorised to issue such authorisation on behalf of us.

For M/s _____ (Name of the bidder)

Signature and company seal

Name

Designation

Email

Mobile No.



ANNEXURE C – UNDERTAKING BY PRINCIPAL MANUFACTURER(S)

(To be submitted in Original on Letterhead)

Date:

**The Executive Director,
Centre for Development of Advanced Computing (C-DAC)
Innovation Park, Panchavati, Pashan Road,
Pune - 411008 Maharashtra, INDIA**

Subject: Undertaking by Principal Manufacturer against tender no. **CDACP/Chiller /20-21/316** for Supply, Installation of **AHRI/EUROVENT certified Water Cooled Screw Chiller with allied HVAC system.**

Dear Sir,

We, M/s _____ (*Name of the manufacturer*) having registered office at _____ (*address of the manufacturer*) by virtue of being manufacturers of **AHRI/EUROVENT certified Water Cooled Screw Chiller with allied HVAC system** in India, hereby certify that M/s _____ (*Name of the bidder*) having their office at _____ (*Address of bidder*) are our Authorised dealers. We hereby authorise them to submit offer, supply, install and provide after sales support for our range of products offered by them to meet the above mentioned tender requirements.

Within the scope of requirement as per the tender mentioned above, we undertake to provide technical & other support towards fulfilling the requirements of installation, commissioning, acceptance criteria and product warranty services of the **AHRI/EUROVENT certified Water Cooled Screw Chiller with allied HVAC system** to be supplied and installed at C-DAC's site(s) by M/s. _____ (*Name of bidder*) against said tender.

We also certify that the products offered are not nearing end-of-life / end-of-support three years down the line from the date of bidding.

The undersigned is authorised to issue this certificate on behalf of M/s _____ (*Name of the manufacturer*).

For M/s _____ (*Name of the manufacturer*)

Signature & company seal

Name

Designation

Email

Mobile No.



Annexure – D: Undertaking for EMD

Date:

To:

The Director General,
Centre for Development of Advanced Computing (C-DAC)
Innovation Park, Panchavati, Pashan Road,
Pune - 411008 Maharashtra, INDIA

Subject: Undertaking as per GFR – 2017, Rule 170(iii)

Dear Sir,

We, the undersigned, offer to Supply the **AHRI/EUROVENT certified Water Cooled Screw Chiller with allied HVAC system** as per tender at C-DAC Pune, in response to your Tender No. CDACP/Chiller/20-21/316.

We are hereby submitting our proposal for same, which includes Technical bid and the Financial Bid. As a part of eligibility requirement stipulated in said tender document, we hereby submit a declaration in lieu of Earnest Money Deposit (EMD), as given below:

1. Our bid shall remain valid for 120-days from the date of submission and that we will not withdraw or modify our bid during the validity period,
2. In case, we are declared as successful bidder and an order is placed on us, we will submit the acceptance in writing within 7 days of placement of order on us.
3. In case, we are declared as successful bidder and an order is placed on us, we undertake, to submit a Performance Security of 3 % of the order value, as per terms stipulated in the tender.
4. In case of failure on our part to comply with any of the above said requirements, we are aware that we shall be declared as un-eligible for said tender and /or debarred from any **future bidding process of C-DAC/ any Government buyer, for a period of minimum one year.**
5. The undersigned is authorized to sign this undertaking.

Yours sincerely,

Authorized Signatory:

Name and Title of Signatory:

e-mail:

Mobile No:



ANNEXURE E - PROFORMA OF PERFORMANCE BANK GUARANTEE

To,

**Centre for Development of Advanced Computing
Pune University Campus
Ganesh Khind, Pune – 411 007**

BANKS GUARANTEE NO:

DATE:

Dear Sir(S)

This has reference to the Purchase Order No. _____ Dated _____ been placed by Centre for Development of Advanced Computing(C-DAC), Pune on M/s _____ (Name & Address of vendor) for supply, installation, commissioning and warranty of _____ (description of items) at C-DAC/client's site.

The conditions of this order provide that the vendor shall,

1. Arrange to deliver the items listed in the said order to the consignee, as per details given in said order, and
2. Arrange for the comprehensive warranty service support towards the items supplied by vendor at sites anywhere in India, as per the warranty clause in said purchase order.

M/s (Name of Vendor) has accepted the said purchase order with the terms and conditions stipulated therein and have agreed to issue the performance bank guarantee on their part, towards promises and assurance of their contractual obligations vide the Supply Order No. _____ M/s. _____ (name of vendor) holds an account with us and has approached us and at their request and in consideration of the promises, we hereby furnish such guarantees as mentioned hereinafter.

C-DAC shall be at liberty without reference to the Bank and without affecting the full liability of the Bank hereunder to take any other undertaking of security in respect of the suppliers obligations and / or liabilities under or in connection with the said contract or to vary the terms vis-a – vis the supplier or the said contract or to grant time and or indulgence to the supplier or to reduce or to increase or otherwise vary the prices or the total contract value or to forebear from enforcement of all or any of the obligations of the supplier under the said contract and/or the remedies of C-DAC under any security (ies) now, or hereafter held by C-DAC and no such dealing(s) with the supplier or release or forbearance whatsoever shall have the effect of releasing the bank from its full liability of C-DAC hereunder or of prejudicing right of C-DAC against the bank.

This undertaking guarantee shall be a continuing undertaking guarantee and shall remain valid and irrevocable for all claims of C-DAC and liabilities of the supplier arising up to and until _____ (date)

This undertaking guarantee shall be in addition to any other undertaking or guarantee or security whatsoever the that C-DAC may now or at any time have in relation to its claims or the supplier's obligations/liabilities under and / or in connection with the said contract and C-DAC shall have the full authority to take recourse to or enforce this undertaking guarantee in preference to the other undertaking or security (ies) at its sole discretion and no failure on the



part of C-DAC in enforcing or requiring enforcement of any other undertaking or security shall have the effect of releasing the bank from its full liability hereunder.

We _____ (Name of Bank) hereby agree and irrevocably undertake and promise that if in your (C-DAC's) opinion any default is made by M/s _____ (Name of Vendor) in performing any of the terms and /or conditions of the agreement or if in your opinion they commit any breach of the contract or there is any demand by you against M/s _____ (Name of Vendor), then on notice to us by you, we shall on demand and without demur and without reference to M/s _____ (Name of Vendor), pay you, in any manner in which you may direct, the amount of Rs. _____/- (Rupees _____ Only) or such portion thereof as may be demanded by you not exceeding the said sum and as you may from time to time require. Our liability to pay is not dependent or conditional on your proceeding against M/s _____ (Name of Vendor) and we shall be liable & obligated to pay the aforesaid amount as and when demanded by you merely on an intimation being given by you and even before any legal proceedings, if any, are taken against M/s _____ (Name of Vendor)

The Bank hereby waives all rights at any time inconsistent with the terms of this undertaking guarantee and the obligations of the bank in terms hereof shall not be anywise affected or suspended by reason of any dispute or disputes having been raised by the supplier (whether or not pending before any arbitrator, Tribunal or Court) or any denial of liability by the supplier or any order or any order or communication whatsoever by the supplier stopping or preventing or purporting to stop or prevent payment by the Bank to C-DAC hereunder.

The amount stated in any notice of demand addressed by C-DAC to the Bank as claimed by C-DAC from the supplier or as suffered or incurred by C-DAC on the account of any losses or damages or costs, charges and/or expenses shall as between the Bank and C-DAC be conclusive of the amount so claimed or liable to be paid to C-DAC or suffered or incurred by C-DAC, as the case may be and payable by the Bank to C-DAC in terms hereof.

You (C-DAC's) shall full liberty without reference to us and without affecting this guarantee, postpone for any time or from time to time the exercise of any of the powers and rights conferred on you under the contract with the said M/s _____ (Name of Vendor) and to enforce or to forbear from endorsing any power or rights or by reason of time being given to the said M/s _____ (name of Vendor) which under law relating to the sureties would but for the provisions have the effect of releasing us.

You will have full liberty without reference to us and without affecting this guarantee, postpone for any time or from time to time the exercise of any of the powers and rights conferred on you under the contract with the said M/s _____ (Name of Vendor) and to enforce or to forbear from endorsing any power or rights or by reason of time being given to the said M/s _____ (Name of Vendor) which under law relating to the sureties would but for the provisions have the effect of releasing us.

Your right to recover the said sum of Rs. _____/- (Rupees _____ only) from us in manner aforesaid will not be affected/ or suspended by reason of the fact that any dispute or disputes have been raised the said M/s _____ (Name of Vendor) and/ or that any dispute or disputes are pending before any officer, tribunal or court or Arbitrator.

The guarantee herein contained shall not be determined or affected by the liquidation or winding up, dissolution or change of constitution or insolvency of the said M/s _____ (Name of Vendor) but shall in all respects and for all purposes be binding and operative until payment of all dues to C-DAC in respect of such liability or liabilities.



Our liability under this guarantee is restricted to Rs._____/ - (Rupees _____Only). Our guarantee shall remain in force until unless a suit action to enforce a claim under guarantee is filed against us within six months from (which is date of expiry of guarantee) all your rights under the said guarantee shall be forfeited and we shall be relieved and discharged from all liabilities there under.

We have power to issue this guarantee in your favour under Memorandum and Articles of Association of our Bank and the undersigned has full power to do under the power of Attorney dated.

Notwithstanding anything contained herein:

- A. Our liability under this guarantee shall not exceed Rs_____ (in words)
- B. This bank guarantee shall be valid up to _____ & unless a suit for action to enforce a claim under guarantee is filed against us within six months from the date of expiry of guarantee. All your rights under the said guarantee shall be forfeited and we shall be relieved and discharged from all liabilities there after i.e. after six months from the date of expiry of this Bank guarantee
- C. We are liable to pay the guaranteed amount or any parts thereof under this bank guarantee only and only if you serve upon us a written claim or demand or before _____
- D. The Bank guarantee will expire on (Min 37 months from the date of successful installations of the items in the order) _____

Granted by the Bank

(SEAL)

For (Name of Bank)
Yours faithfully,

SEAL OF THE BANK
Authorised Signatory



Annexure – F: Certificate from Bidder

Date:

To:

Executive Director,
Centre for Development of Advanced Computing (C-DAC)
Innovation Park, Panchavati, Pashan Road,
Pune - 411008 Maharashtra, INDIA

Subject: Certificate of Origin,

Dear Sir,

With reference to the bid submitted by us vide your tender No CDACP/Chiller/20-21/316. we hereby certify the country of manufacture, country of origin of OEM and extent of laocal contents pertaining to the items offered by us, as given below.

Sr. No.	Item Description	Country of Manufacture of Item	Country of OEM of Item	Percentage of Local Contents %
1	Screw Chiller			
2	End Suction back pull out centrifugal pump			
3	Condenser water Pump			
4	Primary Chilled water Pump			
5	Secondary chilled water pump			
6	Cooling Tower			
7	MMCBs			
8	Cables			

We also certify that we comply with the provisions of orders No F. No. 6/18/2019-PPD dated 23rd July, 2020 issued by Public Procurement Division, Department of Expenditure, Ministry of Finance and P-45021/2/2017-PP(BE-II), dated 4th June, 2020, issued by DPIIT, Min. of Commerce, GoI.

For (Name of Bidder)

Authorised Signatory
Name& Designation
Mobile #

(End of Document)