



No. A3(70027)2026/PUR/SERC

Date: 16.10.2026

OPEN TENDER ENQUIRY (OTE)

FOR

Supply, Installation, Integration, Commissioning, Testing, Training and Documentation for State-of-the Art Real Time Hybrid Digital System with Electrical Winches for Existing Tower Testing Facility (RTDCT) in the GeM Portal

Publish Date	:	10.09.2026
Document Download Start Date	:	10.09.2026
Pre - Bid Conference Meeting	:	09.10.2026
Venue for Pre - Bid conference	:	Guest House CSIR – SERC -TTRS, Trisulam (opp. to Chennai Airport)
Bid Submission Start Date	:	16.10.2026
Tender Closing Date	:	26.11.2026 (03.00PM)
Tender Opening Date	:	27.11.2026 (03.00PM)

**CSIR-STRUCTURAL ENGINEERING RESEARCH CENTRE,
CSIR Road, Taramani
Chennai – 600 113 Tamil Nadu, INDIA
Tel: 91 - 44 – 2254 9108 / 2254 4777
Email: puroff.serc@csir.res.in**

INVITATION FOR BIDS / NIT
(THROUGH GeM Portal www.gem.gov.in)

01. Director, CSIR – Structural Engineering Research Center (SERC), Taramani, Chennai - 600 113, INDIA, invites encrypted bids on www.gem.gov.in from manufacturers, their authorized distributors for purchase of items listed below. **The tender is only open for local suppliers as per Public Procurement Preference to Make in India, Order No. P-45021/2/2017-PP (BE-II) dt 16th September, 2020 and as amended from time to time.**

Sl. No	Tender No.	Description of Items	Qty	Single/Double bid	Bid Security (BS) / EMD
1.	A3(70027) 2026/ PUR / SERC	Supply, Installation, Integration, Commissioning, Testing, Training & Documentation for State-of-the Art Real Time Hybrid Digital system with electrical winches for existing tower testing facility (RTDCT) as per Chapter - 4	As per Chapter-4	Single Stage Two Envelope Single Bid (Double Bid System)	Rs.45,00,000/- (Rupees: Forty-five lakhs Only) (Or) Bid Securing Declaration (BSD) (As per Annexure – V)

Interested Bidders may obtain further information from the office of the

CONTROLLER OF STORES & PURCHASE
CSIR-STRUCTURAL ENGINEERING RESEARCH CENTRE (CSIR-SERC)
CSIR Road, Taramani
CHENNAI – 600 113
Tamil Nādu, INDIA
Tel : 91 - 44 – 2254 9108, 2254 4777
E-mail : puroff@serc.res.in / puroff.serc@csir.res.in

02. **A Pre-Bid Conference will be held on 09.10.2026 at 11.00 AM in Tower Testing & Research Station (TTRS), CSIR-SERC, Tirusulam (Opposite to Chennai International Airport).** All prospective bidders are requested to kindly submit their queries, if any to the email id: puroff.serc@csir.res.in on or before 08.10.2026, 04.00 PM and also attend the Pre-Bid meeting.
03. The prospective bidder shall visit the site on any working day between 10.00 AM to 04.00 PM (except on Saturday, Sunday, all Govt holidays) from 15.09.2026 to 09.10.2026.
The address of the site is
Tower Testing & Research Station (TTRS), CSIR-SERC,
Opposite to Chennai International Airport,
Trisulam, Chennai 600 043.
Contact Person: Controller of Stores & Purchase / Head, TTRS.
Contact Number: 044 2254 9108 / 044 2254 9109 / 044 2254 4777
Email: puroff.serc@csir.res.in

Please note: During the Prebid conference (09.10.2026) requests were made by the prospective bidders for extension of time to inspect the site. Accordingly, as a special case, it is agreed that the bidders can visit/ inspect the site upto 16.11.2026 (on all working days except Saturday, Sunday and Govt. holidays). However, no request for extending the due date for submission of the bid will be entertained.

04. The Tender Document is available at www.gem.gov.in and is downloadable free of cost. The Tender Document can also be seen at our website www.serc.res.in under the heading “Tenders”.
04. All bids must be accompanied by a proof of bid security in favor of Director, CSIR-SERC as specified above. The EMD may be in the shape of Bank Guarantee / Bid Securing Declaration (Annexure – V) / electronically transfer in the

form of NEFT/RTGS and must be delivered to the above office prior to the due date and time for submission of the bid as indicated above. EMD exemption is available for MSEs. Traders are outside the ambit of MSE policy.

05. Purchase preference is applicable for class 1 local suppliers in terms of Make in Order, 2017 with all subsequent amendments till date. Purchase preference would also be applicable for MSE's in terms of MSMED Act. However, traders are outside the ambit of MSE policy.
06. The above tender is non-divisible in nature.
07. The Integrity Pact is available at Annexure – XIV and the same needs to be filled up and signed to become eligible for participating in this tender.
- 08. The revised specification will be available in the GeM Portal at corrigendum and with Additional Terms and conditions. Bidders are requested to submit the offer as per revised specification as loaded in GeM Portal.**
09. The Director, CSIR-SERC, Chennai, reserves the right to accept any or all tenders either in part or in full or to split the order without assigning any reasons therefor.

**Controller of Stores & Purchase
(For & On behalf of CSIR-INDIA)**

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TENTATIVE TIME SCHEDULE OF PROCUREMENT PLANNING

Sl. No.	Stage	Tentative Frame Time
1.	Date of Bid Opening	XX
2.	Date of Completion of Technical Bid Evaluation	XX + 60
3.	Date of Communication of Rejection of Bids	XX + 80
4.	Date of Receipt of context, if any, form Bidders	XX + 100
5.	Opening of Financial Bid	XX + 120
6.	Notification of Award	XX + 180

CHAPTER - 1
INSTRUCTIONS TO BIDDERS

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A. INTRODUCTION

1.1. Eligible Bidders

- 1.1.1 This Invitation for Bids is open to all manufacturers or their authorized distributors registered on www.gem.gov.in having the credentials of local suppliers as per make in India order No. P-45021/2/2017-PP (BE-II) dt 16th Sept. 2020 and as amended from time to time. The offer(s) will not be entertained if the same distributor/dealer is representing more than one OEM. Similarly, one OEM should not authorize more than one distributor / dealer for this tender. Further, an authorized distributor/dealer and the OEM should not quote simultaneously.
- 1.1.2 A supplier or bidder shall be considered to be local supplier if the local content of the product is either
- (i) 50% or above (Eligible for preferential purchases)
 - ii) 20% or above As per public procurement (Preference to Make in India), Order 2017 – Revision No. P-45021/2/2017-PP (BE-II) dt 16th September, 2020 and as amended from time to time.
- 1.1.3 MSEs would be treated as owned by Scheduled Caste/Schedule Tribe enterprises as under:
- (a) In case of proprietary MSE, proprietor(s) shall be SC/ST.
 - In case of partnership MSE, the SC/ST partners shall be holding at least 51% (fifty-one percent) shares in the unit.
 - In case of Private Limited Companies, at least 51% (fifty-one percent) share shall be held by SC/ST promoters
- 1.1.4 MSEs owned by women shall also be determined as per the above analogy/criteria.
- 1.1.5 Bidders should not be associated, or have been associated in the past, directly or indirectly, with a firm or any of its affiliates which have been engaged by the Purchaser to provide consulting services for the preparation of the design, specifications, and other documents to be used for the procurement of the goods to be purchased under this Invitation of Bids.
- 1.1.6 Bids from Joint Ventures, Consortium or Associations so long as they are formed and registered prior to the bid submission date is acceptable.
- 1.1.7 The bidders who have been temporarily suspended or removed from the list of registered suppliers by the purchaser or banned from Ministry/country wide procurement shall be ineligible for participation in the bidding process.
- 1.1.8 I. Any bidder from a country which shares a land border with India will be eligible to bid in any procurement whether of goods, services (including consultancy services and non-consultancy services) or works (including turnkey projects) only if the bidder is registered with the Competent Authority. Further, any bidder (including bidder from India) having specified Transfer of Technology (ToT) arrangement with an entity from a country which shares a land border with India will be eligible to bid in any procurement whether of goods, services (including consultancy services and non-consultancy services) or works (including turnkey projects) only if the bidder is registered with the competent authority.
- II. “Bidder” (including the term ‘tenderer’, ‘consultant’ or ‘service provider’ in certain contexts) means any person or firm or company, including any member of a consortium or joint venture (that is an association of several persons, or firms or companies), every artificial juridical person not falling in any of the descriptions of bidders stated hereinbefore, including any agency branch or office controlled by such person, participating in a procurement process.

III. "Bidder (or entity) from a country which shares a land border with India" for the purpose of this Order means: -

- a. An entity incorporated, established or registered in such a country; or
- b. A subsidiary of an entity incorporated, established or registered in such a country; or
- c. An entity substantially controlled through entities incorporated, established or registered in such a country; or
- d. An entity whose beneficial owner is situated in such a country; or
- e. An Indian (or other) agent of such an entity; or
- f. A natural person who is a citizen of such a country; or
- g. A consortium or joint venture where any member of the consortium or joint venture falls under any of the above

IV. The beneficial owner for the purpose of (iii) above will be as under:

1. In case of a company or Limited Liability Partnership, the beneficial owner is the natural person(s), who, whether acting alone or together, or through one or more juridical person, has a controlling ownership interest or who exercises control through other means.

Explanation—

a. "Controlling ownership interest" means ownership of or entitlement to more than twenty-five per cent. of shares or capital or profits of the company;

b. "Control" shall include the right to appoint majority of the directors or to control the management or policy decisions including by virtue of their shareholding or management rights or shareholders agreements or voting agreements;

2. In case of a partnership firm, the beneficial owner is the natural person(s) who, whether acting alone or together, or through one or more juridical person, has ownership of entitlement to more than fifteen percent of capital or profits of the partnership;

3. In case of an unincorporated association or body of individuals, the beneficial owner is the natural person(s), who, whether acting alone or together, or through one or more juridical person, has ownership of or entitlement to more than fifteen percent of the property or capital or profits of such association or body of individuals;

4. Where no natural person is identified under (1) or (2) or (3) above, the beneficial owner is the relevant natural person who holds the position of senior managing official;

5. In case of a trust, the identification of beneficial owner(s) shall include identification of the author of the trust, the trustee, the beneficiaries with fifteen percent or more interest in the trust and any other natural person exercising ultimate effective control over the trust through a chain of control or ownership.

V. An Agent is a person employed to do any act for another, or to represent another in dealings with third person.

VI. The successful bidder shall not be allowed to sub-contract works to any contractor from a country which shares a land border with India unless such contractor is registered with the Competent Authority.

VII. The registration shall be valid at the time of submission of bid and at the time of acceptance of bid.

VIII. If the bidder was validly registered at the time of acceptance / placement of order, registration shall not be a relevant consideration during contract execution

1.1.9 **Reciprocity clause**

Entities of countries which have been identified by the nodal Ministry / Department as not allowing Indian companies to participate in their Government procurement for any item related to that nodal Ministry shall not be allowed to participate in Government procurement in India for all items related to that nodal Ministry / Department, except for the list of items published by the Ministry / Department permitting their participation.

1.2 Cost of Bidding

1.2.1 The Bidder shall bear all costs associated with the preparation and submission of its bid, and "the Purchaser", will in no case be responsible or liable for these costs, regardless of the conduct or outcome of the bidding process.

1.3 Code of Integrity

1.3.1 The bidders/suppliers should sign a declaration about abiding by the Code of Integrity for Public Procurement in bid documents. In case of any transgression of this code, the bidder is not only liable to be removed from the list of registered suppliers, but it would be liable for other punitive actions such as cancellation of contracts, banning and blacklisting or action in Competition Commission of India, and so on.

1.3.2 **Code of integrity for Public Procurement:** The Purchaser as well as bidders, suppliers, contractors and consultants should observe the highest standard of ethics and should not indulge in the following prohibited practices, either directly or indirectly, at any stage during the procurement process or during execution of resultants contracts:

"corrupt practice": making offers, solicitation or acceptance of bribe, rewards or gifts or any material benefit, in exchange for an unfair advantage in the procurement process or to otherwise influence the procurement process or contract execution;

"Fraudulent practice": any omission or misrepresentation that may mislead or attempt to mislead so that financial or other benefits may be obtained or an obligation avoided. This includes making false declaration or providing false information for participation in a tender process or to secure a contract or in execution of the contract;

"anti-competitive practice": any collusion, bid rigging or anti-competitive arrangement, or any other practice, coming under the purview of the Competition Act, 2002, between two or more bidders, with or without the knowledge of the purchaser, that may impair the transparency, fairness and the progress of the procurement process or to establish bid prices at artificial, non-competitive levels;

"Coercive practice": harming or threatening to harm, persons or their property to influence their participation in the procurement process or affect the execution of a contract;

"conflict of interest": participation by a bidding firm or any of its affiliates that are either involved in the consultancy contract to which this procurement is linked; or if they are part of more than one bid in the procurement; or if the bidding firm or their personnel have relationships or financial or business transactions with any officials of purchaser who are directly or indirectly related to tender or execution process of contract; or improper use of information obtained by the (prospective) bidder from the purchaser with an intent to gain unfair advantage in the procurement process or for personal gain; and

"Obstructive practice": materially impede the purchaser's investigation into allegations of one or more of the above mentioned prohibited practices either by deliberately destroying, falsifying, altering; or by concealing of evidence material to the investigation; or by making false statements to investigators and/or

by threatening, harassing or intimidating any party to prevent it from disclosing its knowledge of matters relevant to the investigation or from pursuing the investigation; or by impeding the purchaser's Entity's rights of audit or access to information;

1.3.3 Obligations for Proactive disclosures:

- i. The purchaser as well as bidders, suppliers, contractors and consultants, is obliged under Code of Integrity for Public Procurement to suo-moto proactively declare any conflicts of interest (coming under the definition mentioned above – pre-existing or as and as soon as these arise at any stage) in any procurement process or execution of contract. Failure to do so would amount to violation of this code of integrity; and
- ii. The bidder must declare, whether asked or not in a bid document, any previous transgressions of such a code of integrity with any entity in any country during the last three years of being debarred by any other Procuring Entity. Failure to do so would amount to violation of this code of integrity;
- iii. To encourage voluntary disclosures, such declarations would not mean automatic disqualification for the bidder making such declarations. The declared conflict of interest would be evaluated and mitigation steps, if possible, taken by the purchaser. Similarly, voluntary reporting of previous transgressions of Code of Integrity elsewhere may be evaluated and barring cases of various grades of debarment, an alert watch may be kept on the bidder's actions in the tender and subsequent contract.

1.3.4 Punitive Provisions:

Without prejudice to and in addition to the rights of the Purchaser to other penal provisions as per the bid documents or contract, if the Purchaser comes to a conclusion that a (prospective) bidder/supplier, directly or through an agent, has violated this code of integrity in competing for the contract or in executing a contract, the purchaser may take appropriate measures including one or more of the following:

- i) **If his bids are under consideration in any procurement:**
 - a) Forfeiture or encashment of bid security;
 - b) Calling off of any pre-contract negotiations; and
 - c) Rejection and exclusion of the bidder from the procurement process.
- ii) **If a contract has already been awarded**
 - a) Cancellation of the relevant contract and recovery of compensation for loss incurred by the purchaser;
 - b) Forfeiture or encashment of any other security or bond relating to the procurement;
 - c) Recovery of payments including advance payments, if any, made by the purchaser along with interest thereon at the prevailing rate.
- iii) **Provisions in addition to above:**
 - a) Removal from the list of registered suppliers and banning/debarment of the bidder from participation in future procurements of the purchaser for a period not less than one year;
 - b) In case of anti-competitive practices, information for further processing may be filed under a signature of the Joint Secretary level officer, with the Competition Commission of India;
 - c) Initiation of suitable disciplinary or criminal proceedings against any individual or staff found responsible.

B THE BIDDING DOCUMENTS

1.4 Cost of Tender Documents

- 1.4.1 The bidding documents can be downloaded from our website: <https://serc.res.in> as indicated in the Invitation for Bids/NIT free of cost as also from www.gem.gov.in under the relevant GeM Bid / Tender-ID.

1.5 Content of Tender Documents

- 1.5.1 The goods required, bidding procedures and contract terms are prescribed in the bidding documents which should be read in conjunction. The bidding documents, apart from the invitation for bids have been divided into 7 chapters as under:

- Chapter 1 : Instructions to Bidder (ITB)
- Chapter 2: General Conditions of Contract (GCC) and Special Conditions of Contract (SCC)
- Chapter 3 : Schedule of Requirements
- Chapter 4: Specifications and Allied Technical Details
- Chapter 5 : Price Schedule Forms
- Chapter 6 : Contract Form
- Chapter 7 : Other Standard Forms

- 1.5.2 The Bidder is expected to examine all instructions, forms, terms, and specifications in the bidding documents. Failure to furnish all information required by the bidding documents or submission of a bid not substantially responsive to the bidding documents in every respect will be at the Bidder's risk and may result in rejection of its bid.

1.6 Clarification of Tender Documents

- 1.6.1 A prospective Bidder requiring any clarification of the Bidding Documents shall contact the Purchaser in writing at the Purchaser's address specified in the Special Conditions of Contract (SCC) or through GeM Portal against the respective GeM Bid / Tender-ID sufficient (before 7 days) prior to the due date for the submission of bid on www.gem.gov.in. No request for clarification or query shall normally be entertained after the deadline/pre-bid conference if any. Should the Purchaser deem it necessary to amend the Tender Documents as a result of a clarification, it shall do so following the procedure under Clause relating to amendment of Tender Documents and Clause relating to Deadline for Submission of Bids.

The queries, clarifications and amendments issued would also be hosted on the website of the Purchaser and as corrigendum of www.gem.gov.in for the benefit of the other prospective bidders and also shall be sent to all bidders who have participated in Pre-Bid Meeting.

1.7 Amendment of Tender Documents

- 1.7.1 At any time (within 7 days) prior to the deadline for submission of bids, the Purchaser may, for any reason, whether at its own initiative or in response to a clarification requested by a prospective bidder, modify the tender documents by amendment. The same would also be hosted on the website of the Purchaser and all prospective bidders are expected to surf the website before submitting their bids to take cognizance of the amendments. The modified tender document would also be available at www.gem.gov.in as a corrigendum.
- 1.7.2 In order to allow prospective bidders' reasonable time in which to take the amendment into account in preparing their bids, the Purchaser, at its discretion, may extend the deadline for the submission of bids and host the changes on the website of the Purchaser and on www.gem.gov.in

C. PREPARATION OF BIDS

1.8. Language of Bid

- 1.8.1 The bid prepared by the Bidder, as well as all correspondence and documents relating to the bid exchanged by the Bidder and the Purchaser shall be written in English language only.
- 1.8.2 The Supplier shall bear all costs of translation, if any, to the English language and bear all risks of the accuracy of such translation, for documents provided by the Supplier.

1.9. Purchase Preference Policies

- 1.9.1 The purchaser intends to give product reservation/purchase preference/price preference in line with current Govt. of India procurement policies to help inclusive national economic growth by providing long term support to small and medium enterprises and disadvantaged sections of the society and to address environmental concerns along with preferential market access in govt. procurements under Preference to Make in India Order 2017. Bidders desirous of submitting of their bids in accordance with the Make in India Policy of GOI must submit an Affidavit of self-certification regarding minimum local content as per the format enclosed with the bidding documents.
- 1.9.2 Purchase preference would also be given to Micro and Small enterprises as per MSMED Act 2006 and subsequent amendments.
- 1.9.3 Preference would be given to Micro and Small Enterprises over class I Local suppliers in case such a decision arises.
- 1.9.4 Traders are outside the ambit of MSMED Act and no purchase preference will be given to such bidders.

1.10. Documents Comprising the Bid

1.10.1 The bid prepared by the Bidder shall include documents as under:

- 1. **Technical details Cover – Techno-Commercial Details of Supply, Installation, Integration, Commissioning, Testing, Training & Documentation for State-of-the Art Real Time Hybrid Digital System with Electrical Winches for Existing Tower Testing Facility (RTDCT) (Document Type .pdf)**
 - 1. **Bidder Information Form – Annexure – I; and if applicable Documentary evidence about the status of the bidder i.e. whether MSE or not, owned by SC/ST or not and whether the MSE is owned by a women entrepreneur or not. (.pdf)**
 - 2. **Format for declaration by the Bidder for Code of Integrity & conflict of interest (Annexure II) (.pdf)**
 - 3. **Manufacturer's Authorization Form–Annexure – III; (.pdf)**
 - 4. **Bid security as specified in the Invitation to Bid – Annexure IV / Bid Securing Declaration – Annexure V (.pdf)**
 - 5. **Deviation Statement Form / Technical Compliance Statement Form – Annexure – VII (.pdf)**
 - 6. **Format for Affidavit of Self Certification regarding Local Content in letter head from chartered accountant (Annexure - XIII) (.pdf)**
 - 7. **Certificate with regard to the bidder not having a land border with India (Annexure - XV) or Certificate with regard to the bidder having a land border with India (Annexure - XVI) (.pdf)**
 - 8. **Undertaking for technical demonstration. (Annexure - XVII) (.pdf)**
 - 9. **Catalogue / Brochure of the Model Quoted (.pdf)**
 - 10. **Schedule of Requirement – Chapter – 3 (.pdf)**
 - 11. **Performance Statement Form – Annexure – VI (.pdf)**

12. Service Support Details Form – Annexure – IX (.pdf)
13. Pre – Installation Requirement – VIII (.pdf)
14. Integrity Pact – Annexure – XIV (.pdf)
15. Terms & Conditions - Annexure – XIX (.pdf)
16. Tender Acceptance Letter - Annexure – XX (.pdf)
17. Non-Disclosure Agreement (NDA) – Annexure – XXI (.pdf)

2. Finance cover (Price bid)

1. BoQ (.xls)
2. Bid form (Annexure - X) (.pdf)

1.11. Bid form and price schedule

- 1.11.1 The bidder shall complete the Bid Form and the appropriate price schedule form furnished in the bidding documents. These forms must be completed without any alterations to its format and no substitutes shall be accepted. All blank spaces shall be filled in with the information requested. The Bid Form and the appropriate PriceSchedule form shall be submitted in accordance with Clause 1.18.3 of the bidding documents.
- 1.11.2 The bidder in addition to the above shall complete the Bid Form (Annexure-X) which shall have the Non-Comprehensive Annual Maintenance Cost. It is mandatory to furnish the Non- Comprehensive AMC charges in the Bid form.

1.12. Bid Prices

- 1.12.1 The Bidder shall indicate on the appropriate price schedule form, the unit prices and total bid prices of the goods it proposes to supply under the contract.
- 1.12.2 **Prices indicated on the price-schedule form shall be entered separately in the following manner:
The price of the goods quoted FOR destination TTRS Stores Section, CSIR SERC, Opp. to Chennai Airport, Trisoolam, Pallavaram, Chennai - 600 043, including all taxes already paid.**
- 1.12.3 **Packing, forwarding, freight, insurance charges, loading, un-loading at CSIR - SERC, TTRS and AMC charges, taxes etc. are to be included along with the quote. No separate claim for the above will be entertained after submission of the quote.**
- 1.12.4 **The price quoted shall remain fixed during the contract period and shall not vary on any account**
- 1.12.5 All lots and items must be listed and priced separately in the Price Schedules. If a Price Schedule shows items listed but not priced, their prices shall be assumed to be included in the prices of other items. Lots or items not listed in the Price Schedule shall be assumed to be not included in the bid. **Items required during installation shall be included along with the quotation, incase it is not included then it will be presumed that they are included and no extra cost will be entertained.**
- 1.12.7 ~~The Purchaser is registered with Dept. of Scientific & Industrial Research, Govt. of India and concessional GST & IGST are payable vide notification No.47/2017 Integrated Tax (Rate) and Notification No. 45/2017 Central Tax (Rate) both dated 14th November, 2017~~
- 1.12.8 Please state specifically in your offer that the duties and taxes are included in the price quoted failing which it will be presumed that the prices are inclusive of taxes and duties and no claim would be entertained for statutory variations at a later date.
- 1.12.9 Stipulations like “GST is presently not applicable but the same will be charged if it becomes leviable later on” is not acceptable unless in such cases it is clearly stated that GST will not be charged if the same

becomes applicable later on due to increase in turn over etc. If a bidder fails to comply with this requirement, his quoted price shall be loaded with the quantum of duty which is normally applicable on the item in question for the purpose of comparison with the prices of other tenderers.

Note: All payments due under the contract shall be paid after deduction of statutory levies at source (like TDS etc.), wherever applicable.

1.13. Bid Currencies

1.13.1 Prices shall be quoted in Indian Rupees.

1.14. Documents Establishing Bidder's Eligibility and qualifications

1.14.1 The bidder shall furnish, as part of its bid, documents establishing the bidders' eligibility to bid and its qualification to perform the contract if its bid is accepted.

1.14.2 The documentary evidence of the bidder's qualification to perform the contract if the bid is accepted shall establish to the purchaser's satisfaction that;

- (a) The bidder meets the qualification criteria listed in bidding documents if any.
- (b) Bidder who doesn't manufacture the goods it offers to supply shall submit Manufacturers' Authorization Form (MAF) using the form specified in the bidding document to demonstrate that it has been duly authorized by the manufacturer of the goods to quote and/or supply the goods.
- (c) Bidder shall furnish the certificate to the effect that the bidder is or will be represented by an agent equipped and able to carry out the supply, maintenance, repair obligations etc. during the warranty and post warranty period or ensure a mechanism at place for carrying out the supply, maintenance, repair obligations etc. during the warranty and post-warranty period.

1.14.3 **Conditional tenders shall not be accepted.**

1.15. Documents Establishing Goods' Eligibility and Conformity to Bidding Documents

1.15.1 To establish the goods' eligibility, the documentary evidence of the goods and services eligibility shall consist of a statement on the country of origin of the goods and services offered which shall be confirmed by a certificate of origin at the time of shipment.

1.15.2 To establish the conformity of the goods and services to the specifications and schedule of requirements of the bidding document, the documentary evidence of conformity of the goods and services to the bidding documents may be in the form of literature, drawings and data, and shall consist of:

- (a) A detailed description of the essential technical and performance characteristics of the goods;
- (b) A list giving full particulars, including available sources and current prices, of spare parts, special tools, etc., necessary for the proper and continuing functioning of the goods during the warranty period following commencement of the use of the goods by the Purchaser in the Priced-bid;
- (c) An item-by-item commentary on the Purchaser's Technical Specifications demonstrating substantial responsiveness of the goods and services to those specifications or a statement of deviations and exceptions to the provisions of the Technical Specifications.

1.15.3 For purposes of the commentary to be furnished pursuant to above, the Bidder shall note that standards for workmanship, material and equipment, designated by the Purchaser in its Technical Specifications are intended to be descriptive only and not restrictive. The Bidder may substitute these in its bid, provided that it demonstrates to the Purchaser's satisfaction that the substitutions ensure substantial equivalence to those designated in the Technical Specifications.

1.16. Bid Security

1.16.1 The Bidder shall furnish, as part of its bid, a bid security (BS) for an amount as specified in the Tender Document.

The copy of Bank Guarantee details should be uploaded on the GeM portal and the physical instrument should be available at the time of tender opening. Details of UTR No. should be uploaded on GeM Portal in case of RTGS/NEFT and the remarks column should indicate Tender No. while remitting the amount.

- 1.16.2 The bid security is required to protect the Purchaser against the risk of Bidder's conduct, which would warrant the invocation of bid securing declaration.
- 1.16.3 The bid security shall be in the following form:
- (a) A bank guarantee issued by a Nationalized/Scheduled bank operating in India in the form provided in the bidding documents and valid for 45 days beyond the validity of the bid. In case a bidder desires to submit a BG issued from a foreign bank, then the same should be confirmed by a Nationalized /Scheduled Indian bank; or
 - (b) RTGS / NEFT to account of Director, CSIR – SERC
 - (c) Bid Securing Declaration – Annexure - V
- 1.16.4 The bid security shall be payable promptly upon written demand by the purchaser in case the conditions listed in the ITB clause 1.16.10 are invoked.
- 1.16.5 The bid security should be submitted in its original form. Copies shall not be accepted.
- 1.16.6 The bid security of unsuccessful bidder will be discharged /returned as promptly as possible positively within a period of 30 days after the expiration of the period of bid validity or placement of order whichever is later, without any interest.
- 1.16.7 The successful Bidder's bid security will be discharged upon the Bidder furnishing the performance security, without any interest.
- 1.16.8 Bidders that are currently registered with the purchaser, registered as MSEs will continue to remain registered during the tender validity period also and are exempted from payment of EMD. In case the tenderer falls in these categories, the bidder should furnish a certified copy of its valid registration details. Except for MSEs, this exemption is valid for the trade group and monetary value of registration only. The MSEs are provided tender document free of cost and are exempted from the payment of Bid Security provided the goods are produced and the services are rendered by them and not for any trading activities undertaken by them. Further firms who are having Udyog Aadhar Memorandum are entitled to all benefits available for MSEs under the Public Procurement Policies for MSEs and can get registered with any of the following agencies:
- a) District Industries Centre
 - b) Khadi and Village Industries Commission
 - c) Khadi and Village Industries Board
 - d) Coir Board
 - e) National Small Industries Corporation
 - f) Directorate of Handicraft and handloom and
 - g) Any other body specified by the Ministry of MSME
- 1.16.9 Where any aggregator has been appointed by the Ministry of MSME, themselves quote on behalf of some MSE units, such offers will be considered as offer from MSE units and all such facilities would be extended to these aggregators also.
- 1.16.10 The bid security may be forfeited:
- (a) If a Bidder withdraws or amends or modifies or impairs or derogates its bid during the period of bid validity specified by the Bidder on the Bid Form; or

- (b) In case of a successful Bidder, if the Bidder fails to furnish order acceptance within 14 days of the order or fails to sign the contract and/or fails to furnish Performance Security within 21 days from the date of contract/ order.

1.16.11 Whenever the bidder chooses to submit the Bid Security in the form of Bank Guarantee, then he should advise the banker issuing the Bank Guarantee to immediately send by Speed Post. An unstamped duplicate copy of the Guarantee directly to the Purchaser with a covering letter to compare with the original BG for the correctness, genuineness, etc.

1.17. Period of Validity of Bids

- 1.17.1 Bids shall remain valid for minimum of **180 days** after the date of bid opening prescribed by the Purchaser. A bid valid for a shorter period shall be rejected by the Purchaser as non-responsive.
- 1.17.2 In exceptional circumstances, the Purchaser may solicit the Bidder's consent to an extension of the period of validity. The request and the responses thereto shall be made in writing (or by cable, telex, fax or e-mail). The bid security provided shall also be suitably extended. A Bidder may refuse the request without forfeiting its bid security. A Bidder granting the request will not be required nor permitted to modify its bid.
- 1.17.3 Bid evaluation will be based on the bid prices without taking into consideration the above corrections.

1.18. Format and Signing of Bid

- 1.18.1 The bids may be submitted in single bid or in two parts as specified in the Invitation for Bids / NIT.
- 1.18.2 The original and all copies of the bid shall be typed or written in indelible ink and shall be signed by the Bidder or a person or persons duly authorized to bind the Bidder to the Contract. All pages of the bid, except for un-amended printed literature, shall be initialed by the person or persons signing the bid detailing his/her name and contact details.
- 1.18.3 Any interlineations, erasures or overwriting shall be valid only if they are initialed by the persons or persons signing the bid.

D SUBMISSION AND SEALING OF BIDS

1.19. Submission, Sealing and Marking of Bids

- 1.19.1 The bidders should submit their duly encrypted bids on the www.gem.gov.in before the due date and time. You are requested to go through the uploading process well in advance so as to avoid last minute hitches.

(Bids received by FAX/E-mail would not be considered for evaluation.)

1.20. Deadline for Submission of Bids

- 1.20.1 Bids must be uploaded on www.gem.gov.in against the relevant GeM Bid / Tender-ID before the due date and time.
- 1.20.2 The Purchaser may, at its discretion, extend the deadline for submission of bids by amending the bid documents in accordance with Clause relating to Amendment of Bidding Documents in which case all rights and obligations of the Purchaser and Bidders previously subject to the deadline will thereafter be subject to the deadline as extended. Such amendments would appear as a corrigendum on www.gem.gov.in against the applicable GeM Bid / Tender - ID.

1.21. Withdrawal, substitution and Modification of Bids.

- 1.21.1 It would be governed by the standard operating procedure of the GeM portal.

E. OPENING AND EVALUATION OF BIDS

1.22 Opening of Bids by the Purchaser

- 1.22.1 The decryption of the bids would be done at the time enumerated on the GeM portal. In the event of the specified date of Bid opening being declared a holiday for the Purchaser, the Bids shall be opened at the appointed time and location on the next working day. In two-part bidding, the financial bid shall be opened only after technical evaluation.

1.23. Confidentiality

- 1.23.1 Information relating to the examination, evaluation, comparison, and post qualification of bids, and recommendation of contract award, shall not be disclosed to other persons not officially concerned with such process until publication of the Contract Award.
- 1.23.2 Any effort by a Bidder to influence the Purchaser in the examination, evaluation, comparison, and post qualification of the bids or contract award decisions may result in the rejection of its Bid.

1.24. Clarification of Bids

- 1.24.1 To assist in the examination, evaluation, comparison and post qualification of the bids, the Purchaser may, at its discretion, ask the Bidder for a clarification of its bid. No change in prices or substance of the bid shall be sought, offered or permitted. However, no negotiation shall be held except with the lowest bidder, at the discretion of the purchaser. Any clarification submitted by a bidder in respect to its bid which is not in response to a request by the purchaser shall not be considered.

1.25. Preliminary Examination

- 1.25.1 The Purchaser shall examine the bids to confirm that all documents and technical documentation requested in ITB Clause 1.10 have been provided, and to determine the completeness of each document submitted.
- 1.25.2 The Purchaser shall confirm that the following documents and information have been provided in the Bid. If any of these documents or information is missing, the offer shall be rejected.
- (a) Bid Form and Price Schedule, in accordance with ITB Clause 1.10;
 - (b) All the tenders received will first be scrutinized to see whether the tenders meet the basic requirements as incorporated in the tender enquiry document. The tenders, who do not meet the basic requirements, are to be treated as unresponsive and ignored. The following are some of the important points, for which a tender may be declared as unresponsive and to be ignored, during the initial scrutiny:
 - (i) The Bid is unsigned (Not applicable in case of Online bidding).
 - (ii) The Bidder is not eligible.
 - (iii) The Bid validity is shorter than the required period.
 - (iv) The Bidder has quoted for goods manufactured by a different firm without the required authority letter from the proposed manufacturer.
 - (v) Bidder has not agreed to give the required performance security or has not furnished the bid security.
 - (vi) The goods quoted are sub-standard, not meeting the required specification, etc.
 - (vii) Against the schedule of Requirement (incorporated in the tender enquiry), the tenderer has not quoted for the entire requirement as specified in that schedule.
 - (viii) The tenderer has not agreed to some essential condition(s) incorporated in the tender enquiry.

1.26 Bidder's right to question rejection.

1.26.1 A Bidder shall have the right to be heard in case he feels that a proper procurement process is not being followed and/or his tender has been rejected wrongly. Only a directly affected bidder can represent in this regard as under:

- i) Only a bidder who has participated in the concerned procurement process i.e pre-qualification, bidder registration or bidding, as the case may be, can make such representation;
- ii) In case pre-qualification bid has been evaluated before the bidding of technical bids, an application for review in relation to the technical bid may be filed only by a bidder who has qualified in pre-qualification bid;
- iii) In case technical bid has been evaluated before the opening of the financial bid, an application for review in relation to the financial bid may be filed only by a bidder whose technical bid is found to be acceptable.
- iv) Following decisions of the purchaser in accordance with the provision of internal guidelines shall not be subject to review:
 - a) Determination of the need for procurement;
 - b) Selection of the mode of procurement or bidding system;
 - c) Choice of selection procedure;
 - d) Provisions limiting participation of bidders in the procurement process;
 - e) The decision to enter into negotiations with the L1 bidder;
 - f) Cancellation of the procurement process except where it is intended to subsequently re-tender the same requirements;
 - g) Issues related to ambiguity in contract terms may not be taken up after a contract has been signed, all such issues should be highlighted before consummation of the contract by the vendor/contractor; and
 - h) Complaints against specifications except under the premise that they are either vague or too specific so as to limit competition may be permissible.

1.26.2 In case a Bidder feels aggrieved by the decision of the purchaser, he may then send his representation in writing to the Purchaser's address as indicated in special conditions of contract (SCC) within 05 working days/2 days in GeM Portal from the date of communication of the purchaser intimating the rejection for reconsideration of the decision by the purchaser.

1.27 Responsiveness of Bids

1.27.1 Prior to the detailed evaluation, the purchaser will determine the substantial responsiveness of each bid to the bidding documents. For purposes of this clause, a substantive responsive bid is one, which conforms to all terms and condition of the bidding documents without material deviations, reservations or omissions. A material deviation, reservation or omission is one that:

- (a) Affects in any substantial way the scope, quality, or performance of the Goods and Related Services specified in the Contract; or
- (b) Limits in any substantial way, inconsistent with the Bidding Documents, the Purchaser's rights or the Bidder's obligations under the Contract; or
- (b) If rectified, would unfairly affect the competitive position of other bidders presenting substantially responsive bids.

- 1.27.2 The purchasers' determination of a bid's responsiveness is to be based on the contents of the bid itself without recourse to extrinsic evidence.
- 1.27.3 If a bid is not substantially responsive, it will be rejected by the Purchaser and may not subsequently be made responsive by the Bidder by correction of the material deviation, reservation or omission.

1.28 Non-Conformity, Error and Omission

- 1.28.1 Provided that a Bid is substantially responsive, the Purchaser may waive any nonconformities or omissions in the Bid that do not constitute a material deviation.
- 1.28.2 Provided that a bid is substantially responsive, the Purchaser may request that the Bidder submit the necessary information or documentation, within a reasonable period of time, to rectify nonmaterial nonconformities or omissions in the bid related to documentation requirements. Such omission shall not be related to any aspect of the price of the Bid. Failure of the Bidder to comply with the request may result in the rejection of its Bid.
- 1.28.3 Provided that the Bid is substantially responsive, the Purchaser shall correct arithmetical errors on the following basis:
- (a) if there is a discrepancy between the unit price and the line item total that is obtained by multiplying the unit price by the quantity, the unit price shall prevail and the line item total shall be corrected, unless in the opinion of the Purchaser there is an obvious misplacement of the decimal point in the unit price, in which case the line item total as quoted shall govern and the unit price shall be corrected;
 - (b) If there is an error in a total corresponding to the addition or subtraction of subtotals, the subtotals shall prevail and the total shall be corrected; and
 - (c) If there is a discrepancy between words and figures, the amount in words shall prevail, unless the amount expressed in words is related to an arithmetic error, in which case the amount in figures shall prevail subject to (a) and (b) above.
- 1.28.4 Provided that a bid is substantially responsive, the purchaser may request that a bidder may confirm the correctness of arithmetic errors as done by the purchaser within a target date. In case, no reply is received then the bid submitted shall be ignored and its Bid Security may be forfeited.

1.29 Examination of Terms & Conditions, Technical Evaluation

- 1.29.1 The Purchaser shall examine the Bid to confirm that all terms and conditions specified in the GCC and the SCC have been accepted by the Bidder without any material deviation or reservation.
- 1.29.2 The Purchaser shall evaluate the technical aspects of the Bid submitted in accordance with ITB Clause 1.15, to confirm that all requirements specified in Schedule of Requirements of the Bidding Documents have been met without any material deviation or reservation.
- 1.29.3 **The bidder shall give a technical demo of one channel closed loop force / load control (of the product quoted) after submission of bid for technical evaluation.**
- 1.29.4 In the course of evaluation CSIR-SERC would request for submission of samples for evaluation purpose keeping in mind the special nature of this tender.
- 1.29.5 If, after the examination of the terms and conditions and the technical evaluation, the Purchaser determines that the Bid is not substantially responsive in accordance with ITB Clause 1.27, it shall reject the Bid.

1.30 Evaluation and comparison of bids

1.30.1 The Purchaser shall evaluate each bid that has been determined, up to this stage of the evaluation, to be substantially responsive.

1.30.2 To evaluate a Bid, the Purchaser shall only use all the factors, methodologies and criteria defined below. No other criteria or methodology shall be permitted.

1.30.3 Purchase preference shall be given to all 'Class-I local suppliers' in all procurements undertaken by the purchaser in the following manner:

~~(i) In the procurements of goods which are divisible in nature the Class-I local supplier shall get purchase preference over 'Class-II local supplier' as per following procedure:~~

~~(a) Among all qualified bids, the lowest bid will be termed as L1. If L1 is from a 'Class-I local supplier', the contract for full quantity will be awarded to L1.~~

~~(b) — If L1 bid is not a 'Class-I local supplier, 50% of the order quantity shall be awarded to L1. Thereafter, the lowest bidder among the 'Class-I local supplier' will be invited to match the L1 price for the remaining 50% quantity subject to the Class-I local supplier's quoted price falling within the margin of purchase preference, and contract for that quantity shall be awarded to such 'Class-I local supplier' subject to matching the L1 price. In case such lowest eligible 'Class-I local supplier' fails to match the L1 price or accepts less than the offered quantity, the next higher~~

~~'Class-I local supplier' within the margin of purchase preference shall be awarded accordingly. In case some quantity is still left uncovered on Class-I local suppliers, then such balance quantity may also be ordered on the L1 bidder.~~

~~(ii) In the procurements of goods which are not divisible in nature the Class-I local supplier shall get purchase preference over 'Class-II local supplier' as per following procedure:~~

~~a) Among all qualified bids, the lowest bid will be termed as L1. If L1 is from a Class-I local supplier, the contract will be awarded to L1.~~

~~b) If L1 is not from a 'Class-I local supplier', the lowest bidder among the 'Class-I local suppliers, will be invited to match the L1 price subject to Class-I local supplier's quoted price falling within the margin of purchase preference and the contract shall be awarded to such 'Class-I local supplier' subject to matching the L1 price.~~

~~c) In case such lowest eligible 'Class-I local supplier' fails to match the L1 price, the Class-I local supplier with the next higher bid within the margin of purchase preference shall be invited to match the L1 price and so on and contract shall be awarded accordingly. In case none of the 'Class-I local suppliers' within the margin of purchase preference matches the L1 price, then the contract may be awarded to the L1 bidder 'Class-II local supplier'.~~

~~d) 'Class-II local supplier' will not get purchase preference in any procurement undertaken by the procuring entity.~~

1.30.4 Further, In tender, where the items are divisible, the participating Micro and Small Enterprises (MSE) quoting price within price band of L1+15 (fifteen) per cent shall also be allowed to supply a portion of requirement by bringing down their price to L1 price in a situation where L1 price is from someone other than a MSE and such MSE shall be allowed to supply up to 25 (twenty five) per cent of total tendered value. The 25 (twenty five) per cent quantity is to be distributed proportionately among these bidders, in case there are more than one MSMEs within such price band.

- 1.30.5 ~~Within this 25% (Twenty five Percent) quantity, a purchase preference of 25 (twenty five) per cent out of 25 (twenty five per cent) is reserved for MSEs owned by Scheduled Caste (SC)/Scheduled Tribe (ST) entrepreneurs (if they participate in the tender process and match the L1 price). Further, out of the total annual procurement from the MSEs, (3%) three-~~

~~percent from within the 25% target shall be earmarked for procurement from MSEs owned by women. Provided that, in the event of failure of such SC/ST MSE to participate in tender process or meet tender requirements and L1 price, four per cent sub-target shall be met from other MSE.~~
- 1.30.6 In case the items are not divisible, then the MSE quoting price within price band L1 + 15% may be awarded for full/complete supply of total tendered quantity to MSE, considering the spirit of the policy for enhancing the Government procurement from MSEs.
- A MSE firm will be preferred over a non-MSE Class 1 Local supplier and Class 2 Local supplier. The preference is subject to meeting the technical specification, being in the preference range as indicated above and matching the price of L1.**
- 1.30.7 **Manufacture under license / technology collaboration if agreements with phase indigenization:**
While notifying the minimum local content, if nodal ministries and have made special provisions for exempting suppliers from meeting the stipulated local content if the product is being manufactured in India under a license from a foreign manufacturer who holds intellectual property rights and where there is a technology collaboration agreement / transfer of technology agreement for indigenous manufacture of a product developed abroad with clear phasing of increase in local content, the firm may submit such exemption and participate.
- 1.30.8 The bids shall be evaluated on the basis of final landing cost which shall be arrived as under:

The price of the goods quoted including warranty (for 3 years) if any FOR destination CSIR – SERC stores including all taxes already paid, Packing & Forwarding, Insurance and Transportation charges, loading, unloading at CSIR-SERC, TTRS, Installation, training charges and AMC charges.
- 1.30.9 The invitation to bid (GCC / SCC) shall specify the mode of transport i.e., whether by air/road/rail.
- 1.30.10 There is no provision to purchase optional items. The specifications embodied in the tender documents would be the basis of evaluating the responsiveness of bids received.
- 1.30.11 The Purchaser shall compare all substantially responsive bids to determine the lowest evaluated bid, in accordance with ITB Clause 1.31.
- 1.30.12 The bidder shall give a technical demo of one channel closed loop force / load control (of the product quoted) after submission of bid for technical evaluation.
- 1.30.13 **Please Note: In case of considering overall price as L1, then the bidder will be asked to match the price of each line item for the product as well as AMC of the other bidder which is lowest as compared to the line item.**

1.31 Contacting the Purchaser

- 1.31.1 Subject to ITB Clause 1.24, no Bidder shall contact the Purchaser on any matter relating to its bid, from the time of the bid opening to the time the Contract is awarded.
- 1.31.2 Any effort by a Bidder to influence the Purchaser in its decisions on bid evaluation, bid comparison or contract award may result in rejection of the Bidder's bid.

1.32 Post qualification

- 1.32.1 In the absence of pre-qualification, the Purchaser will determine to its satisfaction whether the Bidder that is selected as having submitted the lowest evaluated responsive bid is qualified to perform the contract satisfactorily, in accordance with the criteria listed in ITB Clause 1.14.
- 1.32.2 The determination will take into account the eligibility criteria listed in the bidding documents and will be based upon an examination of the documentary evidence of the Bidder's qualifications submitted by the Bidder, as well as such other information as the Purchaser deems necessary and appropriate.
- 1.32.3 An affirmative determination will be a prerequisite for award of the contract to the Bidder. A negative determination will result in rejection of the Bidder's bid.

G. AWARD OF CONTRACT

1.33 Negotiations

1.33.1 Normally, there shall not be any negotiation. Negotiations, if at all, shall be an exception and only in the case of items with limited source of supply. Negotiations shall be held with the lowest evaluated responsive bidder. Counter offers tantamount to negotiations and shall be treated at par with negotiations in the case of one time purchases.

1.34 Award Criteria

- 1.34.1 Subject to ITB Clause 1.37, the Purchaser will award the contract to the successful Bidder whose bid has been determined to be substantially responsive and has been determined to be the lowest evaluated bid, provided further that the Bidder is determined to be qualified to perform the contract satisfactorily. The details of the award would be hosted on the website of the Purchaser.

1.35 Purchaser's right to vary Quantities at Time of Award

- 1.35.1 The Purchaser reserves the right at the time of Contract award to increase or decrease the quantity of goods and services originally specified in the Schedule of Requirements to the extent of 25% without any change in unit price or other terms and conditions.

1.36 Option Clause

- 1.36.1 The Purchaser reserves the right to increase or decrease the quantity of the required goods up to 25% (Twenty-Five) per cent at any time, till final delivery date (or the extended delivery date of the contract), by giving reasonable notice even though the quantity ordered initially has been supplied in full before the last date of the delivery period (or the extended delivery period)

1.37 Purchaser's right to accept Any Bid and to reject any or All Bids

- 1.37.1 The Purchaser reserves the right to accept or reject any bid, and to annul the bidding process and reject all bids at any time prior to award of Contract, without thereby incurring any liability to the affected Bidder or Bidders.

1.38 Notification of Award

- 1.38.1 Prior to the expiration of the period of bid validity, the Purchaser will notify the successful bidder in writing by registered letter or by cable or telex or fax or e mail that the bid has been accepted and a separate purchase order shall follow through post.
- 1.38.2 Until a formal contract is prepared and executed, the notification of award should constitute a binding contract.

- 1.38.3 Upon the successful Bidder's furnishing of the signed Contract Form and performance security pursuant to ITB Clause 1.41, the Purchaser will promptly notify each unsuccessful Bidder and will discharge its bid security.

1.39 Signing of Contract

- 1.39.1 Promptly after notification, the Purchaser shall send the successful Bidder the Agreement/Purchase Order.
- 1.39.2 Within twenty-one (21) days of date of the Agreement, the successful Bidder shall sign, date, and return it to the Purchaser.

1.40 Order Acceptance

- 1.40.1 The successful bidder should submit Order acceptance within 21 days from the date of issue, failing which it shall be presumed that the vendor is not interested and his bid security is liable to be forfeited pursuant to clause 1.16.9 of ITB.
- 1.40.2 The order confirmation must be received within 14 days. However, the Purchaser has the powers to extend the time frame for submission of order confirmation beyond the original date. Even after extension of time, if the order confirmation is not received, the contract is liable to be cancelled provided that the purchaser, on being satisfied that it is not a case of cartelization and the integrity of the procurement process has been maintained, may, for cogent reasons, offer the next successful bidder an opportunity to match the financial bid of the first successful bidder, and if the offer is accepted, award the contract to the next successful bidder at the price bid of the first successful bidder.

1.41 Performance Security

- 1.41.1 Within 21 days of receipt of the notification of award/PO, the Supplier shall furnish performance security (PS) in the amount specified in SCC, valid till 60 days after the warranty period.
- 1.41.2 The proceeds of the performance security shall be payable to the Purchaser as compensation for any loss resulting from the Supplier's failure to complete its obligations under the Contract.
- 1.41.3 The Performance Security shall be denominated in Indian Rupees for the offers received for supplies within India and denominated in the currency of the contract in the case of offers received for supply from foreign countries or in equivalent Indian rupees in case the performance security is submitted by the Indian Agent.
- 1.41.4 ~~In the case of imports, the PS may be submitted either by the principal or by the Indian agent and, in the case of purchases from indigenous sources, the PS may be submitted by either the manufacturer or their authorized dealer/bidder.~~
- 1.41.5 The Performance security shall be in one of the following forms:
(a) A Bank guarantee or stand-by Letter of Credit issued by a Nationalized/ Scheduled bank located in India in the form provided in the bidding documents.
Or
(b) RTGS / NEFT in favour of Director, CSIR-SERC
- 1.41.6 The performance security will be discharged by the Purchaser and returned to the Supplier not later than 60 days following the date of completion of the Supplier's performance obligations, including any warranty obligations, unless specified otherwise in SCC, without levy of any interest.
- 1.41.7 In the event of any contract amendment, the supplier shall, within 21 days of receipt of such amendment, furnish the amendment to the performance security, rendering the same valid for the duration of the contract, as amended for further period of 60 days thereafter.

1.41.8 The performance security must be received within 21 days. However, the Purchaser has the powers to extend the time frame for submission of Performance Security (PS). Even after extension of time, if the PS is not received, the contract is liable to be cancelled provided that the purchaser, on being satisfied that it is not a case of cartelization and the integrity of the procurement process has been maintained, may, for cogent reasons, offer the next successful bidder an opportunity to match the financial bid of the first successful bidder, and if the offer is accepted, award the contract to the next successful bidder at the price bid of the first successful bidder.

1.41.9 Whenever, the bidder chooses to submit the Performance Security in the form of Bank Guarantee, then he should advise the banker issuing the Bank Guarantee to immediately send by Speed Post. An unstamped duplicate copy of the Guarantee directly to the Purchaser with a covering letter to compare with the original BG for the correctness, genuineness, etc.,

1.42 Pre-Bid Conference (PBC)

1.42.1 A Pre-bid Conference shall be held as indicated in invitation to bid. All prospective bidders are requested to kindly attend the Pre-bid Conference. In order to facilitate the purchaser the proper conduct of the Pre-bid Conference, all prospective bidders are requested to kindly submit their queries so as to reach the purchaser before the pre-bid conference as indicated in invitation to bid. The purchaser shall answer the queries during the pre-bid conference, which would become a part of the proceedings of the Pre-bid Conference.

The proceeding of the Pre-Bid Conference would be hosted on the website of the purchaser and on www.gem.gov.in under the relevant tender. Before formulating and submitting their bids, all prospective bidders are advised to surf through the purchaser's website and www.gem.gov.in after the Pre-bid Conference, in order to enable them take cognizance of the revised tender conditions.

1.43 Integrity Pact

1.43.1 Integrity Pact binds both buyers and sellers to ethical conduct and transparency in all activities from pre-selection of bidders, bidding and contracting, implementation, completion and operation related to the contract.

1.43.2 The Integrity pact essentially envisages an agreement between the prospective vendors/bidders and the buyer, committing the persons/officials of both sides, not to resort to any corrupt practices in any aspect/stage of the contract. Only those vendors/bidders, who commit themselves to such a Pact with the buyer, would be considered competent to participate in the bidding process. In other words, entering into this Pact would be a preliminary qualification. The essential ingredients of the Pact include:

- i) Promise on the part of the Purchaser to treat all bidders with equity and reason and not to seek or accept any benefit, which is not legally available;
- ii) Promise on the part of bidders not to offer any benefit to the employees of the Purchaser not available legally and also not to commit any offence under Prevention of Corruption Act, 1988 or Indian Penal Code 1860;
- iii) Promise on the part of bidders not to enter into any undisclosed agreement or understanding with other bidders with respect to prices, specifications, certifications, subsidiary contracts; etc.
- iv) Undertaking (as part of Fall Clause) by the bidders that they have not and will not sell the same material/equipment at prices lower than the bid price;
- iv) Foreign bidders to disclose the name and address of agents and representatives in India and Indian Bidders to disclose their foreign principals or associates;

- v) Bidders to disclose the payments to be made by them to agents/brokers or any other intermediary;
- vi) Bidders to disclose any past transgressions committed over the specified period with any other company in India or Abroad that may impinge on the anti-corruption principle;
- vii) Integrity Pact lays down the punitive actions for any violation.

1.43.3 Each page of such Integrity pact proforma would be duly signed by Purchaser's competent signatory. All pages of the Integrity Pact are to be returned by the bidder (along with the technical bid) duly signed by the same signatory who signed the bid, i.e. who is duly authorized to sign the bid and to make binding commitments on behalf of his company. Any bid not accompanied by Integrity Pact duly signed by the bidder shall be considered to be a non-responsive bid and shall be rejected straightway.

1.43.4 The SCC shall specify whether there is a need to enter into a separate Integrity pact or not.

1.43.5 The Integrity Pact would be effective from the date of invitation of bids till complete execution of the contract.

1.43.6 The names and contact details of the Independent External Monitors (IEM) on the event of the need of IP is as detailed in the SCC.

1.43.7 The modal format of IP is at Chapter-7 (Annexure- XIV)

CHAPTER - 2

CONDITIONS OF CONTRACT

A GENERAL CONDITIONS OF CONTRACT (GCC)

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2.1 Definitions

2.1.1 The following words and expressions shall have the meanings hereby assigned to them:

- a. "Contract" means the Contract Agreement entered into between the Purchaser and the Supplier, together with the Contract Documents referred to therein, including all attachments, appendices, and all documents incorporated by reference therein.
- b. "Contract Documents" means the documents listed in the Contract Agreement, including any amendments thereto.
- c. "Contract Price" means the price payable to the Supplier as specified in the Contract Agreement, subject to such additions and adjustments thereto or deductions there from, as may be made pursuant to the Contract.
- d. "Day" means calendar day.
- e. "Completion" means the fulfillment of the Related Services by the Supplier in accordance with the terms and conditions set forth in the Contract.
- f. "GCC" means the General Conditions of Contract.
- g. "Goods" means all of the commodities, raw material, machinery and equipment, and/or other materials that the Supplier is required to supply to the Purchaser under the Contract.
- i. "Related Services" means the services incidental to the supply of the goods, such as transportation, insurance, installation, training and initial maintenance and other such obligations of the Supplier under the Contract.
- h. "SCC" means the Special Conditions of Contract.
- i. "Subcontractor" means any natural person, private or government entity, or a combination of the above, to whom any part of the Goods to be supplied or execution of any part of the Related Services is subcontracted by the Supplier.
- j. "Supplier" means the natural person, private or government entity, or a combination of the above, whose bid to perform the Contract has been accepted by the Purchaser and is named as such in the Contract Agreement.
- i. "Local content" means the amount of value added in India which shall, unless otherwise prescribed by the Nodal Ministry, be the total value of the item procured (excluding net domestic indirect taxes) minus the value of imported content in the item (including all customs duties) as a proportion of the total value, in percent.
- k. "Local supplier" means a supplier or service provider whose product or service offered for procurement meets the minimum local content as prescribed under this order or by the competent Ministries / Departments in pursuance of this order.
- l. "Margin of purchase preference" means the maximum extent to which the price quoted by a local supplier may be above the L1 for the purpose of purchase preference.
- m. The "Council" means the Council of Scientific & Industrial Research (CSIR), registered under the Societies Registration Act, 1860 of the Govt. of India having its registered office at 2, Rafi Marg, New Delhi-110001, India and the "Purchaser" means Controller of Stores & Purchase, on behalf of the Director, CSIR- SERC, Taramani, Chennai – 600113, INDIA as specified in SCC.

- n. "The final destination," where applicable, means the place named in the SCC.
- o. For definitions regarding terms in Make in India please refer to order no. P-45021/2/2017-PP (BE-II) dated 16.09.2020 by Ministry of Commerce and Industry, Government of India and any amendment / revisions thereof.
- p. For definitions regarding terms in MSE refer MSE order 2012 and amendments and revisions thereof.
- q. For registration of bidders quoting for products from countries that share land border with India refer to Order No.P-45021/112/2020-PP(BE-II)(E-43780) dated 24.08.2020 of Ministry of Commerce and Industry, Department for Promotion of Industry and Internal Trade and any amendments thereon.

2.2 Contract Documents

- 2.2.1 Subject to the order of precedence set forth in the Contract Agreement, all documents forming the Contract (and all parts thereof) are intended to be correlative, complementary, and mutually explanatory. The Contract Agreement shall be read as a whole.

2.3 Code of Integrity

- 2.3.1 Without prejudice to and in addition to the rights of the Purchaser to other penal provisions as per the bids documents or contract, if the purchaser comes to a conclusion that a (prospective) bidder/supplier, directly or through an agent, has violated this code of integrity in competing for the contract or in executing a contract, the Purchaser may take appropriate measures including one or more of the following:
- a) Cancellation of the relevant contract and recovery of compensation for loss incurred by the purchaser;
 - b) Forfeiture or encashment of any other security or bond relating to the procurement;
 - c) Recovery of payments including advance payments, if any, made by the Purchaser along with interest thereon at the prevailing rate.
 - d) Provisions in addition to above:
 - 1. Removal from the list of registered suppliers and banning/debarment of the bidder from participation in future procurements of the purchaser for a period not less than one year;
 - 2. In case of anti-competitive practices, information for further processing may be filed under a signature of the Joint Secretary level officer, with the Competition Commission of India;
 - 3. Initiation of suitable disciplinary or criminal proceedings against any individual or staff found responsible.

2.4 Joint Venture, Consortium or Association

- 2.4.1 If the Supplier is a joint venture, consortium, or association, all of the parties shall be jointly and severally liable to the Purchaser for the fulfillment of the provisions of the Contract and shall designate one party to act as a leader with authority to bind the joint venture, consortium, or association. The composition or the constitution of the joint venture, consortium, or association shall not be altered without the prior consent of the Purchaser.

2.5 Scope of Supply

- 2.5.1 The Goods and Related Services to be supplied shall be as specified in Chapter-4 i.e. Specifications and allied technical details.

2.6 Suppliers' Responsibilities

- 2.6.1 The Supplier shall supply all the Goods and Related Services included in the Scope of Supply in accordance with Scope of Supply Clause of the GCC, and the Delivery and Completion Schedule, as per GCC Clause relating to delivery and document.

2.7 Contract price

- 2.7.1 Prices charged by the Supplier for the Goods supplied and the Related Services performed under the Contract shall not vary from the prices quoted by the Supplier in its bid.

2.8 Copy Right

- 2.8.1 The copyright in all drawings, documents, and other materials containing data and information furnished to the Purchaser by the Supplier herein shall remain vested in the Supplier, or, if they are furnished to the Purchaser directly or through the Supplier by any third party, including suppliers of materials, the copyright in such materials shall remain vested in such third party.

2.9 Application

- 2.9.1 These General Conditions shall apply to the extent that they are not superseded by provisions in other parts of the Contract.

2.10 Standards

- 2.10.1 The Goods supplied and services rendered under this Contract shall conform to the standards mentioned in the Technical Specifications and, and, when no applicable standard is mentioned, to the authoritative standard appropriate to the Goods' country of origin and such standards shall be the latest issued by the concerned institution.

2.11 Use of Contract Documents and Information

- 2.11.1 The Supplier shall not, without the Purchaser's prior written consent, disclose the Contract, or any provision thereof, or any specification, plan, drawing, pattern, sample or information furnished by or on behalf of the Purchaser in connection therewith, to any person other than a person employed by the Supplier in performance of the Contract. Disclosure to any such employed person shall be made in confidence and shall extend only so far, as may be necessary for purposes of such performance.
- 2.11.2 The Supplier shall not, without the Purchaser's prior written consent, make use of any document or information enumerated above except for purposes of performing the Contract.
- 2.11.3 Any document, other than the Contract itself, enumerated above shall remain the property of the Purchaser and shall be returned (in all copies) to the Purchaser on completion of the Supplier's performance under the Contract if so required by the Purchaser.
- 2.11.4 The bidder will have to mandatorily sign the Non-Disclosure Agreement (NDA) at Annexure – XXI. This will bind the bidder, OEM, sub-contractor (if any).

2.12 Patent Indemnity

- 2.12.1 The Supplier shall, subject to the Purchaser's compliance with GCC Sub-Clause 2.12.2, indemnify and hold harmless the Purchaser and its employees and officers from and against any and all suits, actions or administrative proceedings, claims, demands, losses, damages, costs, and expenses of any nature, including attorney's fees and expenses, which the Purchaser may suffer as a result of any infringement or alleged infringement of any patent, utility model, registered design, trademark, copyright, or other intellectual property right registered or otherwise existing at the date of the Contract by reason of:
- (a) The installation of the Goods by the Supplier or the use of the Goods in India; and
 - (b) The sale in any country of the products produced by the Goods.
- 2.12.2 If any proceedings are brought or any claim is made against the Purchaser, the Purchaser shall promptly give the Supplier a notice thereof and the Supplier may at its own expense and in the Purchaser's name conduct such proceedings or claim and any negotiations for the settlement of any such proceedings or claims.
- 2.12.3 The intellectual property right / copyright of developed software, along with a perpetual license, should be transferred to CSIR-SERC. The perpetual license / intellectual property right / copyright of developed software should be in the name of "The Director, CSIR-SERC, Taramani, Chennai – 600 113".

2.13 Performance Security

- 2.13.1 Within 21 days of receipt of the notification of award/PO, the Supplier shall furnish performance security in the amount specified in SCC, valid till 60 days after the warranty period.
- 2.13.2 The proceeds of the performance security shall be payable to the Purchaser as compensation for any loss resulting from the Supplier's failure to complete its obligations under the Contract.
- 2.13.3 The Performance Security shall be denominated in Indian Rupees for the offers received for supplies within India and denominated in the currency of the contract in the case of offers received for supply from foreign countries or in equivalent Indian Rupees in case the Performance Security is submitted by the Indian Agent.
- 2.13.4 In the case of imports, the PS may be submitted either by the principal or by the Indian agent and, in the case of purchases from indigenous sources, the PS may be submitted by either the manufacturer or their authorized dealer/bidder.
- 2.13.5 The Performance security shall be in one of the following forms:
- (a) A Bank guarantee or stand-by Letter of Credit issued by a Nationalized/Scheduled bank located in India in the form provided in the bidding documents.
 - (Or)
 - (b) NEFT / RTGS to the account of The Director, CSIR-SERC.
- 2.13.6 The performance security will be discharged by the Purchaser and returned to the Supplier not later than 60 days following the date of completion of the Supplier's performance obligations, including any warranty obligations, unless specified otherwise in SCC, without levy of any interest.
- 2.13.7 In the event of any contract amendment, the supplier shall, within 21 days of receipt of such amendment, furnish the amendment to the performance security, rendering the same valid for the duration of the contract, as amended for further period of 60 days thereafter.
- 2.13.8 The order confirmation must be received within 14 days. However, the Purchaser has the powers to extend the time frame for submission of order confirmation and submission of Performance Security (PS).

Even after extension of time, if the order confirmation /PS are not received, the contract shall be cancelled provided that the purchaser, on being satisfied that it is not a case of cartelization and the integrity of the procurement process has been maintained, may, for cogent reasons, offer the next successful bidder an opportunity to match the financial bid of the first successful bidder, and if the offer is accepted, award the contract to the next successful bidder at the price bid of the first successful bidder.

- 2.13.9 Whenever, the bidder chooses to submit the Performance Security in the form of Bank Guarantee, and then he should advise the banker issuing the Bank Guarantee to immediately send by Speed Post. An unstamped duplicate copy of the Guarantee directly to the Purchaser with a covering letter to compare with the original BG for the correctness, genuineness, etc.**

2.14 Inspections and Tests

- 2.14.1 The inspections & test, training required would be as detailed in Chapter-4 of the Bidding Document relating to Specification and Allied Technical details.

2.15 Packing

- 2.15.1 The Supplier shall provide such packing of the Goods as is required to prevent their damage or deterioration during transit to their final destination as indicated in the Contract. The packing shall be sufficient to withstand, without limitation, rough handling during transit and exposure to extreme temperatures, salt and precipitation during transit and open storage. Packing case size and weights shall take into consideration, where appropriate, the remoteness of the Goods' final destination and the absence of heavy handling facilities at all points in transit.
- 2.15.2 The packing, marking and documentation within and outside the packages shall comply strictly with such special requirements as shall be provided for in the Contract including additional requirements, if any, specified in SCC and in any subsequent instructions ordered by the Purchaser.

2.16 Delivery and Documents

- 2.16.1 Delivery of the Goods and completion and related services shall be made by the Supplier in accordance with the terms specified by the Purchaser in the contract. The details of shipping and/or other documents to be furnished by the supplier are specified in SCC.
- 2.16.2 The mode of transportation shall be as specified in SCC. In case the purchaser elects to have the transportation done through Air, then air lifting needs to be done through Air India only. In case Air India does not operate in the Airport of despatch, then the bidder is free to engage the services of any other reputed Airlines.

2.17 Insurance

- 2.17.1 Should the purchaser elect to buy on FOR destination basis, the Goods supplied under the Contract shall be fully insured against any loss or damage incidental to manufacture or acquisition, transportation, storage and delivery in the manner specified in SCC.
- 2.17.2 Where delivery of the goods is required by the purchaser on FOR destination basis the supplier shall arrange and pay for Cargo Insurance, naming the purchaser as beneficiary and initiate & pursue claims till settlement, on the event of any loss or damage.
- 2.17.3 Where delivery is on ex-works basis, responsibility of insurance would be mutually decided depending on the tender terms.
- 2.17.4 With a view to ensure that claims on insurance companies, if any, are lodged in time, the bidders and /or the Indian agent shall be responsible for follow up with their principals for ascertaining the dispatch

details and informing the same to the Purchaser and he shall also liaise with the Purchaser to ascertain the arrival of the consignment after clearance so that immediately thereafter in his presence the consignment could be opened and the insurance claim be lodged, if required, without any loss of time. Any delay on the part of the bidder/Indian Agent would be viewed seriously and he shall be directly responsible for any loss sustained by the purchaser on the event of the delay.

2.18 Transportation

- 2.18.1 ~~Where the Supplier is required under the Contract to deliver the Goods FOB, transport of the Goods, up to and including the point of putting the Goods on board the vessel at the specified port of loading, shall be arranged and paid for by the Supplier, and the cost thereof shall be included in the Contract price. Where the Supplier is required under the Contract to deliver the Goods FCA, transport of the Goods and delivery into the custody of the carrier at the place named by the Purchaser or other agreed point shall be arranged and paid for by the Supplier, and the cost thereof shall be included in the Contract price.~~
- 2.18.2 ~~Where the Supplier is required under the Contract to deliver the Goods CIF or CIP, transport of the Goods to the port of destination or such other named place of destination in the Purchaser's country, as shall be specified in the Contract, shall be arranged and paid for by the Supplier, and the cost thereof shall be included in the Contract Price.~~
- 2.18.3 The Supplier is required under the Contract to transport the Goods to a specified destination in India, defined as the Final Destination, transport to such destination, including insurance and storage, loading, un-loading at CSIR-SERC, TTRS as specified in the Contract, shall be arranged by the Supplier, and the related costs shall be included in the Contract Price.

2.19 Incidental Services

- 2.19.1 The supplier may be required to provide any or all of the services, including training, if any, specified in Chapter 4.

2.20 Spare Parts

- 2.20.1 The Supplier shall be required to provide any or all of the following materials, notifications, and information pertaining to spare parts manufactured or distributed by the Supplier:
- (a) Such spare parts as the Purchaser may elect to purchase from the Supplier, providing that this election shall not relieve the Supplier of any warranty obligations under the Contract; and
 - (b) In the event of termination of production of the spare parts:
 - (i) Advance notification to the Purchaser of the pending termination, in sufficient time to permit the Purchaser to procure needed requirements; and
 - (ii) Following such termination, furnishing at no cost to the Purchaser, the blueprints, drawings and specifications of the spare parts, if requested.

2.21 Warranty

- 2.21.1 The Supplier warrants that all the Goods 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.
- 2.21.2 The Supplier further warrants that the Goods shall be free from defects arising from any act or omission of the Supplier or arising from design, materials, and workmanship, under normal use in the conditions prevailing in India.
- 2.21.3 Unless otherwise specified in the SCC the warranty shall remain valid for thirty-six (36) months after the Goods, or any portion thereof as the case may be, have been delivered to and accepted at the final destination indicated in the SCC.

- 2.21.4 The Purchaser shall give notice to the Supplier stating the nature of any such defects together with all available evidence thereof, promptly following the discovery thereof. The Purchaser shall afford all reasonable opportunity for the Supplier to inspect such defects.
- 2.21.5 Upon receipt of such notice, the Supplier shall, within a reasonable period of time, expeditiously repair or replace the defective Goods or parts thereof, at no cost to the Purchaser.
- 2.21.6 If having been notified, the Supplier fails to remedy the defect within reasonable period of time; the Purchaser may proceed to take within a reasonable period such remedial action as may be necessary, at the Supplier's risk and expense and without prejudice to any other rights which the Purchaser may have against the Supplier under the Contract.
- 2.21.7 Goods requiring warranty replacements must be replaced on free of cost basis to the purchaser if the warranty replacement are to be imported it should be supplied on DDP basis.

2.22 Terms of Payment

- 2.22.1 The method and conditions of payment to be made to the Supplier under this Contract shall be as specified in the SCC.
- 2.22.2 The Supplier's request(s) for payment shall be made to the Purchaser in writing, accompanied by an invoice describing, as appropriate, the Goods delivered and the Services performed, and by documents, submitted pursuant to Delivery and document Clause of the GCC and upon fulfillment of other obligations stipulated in the contract.
- 2.22.3 Payments shall be made promptly by the Purchaser but in no case later than thirty (30) days after submission of the invoice or claim by the Supplier. While claiming the payment,
- 2.22.4 Payment shall be made in currency as indicated in the contract.

2.23 Change Orders and Contract Amendments

- 2.23.1 The Purchaser may at any time, by written order given to the Supplier pursuant to Clause on Notices of the GCC make changes within the general scope of the Contract in any one or more of the following:
- (a) Increase or decrease in the quantity required, exercise of quantity opinion clause;
 - (b) Changes in schedule of deliveries and terms of delivery;
 - (c) The changes in inspection arrangements;
 - (d) Changes in terms of payments and statutory levies;
 - (e) Changes due to any other situation not anticipated;
- 2.23.2 No changes in the price quoted shall be permitted after the purchase order has been issued except on account of statutory variations.
- 2.23.3 No variation or modification in the terms of the contract shall be made except by written amendment signed by the parties.

2.24 Assignment

- 2.24.1 The Supplier shall not assign, in whole or in part, its obligations to perform under the Contract, except with the Purchaser's prior written consent.

2.25 Subcontracts

- 2.25.1 The Supplier shall notify the Purchaser in writing of all subcontracts awarded under this Contract if not already specified in the bid. Such notification, in the original bid or later, shall not relieve the Supplier from any liability or duties or obligation under the Contract. The sub-contracts should also be in consonance with the land border regulations as specified in the tender.

- 2.25.2 The Subcontractors shall also be binding on the Non-Disclosure of documents, details, technical specification, etc(if any).

2.26 Extension of time.

- 2.26.1 Delivery of the Goods and performance of the Services shall be made by the Supplier in accordance with the time schedule specified by the Purchaser.
- 2.26.2 If at any time during performance of the Contract, the Supplier or its sub-contractor(s) should encounter conditions impeding timely delivery of the Goods and performance of Services, the Supplier shall promptly notify the Purchaser in writing of the fact of the delay, its likely duration and its cause(s). As soon as practicable after receipt of the Supplier's notice, the Purchaser shall evaluate the situation and may, at its discretion, extend the Supplier's time for performance with or without penalty, in which case the extension shall be ratified by the parties by amendment of the Contract.
- 2.26.3 Except as provided under the Force Majeure clause of the GCC, a delay by the Supplier in the performance of its delivery obligations shall render the Supplier liable to the imposition of penalty pursuant to Penalty Clause of the GCC unless an extension of time is agreed upon pursuant to above clause without the application of penalty clause.

2.27 Liquidated Damages

- 2.27.1 Subject to GCC Clause on Force Majeure, if the Supplier fails to deliver any or all of the Goods or to perform the Services within the period(s) specified in the Contract, the Purchaser shall, without prejudice to its other remedies under the Contract, deduct from the Contract Price, as penalty, a sum equivalent to the percentage specified in SCC of the delivered price of the delayed Goods or unperformed Services or contract value for each week or part thereof of delay until actual delivery or performance, up to a maximum deduction of the Percentage specified in SCC. Once the maximum is reached, the Purchaser may consider termination of the Contract pursuant to GCC Clause on Termination for Default.

2.28 Termination for Default

- 2.28.1 The Purchaser may, without prejudice to any other remedy for breach of contract, by written notice of default sent to the Supplier, terminate the Contract in whole or part
- (a) If the Supplier fails to deliver any or all of the Goods within the period(s) specified in the contract, or within any extension thereof granted by the Purchaser pursuant to GCC Clause on Extension of Time; or
 - (b) If the Supplier fails to perform any other obligation(s) under the Contract.
 - (c) If the Supplier, in the judgment of the Purchaser has engaged in corrupt or fraudulent or collusive or coercive practices as defined in GCC Clause and ITB clause on code of integrity in competing for or in executing the Contract.
- 2.28.2 In the event the purchaser terminates the contract in whole or in part, he may take recourse to any one or more of the following action:
- i. The Performance Security is to be forfeited;
 - ii. The purchaser may procure, upon such terms and in such manner as it deems appropriate, stores similar to those undelivered, and the supplier shall be liable for all available actions against it in terms of the contract.
 - iii. However, the supplier shall continue to perform the contract to the extent not terminated.

2.29 Force Majeure

- 2.29.1 Notwithstanding the provisions of GCC Clauses relating to extension of time, penalty and Termination for Default the Supplier shall not be liable for forfeiture of its performance security, liquidated damages or termination for default, if and to the extent that, its delay in performance or other failure to perform its obligations under the Contract is the result of an event of Force Majeure.
- 2.29.2 For purposes of this Clause, "Force Majeure" means an event or situation beyond the control of the Supplier that is not foreseeable, is unavoidable, and its origin is not due to negligence or lack of care on the part of the Supplier. Such events may include, but not be limited to, acts of the Purchaser in its sovereign capacity, wars or revolutions, fires, floods, epidemics, quarantine restrictions, and freight embargoes.
- 2.29.3 If a Force Majeure situation arises, the Supplier shall promptly notify the Purchaser in writing of such conditions and the cause thereof within 21 days of its occurrence. Unless otherwise directed by the Purchaser in writing, the Supplier shall continue to perform its obligations under the Contract as far as is reasonably practical, and shall seek all reasonable alternative means for performance not prevented by the Force Majeure event.
- 2.29.4 If the performance in whole or in part or any obligations under the contract is prevented or delayed by any reason of Force Majeure for a period exceeding 60 days, either party may at its option terminate the contract without any financial repercussions on either side.

2.30 Termination for Insolvency

- 2.30.1 The Purchaser may at any time terminate the Contract by giving written notice to the Supplier, if the Supplier becomes bankrupt or otherwise insolvent. In this event, termination will be without compensation to the Supplier, provided that such termination will not prejudice or affect any right of action or remedy, which has accrued or will accrue thereafter to the Purchaser.

2.31 Termination for Convenience

- 2.31.1 The Purchaser, by written notice sent to the Supplier, may terminate the contract, in whole or in part, at any time. The notice of termination shall specify that termination is for the Purchaser's convenience, the extent to which performance of the Supplier under the Contract is terminated, and the date upon which such termination becomes effective.
- 2.31.2 The Goods that are complete and ready for shipment within 30 days after the Supplier's receipt of notice of termination shall be accepted by the Purchaser at the Contract terms and prices. For the remaining Goods, the Purchaser may elect:
- (a) To have any portion completed and delivered at the Contract terms and prices; and/or
 - (b) To cancel the remainder and pay to the Supplier an agreed amount for partially completed Goods and for materials and parts previously procured by the Supplier.

2.32 Settlement of Disputes

- 2.32.1 The Purchaser and the supplier shall make every effort to resolve amicably by direct informal negotiation any disagreement or dispute arising between them under or in connection with the Contract.
- 2.32.2 If, after Twenty-One (21) days, the parties have failed to resolve their dispute or difference by such mutual consultation, then either the Purchaser or the Supplier may give notice to the other party of its intention

to commence arbitration, as hereinafter provided, as to the matter in dispute, and no arbitration in respect of this matter may be commenced unless such notice is given. Any dispute or difference in respect of which a notice of intention to commence arbitration has been given in accordance with this Clause shall be finally settled by arbitration. Arbitration may be commenced prior to or after delivery of the Goods under the Contract.

2.32.3 The dispute settlement mechanism/arbitration proceedings shall be concluded as under:

- (a) In case of Dispute or difference arising between the Purchaser and a domestic supplier relating to any matter arising out of or connected with this agreement, such disputes or difference shall be settled in accordance with the Indian Arbitration & Conciliation Act, 1996, the rules there under and any statutory modifications or re-enactments thereof shall apply to the arbitration proceedings. The dispute shall be referred to the Delhi International Arbitration Centre (DIAC), Delhi High Court, New Delhi. The award of the arbitrator so appointed shall be final, conclusive and binding on all parties to this order.
- (b) In the case of a dispute between the purchaser and a Foreign Supplier, the dispute shall be settled by arbitration In accordance with provision of sub-clause (a) above. But if this is not acceptable to the supplier then the dispute shall be settled in accordance with provisions of UNCITRAL (United Nations Commission on International Trade Law) Arbitration Rules.

2.32.4 The venue of the arbitration shall be the place from where the purchase order or contract is issued.

2.32.5 notwithstanding any reference to arbitration herein,

- (a) The parties shall continue to perform their respective obligations under the Contract unless they otherwise agree; and
- (b) The Purchaser shall pay the Supplier any monies due the Supplier.

2.33 Governing Language

2.33.1 The contract shall be written in English language which shall govern its interpretation. All correspondence and other documents pertaining to the Contract, which are exchanged by the parties, shall be written in the English language only.

2.34 Applicable Law

2.34.1 The Contract shall be interpreted in accordance with the laws of the Union of India and all disputes shall be subject to place of jurisdiction as specified in SCC.

2.35 Notice

2.35.1 Any notice given by one party to the other pursuant to this contract/order shall be sent to the other party in writing or by cable, telex, FAX, e-mail or and confirmed in writing to the other party's address specified in the SCC.

2.35.2 A notice shall be effective when delivered or on the notice's effective date, which ever is later.

2.36 Taxes and Duties

2.36.1 For goods manufactured outside India, the Supplier shall be entirely responsible for all taxes, stamp duties, license fees, and other such levies imposed.

2.36.2 The Supplier shall be entirely responsible for all taxes, duties, license fees, etc., incurred till its final manufacture/production.

2.36.3 If any tax exemptions, reductions, allowances or privileges may be available to the Supplier in India, the

Purchaser shall make its best efforts to enable the Supplier to benefit from any such tax savings to the maximum allowable extent.

2.36.4 **All payments due under the contract shall be paid after deduction of statutory levies (at source) (like ESIC, IT, etc.) (TDS on GST & IT-TDS) wherever applicable.**

2.36.5 ~~**GST** — If the supply is within India, this institute is eligible for concessional GST as per Notification No.45/2017 & 47/2017 dt 14.11.2017 by Ministry of Finance.~~

2.37 Right to use Defective Goods

2.37.1 If after delivery, acceptance and installation and within the guarantee and warranty period, the operation or use of the goods proves to be unsatisfactory, the Purchaser shall have the right to continue to operate or use such goods until rectifications of defects, errors or omissions by repair or by partial or complete replacement is made without interfering with the Purchaser's operation.

2.38 Protection against Damage

2.38.1 The system shall not be prone to damage during power failures and trip outs. The normal voltage and frequency conditions available at site as under:

- (a) Voltage 230 volts – Single phase/ 415 V 3 Phase (+- 10%)
- (b) Frequency 50 Hz

2.39 Site preparation and installation

2.39.1 The Purchaser is solely responsible for the construction of the equipment sites in compliance with the technical and environmental specifications defined by the Supplier. The Purchaser will designate the installation sites before the scheduled installation date to allow the Supplier to perform a site inspection to verify the appropriateness of the sites before the installation of the Equipment, if required. The supplier shall inform the purchaser about the site preparation, if any, needed for installation, of the goods at the Purchaser's site immediately after notification of award/contract.

2.40 Import and Export Licenses

2.40.1 ~~If the ordered materials are covered under restricted category of EXIM policy in India the Vendor / Agent may intimate such information for obtaining a necessary license in India.~~

2.40.2 ~~If the ordered equipment is subject to Vendor procuring an export license from the designated government agency / country from where the goods are shipped / sold, the vendor has to mention the name, address of the government agency / authority. The vendor must also mention the time period within which the license will be granted in normal course.~~

2.41 Risk Purchase Clause

2.41.1 If the supplier fails to deliver the goods within the maximum delivery period specified in the Purchase Order, CSIR-SERC may procure, upon such terms and in such a manner as it deems appropriate, Goods or Services similar to those undelivered and the Supplier be liable to CSIR-SERC for any excess costs incurred for such similar goods or services.

2.42 Option Clause

2.42.1 The Purchaser reserves the right to increase or decrease the quantity of the required goods up to 25% (Twenty-Five) per cent at any time, till final delivery date (or the extended delivery date of the contract), by giving reasonable notice even though the quantity ordered initially has been supplied in full before the last date of the delivery period (or the extended delivery period)

2.43 Integrity Pact

2.43.1 The SCC shall specify whether there is a need to enter into a separate Integrity pact or not.

2.43.2 The names and contact details of the Independent External Monitors (IEM) on the event of the need of IP is as detailed in the SCC.

2.44 Order Acceptance

2.44.1 The successful bidder should submit Order acceptance within 14 days from the date of issue of order/signing of contract, failing which it shall be presumed that the vendor is not interested and his bid security is liable to be forfeited pursuant to clause 1.16.9 of ITB.

2.45 Purchase Preference

2.45.1 The purchaser intends to give product reservation/purchase preference/price preference in line with current Govt. of India procurement policies to help inclusive national economic growth by providing long term support to small and medium enterprises and disadvantaged sections of the society and to address environmental concerns along with preferential market access in govt. procurements under Preference to Make in India Order 2017. Bidders desirous of submitting of their bids in accordance with the Make in India Policy of GOI must submit an Affidavit of self-certification regarding minimum local content as per the format enclosed with the bidding documents.

B. SPECIAL CONDITIONS OF CONTRACT

<u>Sl. No.</u>	<u>GCC Clause</u>	<u>Page No.</u>
01.	GCC 2.1.1 (l)	40
02.	GCC 2.1.1 (m)	40
03.	GCC 2.13.1	40
04.	GCC 2.15.2	40
05.	GCC 2.16.1	40
06.	GCC 2.16.3	41
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08.	GCC 2.27.1	41
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SPECIAL CONDITIONS OF CONTRACT (SCC)

The following Special Conditions of Contract (SCC) shall supplement and / or amend the General Conditions of Contract (GCC). Whenever there is a conflict, the provisions herein shall prevail over those in the GCC.

GCC 2.1.1(l)	The Purchaser is: The Director, CSIR-Structural Engineering Research Centre, Taramani, Chennai - 600 113, INDIA,
GCC 2.1.1(m)	<u>The Final Destination is:</u> <u>The Final Destination is:</u> STORES SECTION TOWER TESTING AND RESEARCH STATION (TTRS) CSIR-STRUCTURAL ENGINEERING RESEARCH CENTRE, Opp to Chennai Airport, Trisoolam, Pallavaram Chennai – 600 043 Tamil Nadu, INDIA Tel: 91 - 44 – 22545571 / 22545590 Email : puroff.serc@csir.res.in
GCC 2.13.1	The amount of the Performance Security (PS) shall be 5% of the Contract / PO value + Applicable statutory taxes (GST) for a period of specified warranty + 60 days.
GCC 2.15.2	The marking and documentation within and outside the packages shall be: (a) Each package should have a packing list within it detailing the part No.(s), description, quantity etc. (b) Outside each package, the contract No., the name and address of the purchaser and the final destination should be indicated on all sides and top. (c) Each package should be marked as 1/x, 2/x, 3/x.....x/x, where “x” is the total No. of packages contained in the consignment. (d) All the sides and top of each package should carry an appropriate indication / label / stickers indicating the precautions to be taken while handling/storage.
GCC 2.16.1	Details of Shipping and other Documents to be furnished by the Supplier are : Within 24 hours of dispatch, the supplier shall notify the purchaser the complete details of dispatch and also supply following documents by registered post / speed post and copies thereof by E-mail. - Two copies of Supplier’s Invoice indicating, <i>inter-alia</i> description and specification of the goods, quantity, unit price, total value; - Packing list; - Certificate of country of origin; - Insurance certificate, if required under the contract; - Railway receipt/Consignment note; - Manufacturer’s guarantee certificate and in-house inspection certificate; - Inspection certificate issued by purchaser’s inspector, if any; and - Any other document(s) as and when required in terms of the contract. Note: - The nomenclature used for the item description in the invoices(s), packing list(s) and the delivery note(s) etc., should be identical to that used in the contract. The dispatch particulars including the name of the transporter should also be mentioned in the Invoice(s). - The above documents should be received by the Purchaser before arrival of the Goods and, if not received, the Supplier will be responsible for any consequent expenses

GCC 2.16.3	The mode of transportation shall be by Road/Rail/Air/Multimodal.
GCC 2.17.1	The Insurance shall be for an amount equal to 110% of the F.O.R Destination, CSIR - SERC, Chennai value of the contract from within “warehouse to warehouse (final destination)” on “all risk basis” including strikes, riots and civil commotion.
GCC 2.21.3	The period of validity of the Warranty shall be Three Years from the date of final acceptance.
GCC 2.22.1	The method and conditions of payment to be made to the Supplier under this Contract shall be as follows:
GCC 2.22.1	The payment shall be made in Indian Rupees, as follows: Payment Terms: 100% Payment will be released after receipt of material in good condition, Installation, Commissioning & Training and our final acceptance and submission of 5% PBG valid for 38 months (warranty 36 months plus 2 months) Note: 1. For payment, ACCEPTANCE CERTIFICATE FORM as per ANNEXURE XII should be submitted. 2. All payments due under the Contract shall be paid after deduction of all statutory levies at source (like ESIC, Income Tax, etc.), wherever applicable.
GCC 2.27.1	The penalty shall be 0.5% per week or part of a week towards late delivery and towards delay in installation and commissioning.
GCC 2.27.1	The maximum amount of penalty shall be 10%. The liquidated damages shall be levied on the delivered price of the delayed Goods or unperformed Services or contract value.
GCC 2.34.1	The place of jurisdiction is Chennai, India.
GCC 2.35.1	For notices, the Purchaser’s address Kind Attention: The Director Location: CSIR – Structural Engineering Research Centre, CSIR Road, Taramani Chennai - 600 113, INDIA Telephone: 0091-44-22549108, 22544777 Email address: puroff.serc@csir.res.in
GCC 2.39.1	Site preparation and Installation to be done for the project at the following addresses: TOWER TESTING AND RESEARCH STATION (TTRS) CSIR-STRUCTURAL ENGINEERING RESEARCH CENTRE, Opp to Chennai Airport, Trisoolam, Pallavaram Chennai – 600 043 Tamil Nadu, INDIA Tel: 91 - 44 – 2254 5571 / 2254 5577 / 2254 5590 E-mail address: puroff.serc@csir.res.in
GCC 2.43.1	The Integrity Pact - Applicable
GCC 2.43.2	The Name and Contact details of the IEMs are as under: – - SHRI JAGADIP NARAYAN SINGH, IAS (Retd), E-Mail: jagadipsingh@yahoo.com - SHRI ARUN KUMAR GUPTA, Ex-CMD, SCI, E-Mail: guptaarun55@rediffmail.com
GCC 2.45	Purchase Preference Make in India – Applicable – reserved for Class I and Class II local suppliers
GCC 2.45	Purchase Preference MSE – Applicable

CHAPTER - 3

SCHEDULE OF REQUIREMENT (To be filled by the bidder and enclosed with the Technical Bid.)

Sl. No.	Brief Description of goods / software and services	Quantity	Physical Unit	Final destination/ Place	Delivery Schedule (to be filled by the bidder)

Term of delivery: FOR Destination :

Period of delivery shall count from _____ : _____
(to be filled by the bidder)

Scope of Supply :

Standards :

Date :

Place :

Signature of the Bidder

PS: Authorization standards that ensure at least a equivalent quality than the standard mentioned in the Technical Specification, will also be acceptable.

CHAPTER – 4

General Description, Eligibility Conditions, Specifications And Allied Technical Details & Information for Supply, Installation, Integration, Commissioning, Testing, Training and Documentation for “State -of-the-Art Real Time Hybrid Digital Control system with electrical winches for existing tower testing facility (RTDCT)” at TTRS, CSIR-SERC for testing of transmission line towers and tower-like structures.

Minimum Eligibility Criteria for Participation in Tender

- ❖ A declaration by the Bidder for Code of Integrity & conflict of interest as per the format at Annexure II
- ❖ An affidavit for Local Content signed by CA / Cost Accountant as per the format at Annexure XIII
- ❖ A certificate with regard to the bidder not having a land border with India as per the format at Annexure XV **OR** A certificate with regard to the bidder having a land border with India as per the format at Annexure XVI.
- ❖ A signed agreement for Integrity Pact as per the format at Annexure XIV.
- ❖ The bidder should have supplied and commissioned at least one project of multi axis servo controlled closed loop tension/load/position control system as a complete turn key project during the last 05 years (as on date of bid opening) in Govt institutes/ Govt. research organizations/ Govt. PSU's/ Public funded Universities/ National Testing laboratories/ Reputed private firms in India. The supplied tension/load/position control system should be of PLC-Servo drive-Servo motor based multi axis closed loop tension/force/position control system including mechanical assembly/hardware for applying tension/force/position. The bidder / supplier has to provide the PO copies including successful Installation reports and Performance Certificate of the same POs.

(Note: Firms not meeting the minimum eligibility conditions will not be considered for technical evaluation.)

Introduction and Background

The Tower Testing & Research Station (TTRS) of CSIR-Structural Engineering Research Centre (CSIR-SERC) serves as a specialized facility for evaluating the structural strength of Transmission Line (TL) towers and tower like structures for power transmission utilities. The service rendered by TTRS are in high demand by the clients from India and all over the world, keeping the test facility active year-round. It has been planned to upgrade the current test facility to a state-of-the-art **Real Time Hybrid Digital Control system with electrical winches for existing tower testing facility (RTDCT) functioning with servomotor driven electrical winches and servo valve driven hydraulic actuators.**

It is proposed to operate the RTDCT system with servo motor driven electrical winches and servo valve driven hydraulic actuators synchronously for testing of full-scale TL towers and tower like structures. Existing servo valve driven hydraulic actuators and strain gauge based load cells without conditioner electronics will be provided by CSIR-SERC. It is the responsibility of the bidder to supply all other components (refer detailed technical specification below) required for the RTDCT, commissioning, integrating hydraulic actuators and electrical winches and making the whole RTDCT test facility functional as per the requirements of CSIR-SERC. The control system of RTDCT should have provision to add additional channels for future expansion.

1.0 Project Description:

Project title:	Real Time Hybrid Digital Control system with electrical winches for existing tower testing facility (RTDCT)
Existing control system:	RTDCS-40 for functioning with hydraulic actuator system
Proposed system currently being targeted:	Real Time Hybrid Digital Control system with electrical winches for existing tower testing facility (RTDCT)
Project Summary: • Supply of hybrid digital 64 channels control system, 64 servo motor & drives, 64 servo valve drive electronic modules to drive hydraulic actuators, 48 electrical winches, necessary communication & control hardware and software and sheave multiplier assemblies. • Installation, commissioning and integration of 48 electrical winches to RTDCT control system, necessary communication & control hardware and software and sheave multiplier assemblies. • Integration of existing servo valve driven hydraulic actuators to RTDCT control system. • Installation and commissioning of sheave multiplier assemblies and integrating to the RTDCT test system. • Demonstrating the RTDCT functioning synchronously with electrical winches and hydraulic actuators meeting the performance requirements described in the detailed specifications.	

2.0 General Description of the existing Tower Testing facility at TTRS-SERC

At present the existing control system architecture has the facility to apply the loads through closed loop system with servo controlled hydraulic actuators. The control System is designed to apply loads to large scale transmission tower structures by means of Hydraulic actuators applying a controlled tensile force via steel wire ropes attached to the structures. The components of the control loop include hydraulic actuator with servo valve, servo valve driver, load cell with signal conditioner and analog controller. The existing system is housed in the control room (3rd floor). The load cells are placed at a distance of 250 meters to 450 meters from the control room. The Hydraulic actuators using servo valves are grouped as vertical, longitudinal and transverse as shown in Fig. 1. The vertical load application hydraulic actuators are placed in the Vertical Ram Station (VRS) located in the ground level at a distance of 60 metres from the test pad. The transverse load application hydraulic actuators are placed in the Transverse Ram Station (TRS) located at an altitude of 49 metres above ground level and 700 metres distance from the control system in the control building. The longitudinal load application hydraulic actuators are placed in the Longitudinal Ram Station (TRS) located at an altitude of 63 metres above ground level and 1200 metres distance from the control system in the control building. Thus the existing servo valve for hydraulic actuators are located at a distance of 100 meters to 1200 meters from control room. The load on the tower in all the three directions is to be controlled. The load cell feedback (electrical voltage signal) is compared against a reference electrical voltage signal equivalent to the required load. If a difference between the required load and actual load occurs, a drive current is passed on to the hydraulic actuator which controls the load to its required value. The Hydraulic oil supply is taken from a variable delivery pressure compensated pump and is connected to actuators via flexible and fixed pipe work. The final oil flow into the actuator is controlled by servo valves which in turn are operated from the user end by actuator drive signals.

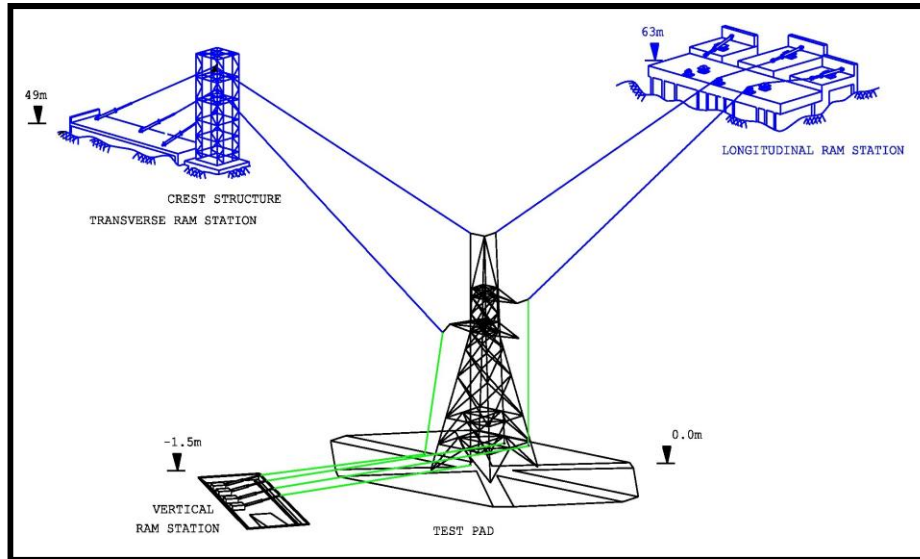


Fig. 1 Schematic view of load application on transmission tower

Each control channel will be supplied with an input reference signal (proportional to demand load) which is compared against feedback signal (proportional to actual load) from strain gauge based load cell. Depending on the difference (error) between the percentage of the demand load and the actual load on the tower, a drive current proportional to error forces the actual load towards the demand load as shown in Fig. 2.

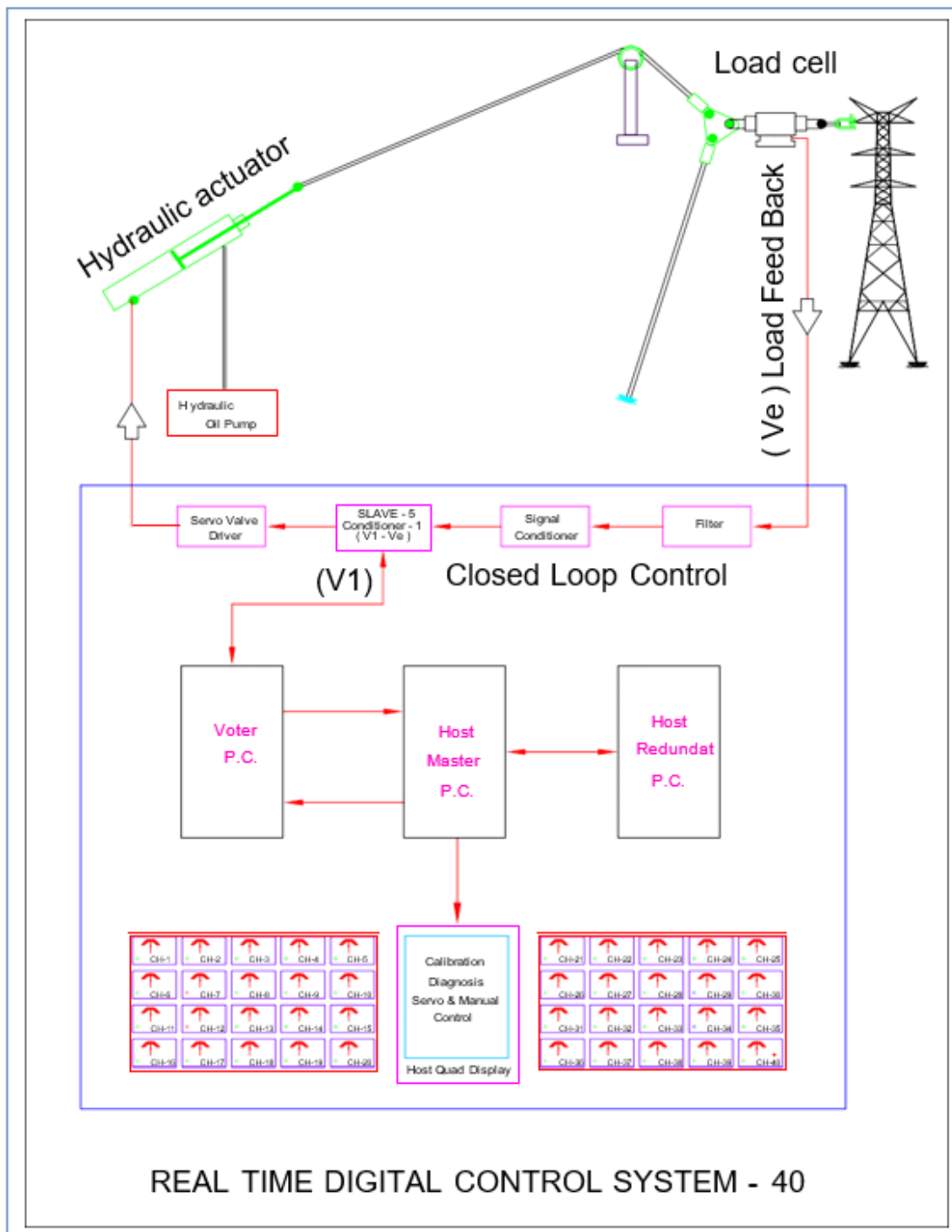


Fig 2. Existing Real Time Digital Control System

3.0 General Description of the proposed Tower Testing facility at TTRS-SERC

It is proposed to install Real Time Hybrid Digital Control 64 channel capacity Tower testing facility (RTDCT) for seamless closed loop feedback operation of both servo valve driven hydraulic actuators (existing at TTRS) and servo motor driven electrical winches (Fig. 3). The newly commissioned 48 servo motor driven electrical winches should be seamlessly integrated to existing hydraulic actuators. The electrical winches with servo motor drive should operate in closed-loop feedback control in position control mode, speed control mode, Torque/force control mode, manual control mode and remote-control modes for accurate and smooth application of load on the tower.

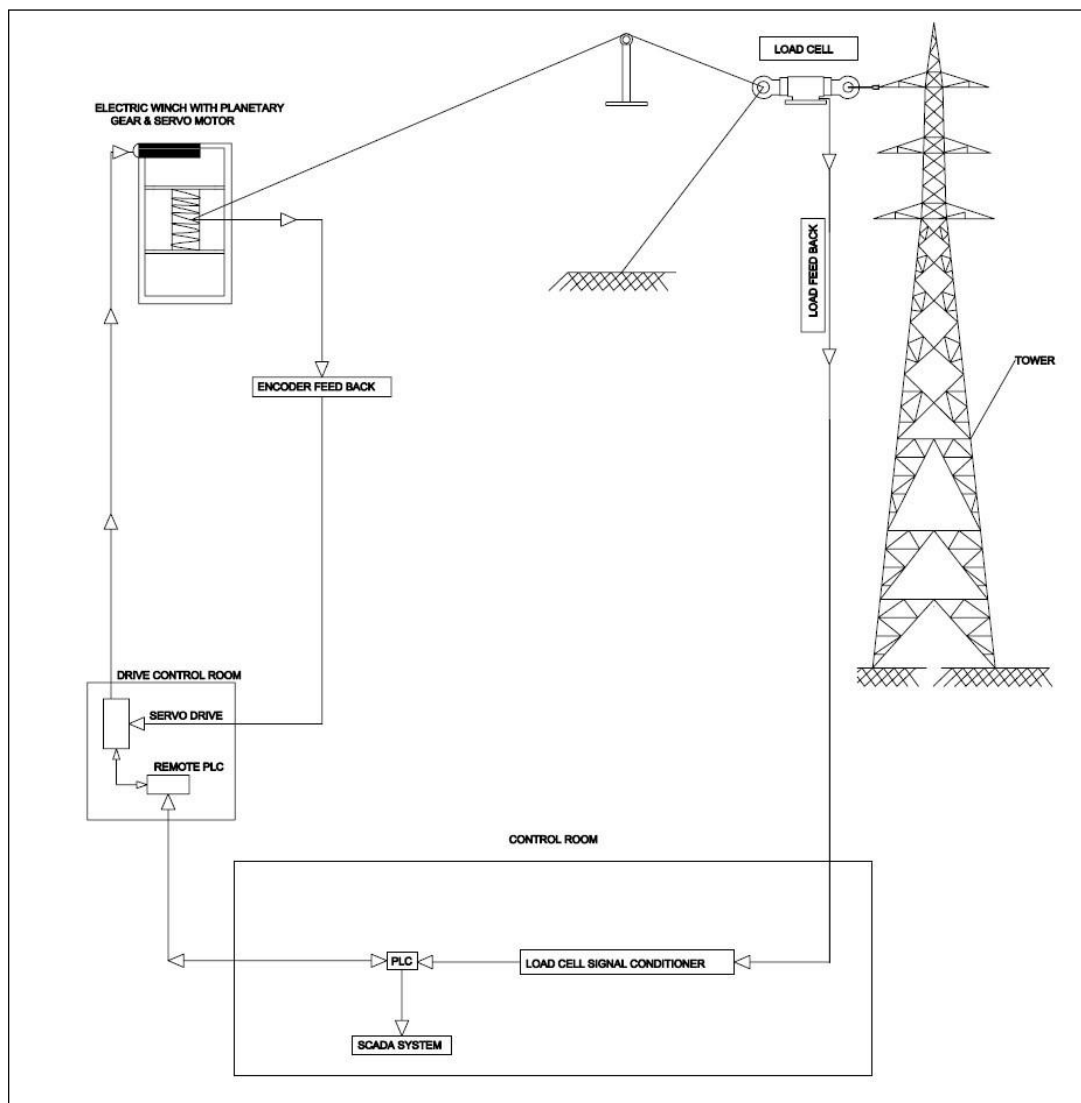


Fig 3. A typical schematic of one channel electrical winch closed loop control system for the proposed system

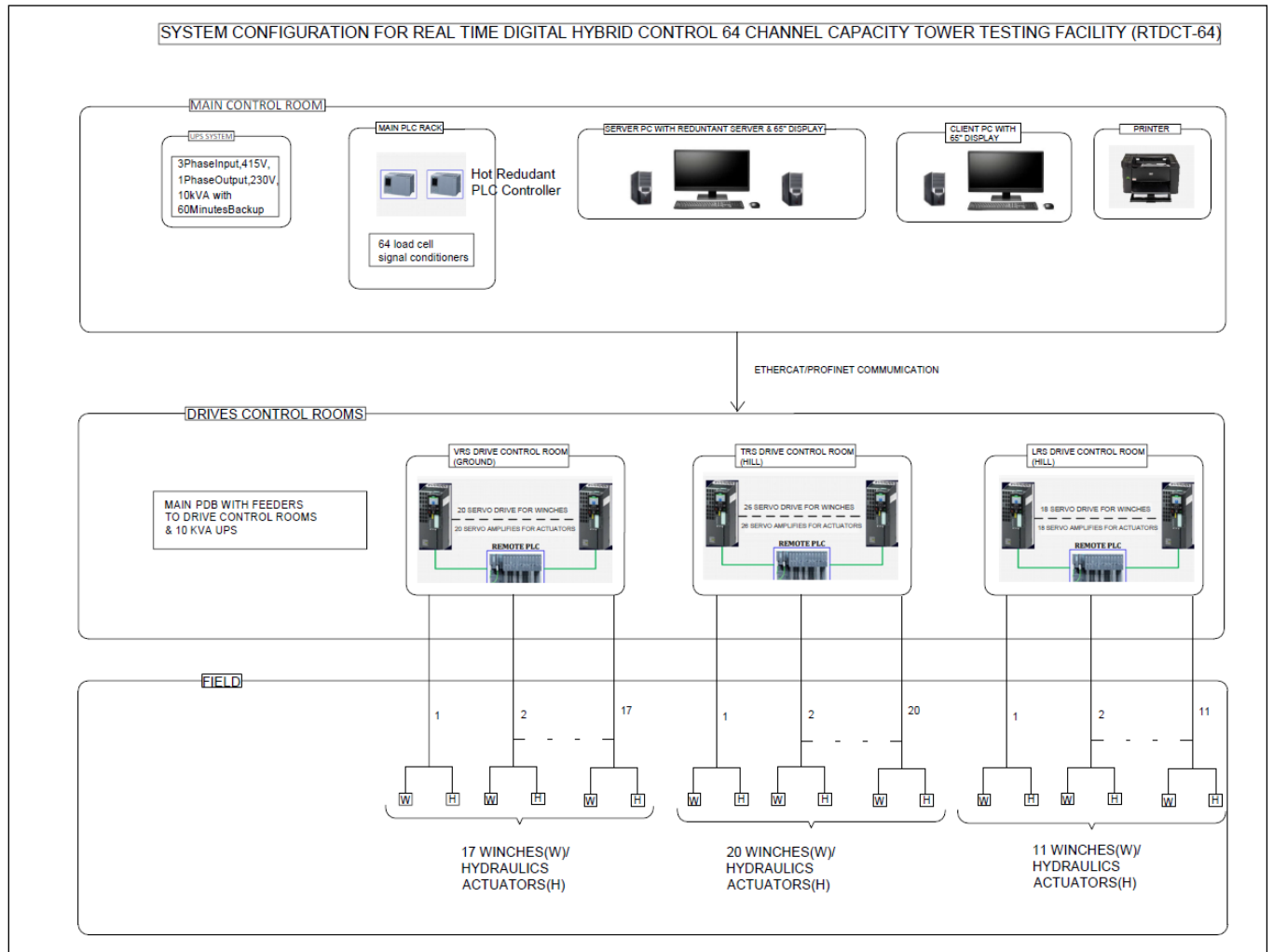
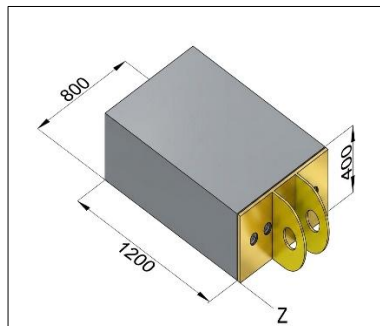
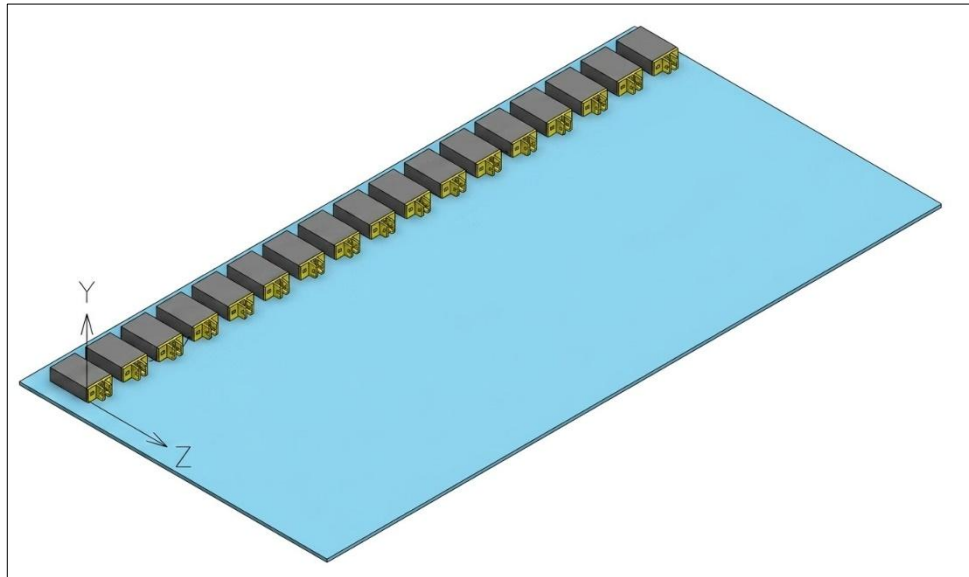
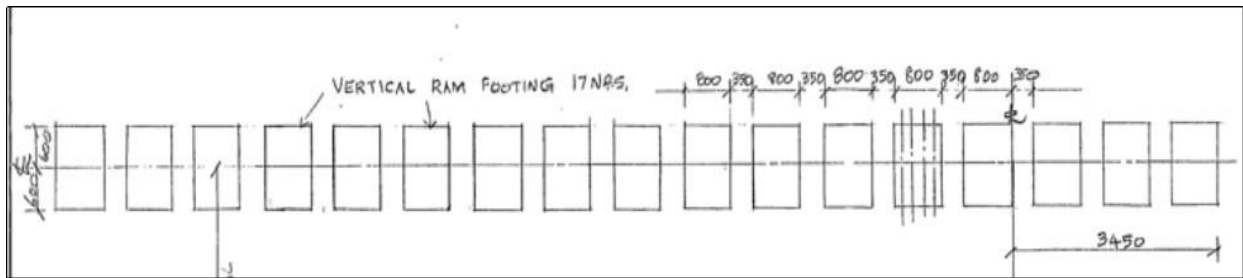


Fig 4. Schematic of Real Time Hybrid Digital Control system with electrical winches for existing tower testing facility (RTDCT)

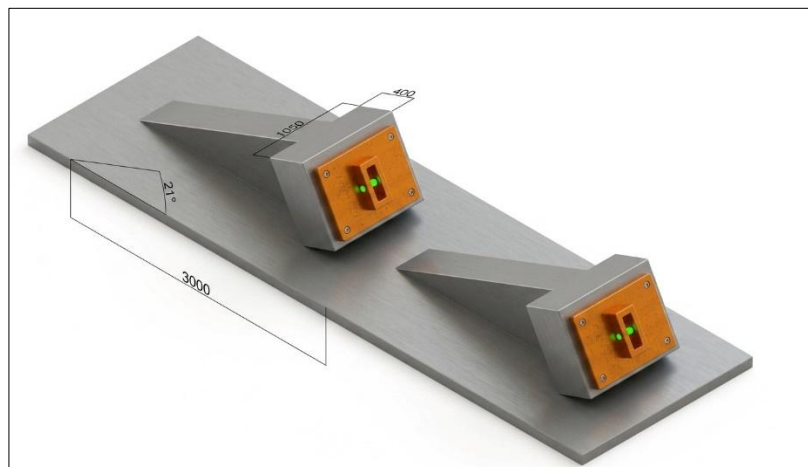
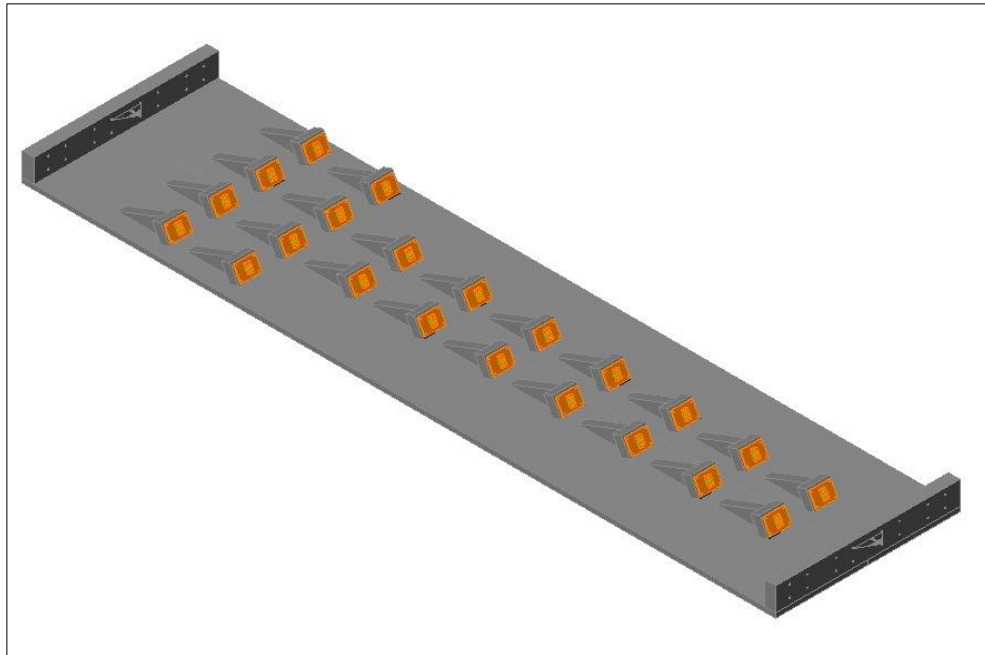
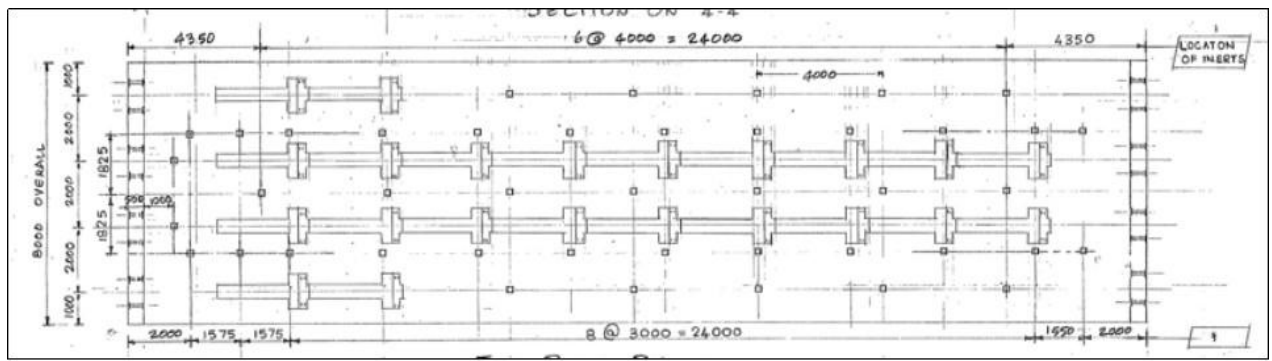
4.0 Detailed Real Time Hybrid Digital Control system with electrical winches for existing tower testing facility (RTDCT) at TTRS, CSIR-SERC

Refer below for detailed technical specification of the proposed State -of-the-Art Real Time Hybrid Digital Control system with electrical winches for existing tower testing facility (RTDCT) at TTRS, CSIR-SERC.

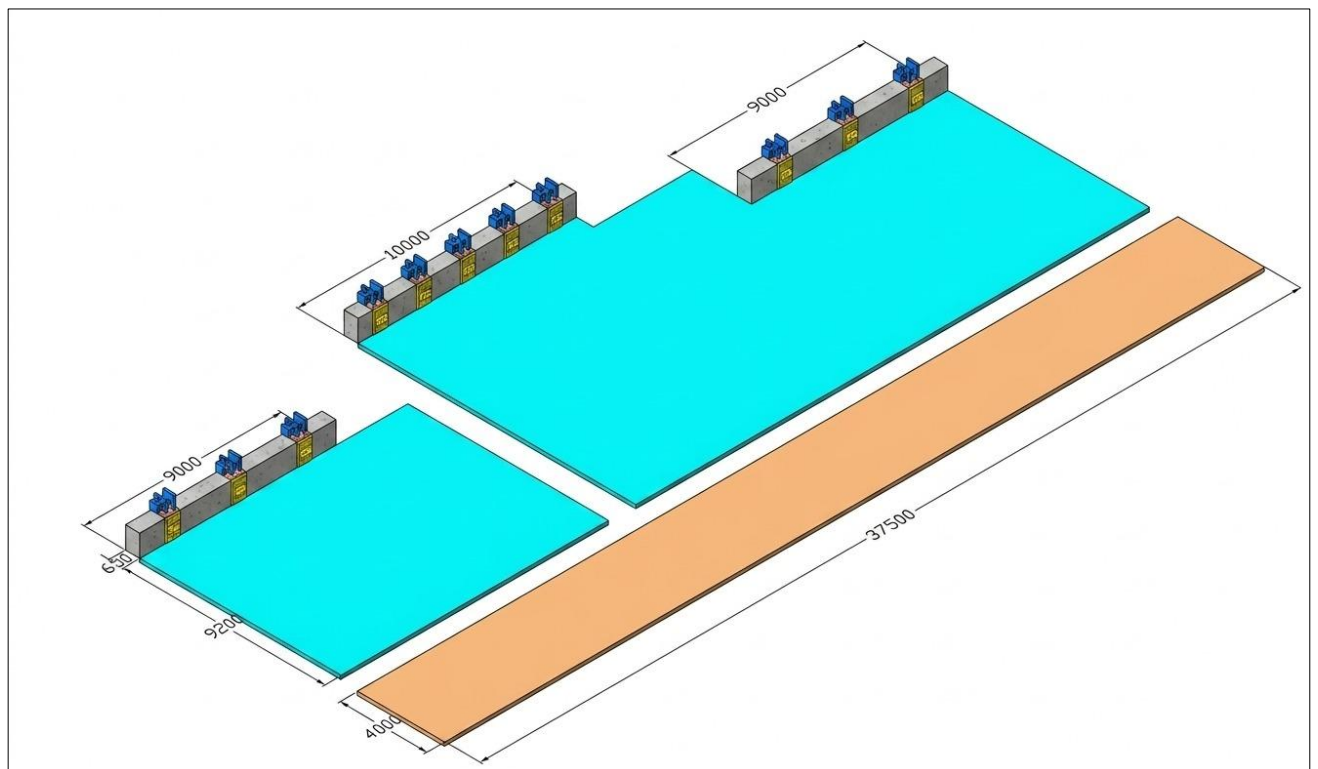
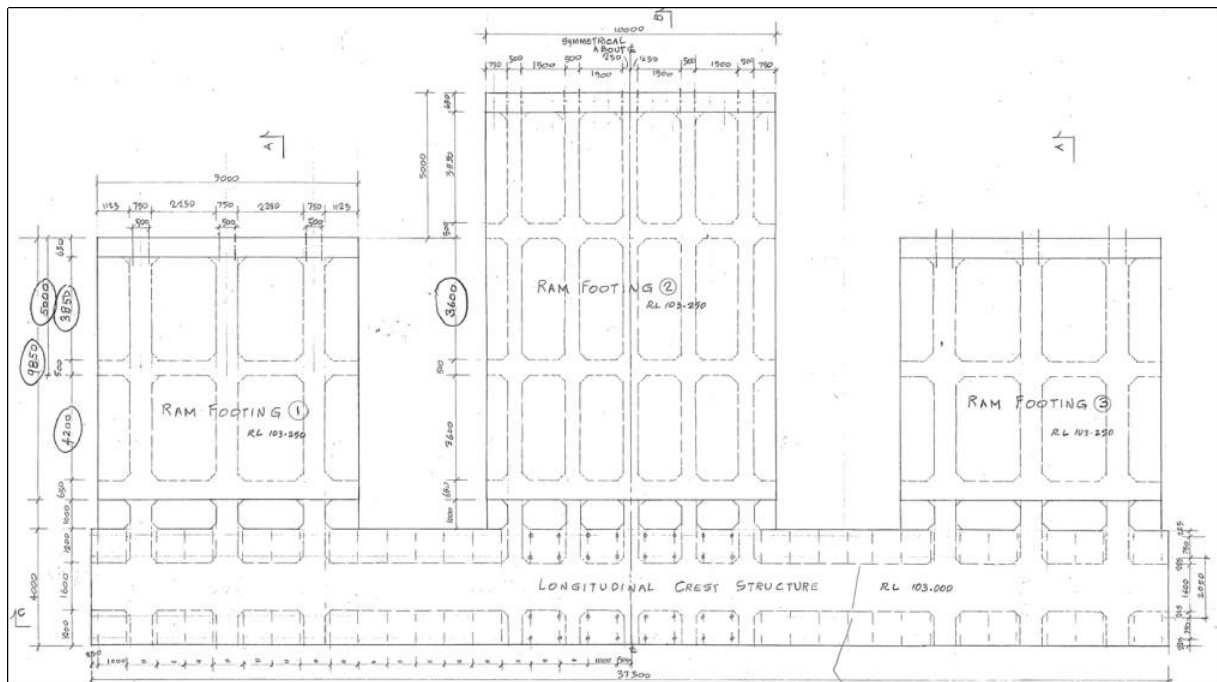
5.0 Dimensions and 3D layout of Ram Footings



(a) Vertical Ram Station (VRS)



(b) Transverse Ram Station (TRS)



(c) Longitudinal Ram Station (LRS)

Fig. 5 Dimensions of RAM footings

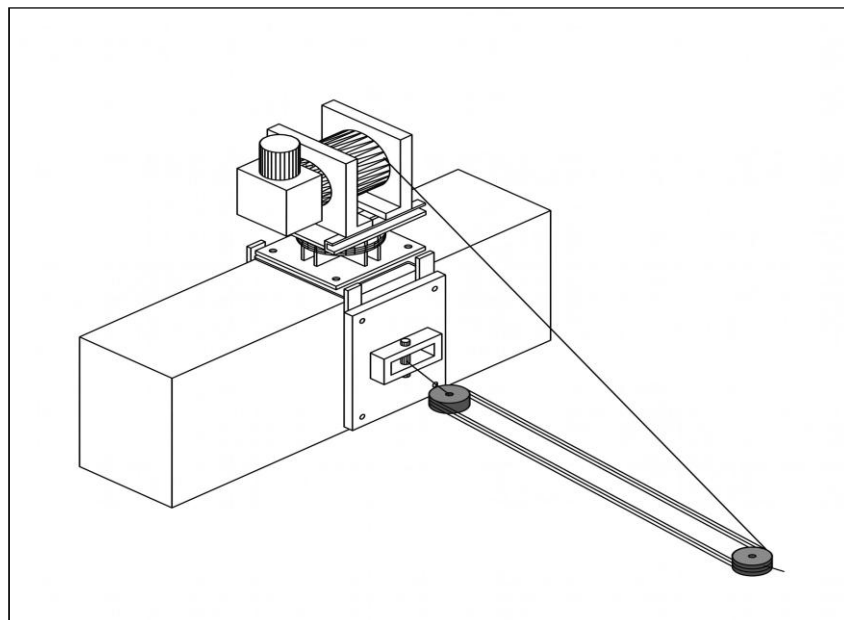
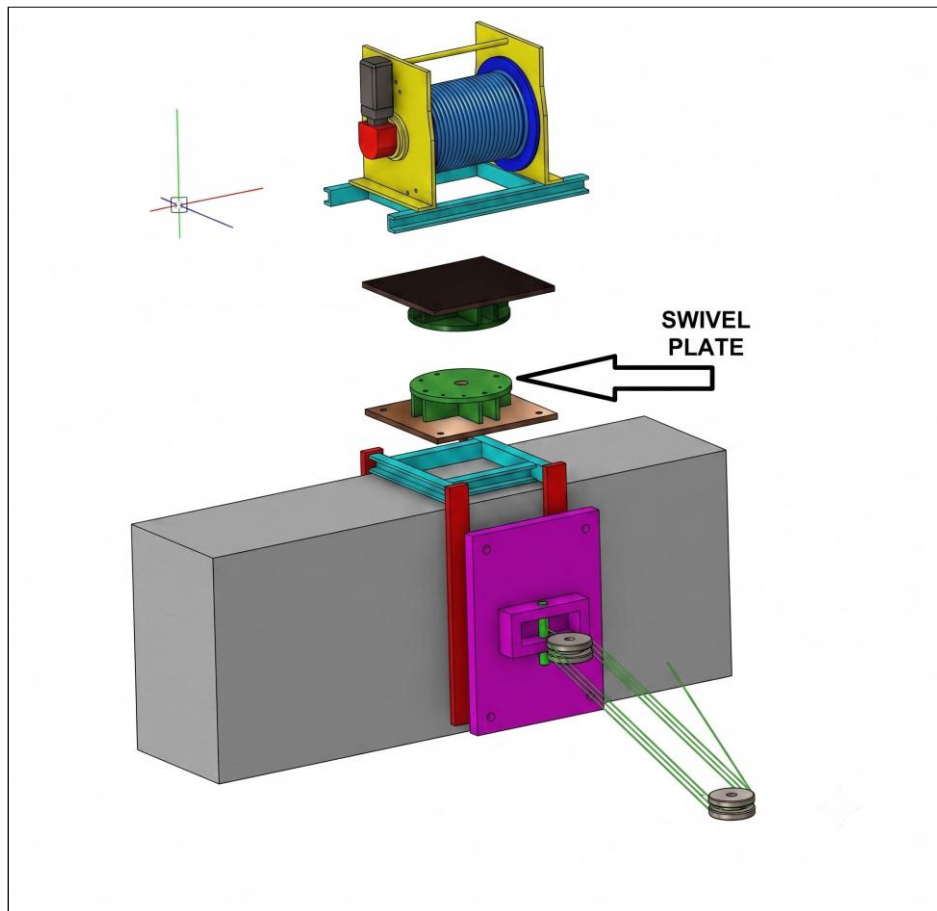


Fig. 6 Typical sheave pulley multiplier mechanism

TECHNICAL SPECIFICATIONS

Detailed Specifications for Supply, Installation, Integration, Commissioning, Testing, Training and Documentation of State -of-the-Art Real Time Hybrid Digital Control system with electrical winches for existing tower testing facility (RTDCT) at TTRS, CSIR-SERC for testing of transmission line towers and tower-like structures.

Sl. No.	Parameters	SERC Requirements
1.	End use and Requirements of the Real Time Hybrid Digital Control system with electrical winches for existing tower testing facility (RTDCT)	The test facility is to be used for testing of transmission line towers and tower-like structures. It is the responsibility of supplier to integrate and synchronize the functioning of the newly proposed 48 electrical winches and existing hydraulic actuators to the proposed RTDCT control system.
2.	Total number of loading channels of the RTDCT.	The RTDCT should be of 64 channel capacity with the provision for future expansion. Each channel should have necessary hardware and software to control both servo valve driven hydraulic actuator and servo motor driven electrical winch. The user should be able to configure either a servo valve driven hydraulic actuator or a servo motor driven electrical winch to each channel, based on requirement (user-selectable) at the time of testing.
3.	Distribution of loading channels among three locations (Vertical Ram Station (VRS), Transverse Ram Station (TRS) & Longitudinal Ram Station (LRS)) of the test facility.	The 64 loading channels of the RTDCT are distributed among three locations of VRS, TRS & LRS of the test facility as per the details given below. Vertical Ram station: 20 loading channels Transverse Ram station: 26 loading channels Longitudinal Ram station: 18 loading channels
4.	Main functional components of the the Real Time Hybrid Digital Control system with electrical winches for existing tower testing facility (RTDCT)	RTDCT consisting of • Master & Redundant PLC, Slave PLCs. • User control Panel, Test monitor panels. • Analog and Digital I/Os • 64 loading channels. Each loading channel capable of controlling either electrical winch or hydraulic actuator mapped to that channel at the time of testing. • 64 set of Servo drives and servo motor for electrical winch control with individual remote control handsets to manually control the connected electrical winch at the time of rigging.

Sl. No.	Parameters	SERC Requirements		
		• 64 nos. of Servo valve drivers/amplifiers with individual remote control handsets to manually control the hydraulic actuators at the time of rigging. • 64 load cell signal conditioner for the load cells which will be connected to the Tower Under Test (TUT). • 64 analog outputs for external data logging of load cell signals. • Load cell cables from TUT to load cell junction box (ground floor) and from load cell junction box to control room (3rd floor). • Communication & control cables and associated hardware and software. • Additional 16(8+8) analog input modules with signal conditioners - 8 for external strain measurement and 8 for displacement transducers. • 48 Nos. of Integrated Planetary gear based electrical winches of 5T & 10T capacity. • Clutch mechanism between servo motor drive and gear box input drive. • Sheave multiplier assemblies for 5T and 10T capacity winches to achieve maximum load of 50T. • Suitable steel mounting fixtures to install all the 48 electrical winches and Sheave multiplier assemblies in the existing foundation bases of VRS, TRS & LRS. (Please refer schematic diagram Fig 6). • Strain gauge based Load cells (will be provided by CSIR-SERC) • Servo valve driven hydraulic actuators (will be provided by CSIR-SERC) Please refer schematic diagram Fig 4.		
5.	Electrical Winch type and capacity	Electrical winches of 5T and 10T capacity with integrated planetary gear and rope guide. These Electrical winches are to be accommodated in the existing foundation (Please refer Fig. 5 Dimensions of RAM footing). Suitable steel fixtures to be fabricated and installed to accommodate the winches in the existing Ram footings. Bidders are requested to make a site visit to understand actual site conditions and space available for installation of winch assembly before submitting the offer. Proposed distribution of the winches in the ram stations are as follows. Vertical Ram station <table><tr><td>Electrical winches of 5 ton capacity</td><td>17</td></tr></table>	Electrical winches of 5 ton capacity	17
Electrical winches of 5 ton capacity	17			

Sl. No.	Parameters	SERC Requirements						
		Transverse Ram station <table><tr><td>Electrical winches of 5 ton capacity</td><td>15</td></tr><tr><td>Electrical winches of 10 ton capacity</td><td>5</td></tr></table> Longitudinal Ram station <table><tr><td>Electrical winches of 5 ton capacity</td><td>11</td></tr></table>	Electrical winches of 5 ton capacity	15	Electrical winches of 10 ton capacity	5	Electrical winches of 5 ton capacity	11
Electrical winches of 5 ton capacity	15							
Electrical winches of 10 ton capacity	5							
Electrical winches of 5 ton capacity	11							
Real Time Digital Controller Specification								
6.	Working principle, Hardware & software requirements of RTDCT hybrid digital controller to control both electrical winch and hydraulic actuator.	- RTDCT controller should have a master PLC with hot swappable redundant master at control room and a slave PLC at each station (VRS, LRS and TRS) in Master/Slave Architecture control philosophy. - The Master PLC will have user interface panel with switches, control knobs, keyboards, touch screen monitors, indicators, etc, to receive command and control inputs from user and to display the real time status of all the loading channels. - The master PLC will have required number of analog & digital I/O modules, load cell signal conditioners to receive Force/Load signals from load cells mounted on TUT. - The master PLC in the control room should receive command and control inputs from user, Force/Load signals from load cells and communicate and control the slave PLCs through a dedicated EtherCAT / ProfiNet or equivalent high speed Industrial Communication Protocol. - The slave PLCs at each station will communicate and control the servo motor driven electrical winches and servo valve driven hydraulic actuators. - Server PC with a redundant Server. - A control desk to house the Server PC and redundant Server, 65 inch 4K LED touch screen and overall master and individual emergency push buttons. The touch screen is to monitor real time status and to set/modify different set points, limits, safety interlocks of all the 64 channels. - A Client PC with 65 inch 4K LED touch screen display on mobile stand for graphical display of the test progress (test load, set load, actual load and load point related information) for each channel individually in the load tree format with scope to display auxiliary and client related information.						

Sl. No.	Parameters	SERC Requirements
		• Dedicated licensed application software programmed to control both servo valve driven hydraulic actuator and servo motor driven electrical winch. The user should be able to configure either a servo valve driven hydraulic actuator or a servo motor driven electrical winch to each channel, based on requirement (user-selectable) at the time of testing. • 10 kVA UPS systems with 60 minutes Lithium Ion batteries backup along with isolation transformer for the control room and servo drive rooms (VRS, TRS & LRS) : Total 4 nos. • 6 nos. of cameras and associated hardware and software for live streaming the tower testing. • 65-inch 4K LED touchscreen display on a mobile stand for real-time camera monitoring of the TUT. • Printer: A color laser jet network printer for report printing Please refer schematic diagram Fig 4.
7.	Master, Redundant Master and Slave PLCs	Master & Redundant PLCs • Multi-axis synchronization: Up to 64 axes • Motion refresh cycle: ≤ 10 ms • Bump less transfer: Less than 50 ms Change over • I/O points to accommodate: ➤ Analog inputs for 64 load cell signals ➤ Analog inputs for 8 strain measurement signals ➤ Analog inputs for 8 displacement transducers ➤ Analog inputs for Temperature & wind speed sensor signal inputs ➤ Analog outputs for external data logging of all the above analog inputs. ➤ Digital I/O to accommodate safety alarms and safety interlocks. Slave PLCs at 3 Ram stations: • I/O points for each Slave PLC to accommodate: ➤ 8 Analog inputs ➤ Required no. of Analog outputs for servo valve drivers/amplifiers

Sl. No.	Parameters	SERC Requirements
		➤ 8 Digital inputs ➤ 8 Digital outputs.
8.	Communication	EtherCAT / ProfiNet or equivalent high speed Industrial Communication Protocol to achieve Multi-axis synchronization up to 64 axes with Motion refresh cycle time of ≤ 10 ms. (Details of the protocol to be provided). A redundant fiber optic cable to be provided as standby to restore communication in case of main cable failure. The communication cables between control room and ram stations should be enclosed by providing GI pipes. GI Pipes should be buried/ supported as per field requirement.
9.	Application Software	• Application software shall configure/calibrate test artifacts and store the information for the following: a) Test setup and loading details. b) Sensor list. c) Sensor calibration data into central database from calibration room (remote room). d) Sensor initial condition data. e) Sensor bias data. f) Actual test results at each load conditions. • Application software shall have the following safety features: a) Self-diagnostic features for the system and software to mitigate the safety scenarios during testing. b) Software shall have Built-In-Test (BIT) for initial GO/NO-GO status information. User shall execute this functionality before the start of actual test. The BIT software, which is a part of the main software, shall test all the hardware in loop along with the integrity of the database and artifacts for correctness and safety boundaries. c) Emergency stop and safety procedure shall be part of the software, which shall be critically designed to ensure the complete controlled monitoring. d) In case of system hanging scenario, the software shall have the feature of holding the loads or releasing the loads(based on the option selected by the user) automatically. Hence the

Sl. No.	Parameters	SERC Requirements
		detection of system hang state shall be part of safety measure in the software. e) The condition of the servo drives, servo valve coils, load cell bridges and valve drivers should be monitored online and automatic alarm to be activated in case of any faults with them. f) In total, the software shall have complete in-built diagnostic management system. • The application software should be scalable to allow future expansion.
10.	Test Control features and requirements of the RTDCT	• 3 user selectable control modes - Individual channel control (one load point at a time) - Group control (multiple channels) - Central control (all configured channels). • Manual override controls. • Emergency stop (software + hardware).
11.	Servo control Modes for electrical winches	• Position Mode: – Position feedback: Absolute encoder – User defined rate of movement to the defined target set point. – Absolute and relative movement of position. – Speed range: 0.1 m/min – 0.7 m/min – User defined cyclic ramp movement in tension mode • Speed Mode: – Range: 0.1 m/min – 0.7 m/min – Smooth acceleration/deceleration • Torque/Force Mode: – Real-time force feedback from load cells – Closed-loop PID control – User defined set point in percentage of test load in user defined time duration (Eg: 25%, 50%, 75%, 90%, 95%, 100% of test load in 1 minute, 2 minutes or 5 minutes). – During destruction test, the test load applied will be beyond 100% of test load in steps of 5% till failure – After reaching the set point load in Torque/Force Mode, the servo system should hold the load continuously by generating necessary holding torque at zero speed without applying brake for user defined waiting period.

Sl. No.	Parameters	SERC Requirements
		• Manual Mode: –Jog forward/reverse –Variable speed control –Manual release of clutch –Remote handset for each winch –Disable/enable option should be provided for each winch and override option to be provided in the main control system • Emergency stop functionality Emergency Release Mode: In emergency release mode by activating the master emergency, the integrated gear-winch mechanism should disengage from the servo motor by suitable mechanism (similar to clutch) and all the winch loads should be released immediately. Emergency Stop Mode: In emergency stop mode by activating the stop emergency, all the winch loads to be held at current value with an option to continue to set point or reduce to user defined set point.
12.	Control Modes for Hydraulic actuators	• Servo Mode: –Force/Load control mode with feedback from load cells, servo drive amplifier and buffer. –Closed-loop PID control • Manual Mode: –In / Out –Parking of hydraulic actuators –Remote handset for hydraulic actuator • Emergency stop functionality Emergency Release Mode: In emergency release mode by activating the master emergency, the servo valve driver should supply required negative current to the servo valve to bring the system to safe zero load condition immediately. Emergency Stop Mode: In emergency stop mode by activating the stop emergency, all the loads to be held at current value with an option to continue to set point or reduce to user defined set point.

Sl. No.	Parameters	SERC Requirements
13.	Monitoring & logging of test parameters	- Trend charts (real-time and historical) - Data tables - Statistical analysis - Alarm history - Event log. - Logged Parameters (per channel): - Date/time (millisecond precision) - Load (kN or tonnes) - Position (mm) - Speed (m/min) - Status flags - Environmental conditions (temperature, wind speed)
14.	Auxiliary Measurements	- Thermometer (1 no.) for ambient temperature measurement. - Anemometer (3 nos.) for wind speed measurement at different positions/levels.
15.	Test Programming	Graphical test sequence editor - Load step programming - Time-based or event-based triggers - Cyclic loading patterns - Custom test protocols.
16.	Data Storage	Suitable/appropriate universal format should be provided. Preferably SQL database.
17.	Report Generation	The system should generate reports like Calibration Report, Provisional report, Sequence of events reports, Final test report as per template provided by CSIR-SERC.
Electrical Servo drive specification for electric winches		
18.	Input AC Supply	3-phase 415 V AC +/-10% 50Hz +/-5 %. Power supply PDB is available at each servo drive room. Power supply cable between PDB and the servo drives is under the scope of the supplier.
19.	Output Voltage to drive the servomotor.	Variable 3-phase output voltage up to 95% of input voltage or better
20.	Output Frequency	0 to 500 Hz variable
21.	Power rating of the drive	≥ 5 kW
22.	Rated continuous nominal output current for output drive voltage frequency greater than 10 Hz	≥ 13 Amps with 110% overload for 60 seconds
23.	Rated continuous stall current (at 0 Hz) supply capability of the servo drive to the servomotor without exceeding thermal limits.	≥ 6.5 Amps (50% of rated output current of servo drive) Continuous stall current supply rating of the servo drive should be greater than or equal to the continuous stall current requirement of the servo motor to generate the required maximum static torque. The performance characteristics curve for 0 Hz operation of the servo drive to be enclosed. (Refer servomotor specification for the stall torque and stall current requirement).
24.	Motor control modes	Torque/Load, Speed, Position control modes in closed loop. V/f control mode in open loop.
25.	In built PID control	Servo drive should have in built PID mechanism for closed loop.

Sl. No.	Parameters	SERC Requirements
26.	Servo motor type to be controlled by the drive	Three phase Permanent magnet synchronous motors of 2.0 kW to 3.0 kW power rating. (Refer servomotor specification)
27.	Line Reactor/AC choke in the input side	Line reactor / choke to be provided to reduce harmonics and to reduce RMS input current.
28.	EMC Filters	EMC filter to be provided to reduce electromagnetic emission
29.	Braking Chopper	To be provided to store the regenerative energy
30.	Braking resistor	To be provided to dissipate the excess regenerative energy
31.	Encoder support	The drive should support absolute and incremental encoders
32.	Digital and analog I/O	• Minimum 8 DIs • Minimum 4 DOs • Minimum 2 AIs (12 bit, ± 10 V or better) • Minimum 1 AOs (12 bit, ± 10 V or better)
33.	Safety features to be provided	• Safe Torque Off (STO) function according to standards to be provided. • Over current & over voltage protection. • High temperature protection of servo drive and servo motor.
34.	Data communication protocol in the data communication field bus	EtherCAT / ProfiNet or equivalent high speed Industrial Communication Protocol
35.	External power supply for the control units of the drive	External power supply for the control units of the drives to be provided to keep the control units active and maintain field bus communication in case main supply failure.
36.	Memory unit	Removable memory unit to be provided to store parameters, firmware and application program of the servo drive.
Electrical Servo motor specification for the winch		
37.	Servomotor type	Three phase Permanent magnet synchronous motor with in-built brake and encoder, compatible with the servo drive offered in the bid.
38.	Operating voltage and frequency.	Variable 3-phase voltage and frequency (Note: Operating voltage and frequency must be Compatible with the servo drive offered in the bid.)
39.	Continuous stall torque rating	≥ 10 Nm
40.	Continuous stall current required to generate stall torque of 10 Nm.	≤ 6.5 Amps. Continuous stall current requirement of the motor to generate required stall torque should be less than or equal to the continuous stall current (0 Hz) rating of the servo drive offered in the bid.
41.	Rated speed	2000 RPM.
42.	Rated torque @ rated speed	≥ 10 Nm.

Sl. No.	Parameters	SERC Requirements
43.	Rated Power (@ 2000 RPM speed and 10 Nm Torque)	≥ 2.1 kW
44.	Holding brake	In-built holding brake
45.	Encoder	In-built Multi turn absolute encoder
46.	Thermal protection	In-built thermal sensor to sense thermal overload
47.	Performance characteristics of servomotor	The performance characteristics curve for zero speed operation to normal speed operation of the motor to be enclosed. The performance characteristics should meet the performance requirements.
48.	Modes of operation	Position control mode, speed control mode, torque/force control mode, manual control mode and remote-control mode.
Servomotor mechanical holding brake		
49.	Power supply and control logic for servomotor mechanical holding brake	Separate electrical power supply to be provided to servomotor in-built holding brake and to be controlled by the servo drive control logic.
Clutch mechanism between servo motor drive and gear box input drive		
50.	Power supply and control logic for clutch mechanism between servo motor and gear box input drive.	Clutch mechanism between servo motor and gear box input drive to be provided to isolate the servo motor from winch drum-gear box during emergency. The clutch is to be controlled by the servo drive control logic.
5 ton capacity Electrical winch planetary gear and winch drum assembly specification		
51.	Working Load capacity	5 ton (designed with factor of safety of 3)
52.	Quantity	VRS: 17 Nos TRS : 15 Nos. LRS: 11 Nos
53.	Active Rope length required	150 m
54.	Wire rope diameter	14 mm (Standard)
55.	Winch drum diameter	> 400 and <500 mm
56.	No of layers of rope	Multi-layer preferably 4 to 5 layers
57.	No of turns in each layer in the drum	~ 30 turns
58.	Planetary Winch drum assembly length including drum flange mounting bracket and servo motor	Less than 800 mm. Note: The space availability is limited for mounting winch assembly. The approximate size of base frame is about 850 mm X 600 mm.
59.	Total Planetary Gear reduction ratio	Approximately 1700
60.	Maximum input drive torque	>9 Nm (To be designed with a factor of safety of 3)
61.	Maximum Planetary gear output drive torque in the drum shaft	~ 15,000 Nm (To be designed with a factor of safety of 3)
62.	Max rope pulling force at 1 st layer	≥ 5900 Kg
63.	Max rope pulling force at 4 th layer	≥ 5000 Kg

Sl. No.	Parameters	SERC Requirements
64.	Winch drum RPM range	0.05 RPM to 1 RPM (with variable speed electrical motor)
65.	Wire rope speed range	For 1 st layer : 0.1 m/min – 0.70 m/min (with variable speed electrical motor) For 4 th layer : 0.1 m/min – 0.90 m/min (with variable speed electrical motor)
66.	Mounting direction of electrical motor at input drive stage	Vertical (perpendicular to the winch drum axis)
67.	Input drive to the planetary gear	Electrical servo motor of rated speed upto 3000 RPM, rated power upto 3 kW and drive torque upto 10 Nm.
68.	Clutch mechanism	Mechanism for automatic & manual disengaging of the gear from the servo motor in case of emergency release mode / manual mode.
69.	Rope winding guide	To be provided
70.	Safety enclosure	Collapsible curved roller shelter
10-ton capacity Electrical winch planetary gear and winch drum assembly specification		
71.	Working Load capacity	10 ton (designed with a factor of safety of 3)
72.	Quantity	VRS: -- TRS : 5 Nos. LRS: --
73.	Active Rope length required	75 m
74.	Wire rope diameter	20 mm
75.	Winch drum diameter	> 400 and < 600 mm
76.	No of layers of rope	Multi-layer preferably 2 to 4 layers
77.	No of turns in each layer in the drum	~13 turns
78.	Planetary Winch drum assembly length including drum flange mounting bracket and servo motor	Less than 1100 mm. Note: The space availability is limited for mounting winch assembly. The approximate size of base frame is about 1100 mm X 750 mm.
79.	Total Planetary Gear reduction ratio	~3900
80.	Maximum input drive torque	>9 Nm (To be designed with a factor of safety of 3)
81.	Maximum planetary gear output drive torque in the drum shaft	~28,000 Nm (To be designed with a factor of safety of 3)
82.	Max rope pulling force at 1 st layer	≥12,000 Kg
83.	Max rope pulling force at 4 th layer	≥10,000 Kg
84.	Winch drum RPM range	0.02 RPM to 0.8 RPM (with variable speed electrical motor)
85.	Wire rope speed range	For 1 st layer : 0.02 m/min – 0.70 m/min (with variable speed electrical motor)

Sl. No.	Parameters	SERC Requirements																		
		For 4 th layer : 0.02 m/min – 0.90 m/min (with variable speed electrical motor)																		
86.	Direction of electrical motor input drive mounting.	Vertical (perpendicular to the winch drum axis)																		
87.	Input drive to the planetary gear	Electrical servo motor of rated speed upto 3000 RPM, rated power upto 3 kW and drive torque upto 10 Nm.																		
88.	Rope winding guide	To be provided																		
89.	Safety enclosure	Collapsible curved roller shelter																		
Sheave multiplier assemblies specifications																				
90.	End use and requirements of sheave multiplier assemblies (Typical sheave pulley multiplier mechanism is shown in Fig. 6)	A Sheave multiplier assembly includes two Sheave pulley blocks at both ends with specified length of wire rope wound between them. Each sheave pulley block should have provisions to wind, unwind and change the wire ropes with Ferrule secured eyes on each end. Each sheave pulley block should also have provision inside them to attach the wire ropes having Ferrule secured eyes. The sheave pulley blocks and wire ropes are to be optimized with high strength steel to achieve the most compact dimensions without compromising the safety factors specified in the relevant IS Codes. The design approval of the sheave pulley blocks should be obtained from CSIR-SERC prior to the fabrication.																		
91.	Sheave Pulley block & rope	<table border="1"> <tr> <th colspan="2">Sheave Pulley block</th><th>Rope of Diameter 14mm</th></tr> <tr> <th>Capacity</th><th>No. of Sheaves</th><th>Length of rope for assembly with 2 sheave blocks</th></tr> <tr> <td>10 tonne</td><td>1(2 falls)</td><td>20 metres</td></tr> <tr> <td>20 tonne</td><td>2 (4 falls)</td><td>20 metres</td></tr> <tr> <td>30 tonne</td><td>3 (6 falls)</td><td>30 metres</td></tr> <tr> <td>50 tonne</td><td>5 (10 falls)</td><td>50 metres</td></tr> </table>	Sheave Pulley block		Rope of Diameter 14mm	Capacity	No. of Sheaves	Length of rope for assembly with 2 sheave blocks	10 tonne	1(2 falls)	20 metres	20 tonne	2 (4 falls)	20 metres	30 tonne	3 (6 falls)	30 metres	50 tonne	5 (10 falls)	50 metres
Sheave Pulley block		Rope of Diameter 14mm																		
Capacity	No. of Sheaves	Length of rope for assembly with 2 sheave blocks																		
10 tonne	1(2 falls)	20 metres																		
20 tonne	2 (4 falls)	20 metres																		
30 tonne	3 (6 falls)	30 metres																		
50 tonne	5 (10 falls)	50 metres																		
92.	Safe Working Load (KN) per single part of Rope	50 kN																		
93.	Indicative Rope Specification	35x7(6-1)- Wire Strand Core(WSC) (2160 grade steel cable) Non Compacted Rope or an equivalent or better - with a minimum FOS of 3. Material Test Certificate (MTC) will be required at the time of supply. The rope has to be tested for safe working load at supplier's end. 10% of ropes will be tested at CSIR-SERC for final acceptance.																		

Sl. No.	Parameters	SERC Requirements				
		The ropes should have Ferrule secured eye at the end. The Ferrule secured eye arrangement should be capable of taking 1.8 times the MBL of the wire rope used.				
94.	Min. FOS Sheave Block	4				
95.	Min. FOS wire rope	3 as per IS2266				
96.	Required Quantities	Ram Station	Sheave Capacity			
			10 tonne	20 tonne	30 tonne	50 tonne
		VRS	12	12	10	4
		LRS	12	12	10	7
		TRS	12	15	10	7
Load Cell cable and load cell junction box						
97.	Load cell cable	To be provided by the bidder for connecting the tower mounted load cells to the control room. Approximate length = 64 x 200 meter = 12800 meters				
98.	Cable specification	6 Core, Multistrand 14/0.2mm annealed tinned copper conductor PVC insulated, PVC sheathed Melinex paper and Aluminium foil wrapped helically braided shield by ATC conductor with better than 90% coverage. Distinct colour coded, providing fibre thread at centre of cores for mechanical strength, suitable for indoor/outdoor use, flexible cable core resistance less than 15 ohms for 150 Mts. The colour for each core should be distinctly coded(Red, Green, Yellow, Blue, White and Black).				
99.	Load Cell Junction box	To be located on the ground floor of the building. Should be of IP55 class protection, shielded and body earth.				
100.	Cabling for Load cells	- The load cell amplifiers are to be located in the control room, while the load cells are typically located out in the open, at suitable/ different locations to measure the load. They have to be properly connected through shielded six core cables. Suitable number of junction boxes at the ground floor level shall be provided for this purpose. These boxes should have 64 connectors, one connector for each channel. Each connector should have 6 spring clamp din terminal or round connectors with provision for connecting shield wires. - All the signal conditioners/ load-cell amplifiers terminals in the control room are to be terminated directly onto the connectors at				

Sl. No.	Parameters	SERC Requirements
		this junction box. The load cell cables from the field shall also be terminated at the junction box. Since low voltage signals are involved, the junction box should be designed for relevant standards like shielding, etc.
Existing Hydraulic actuators & Servo valve specification which are to be integrated with RTDCT control system		
101.	Hydraulic Actuators	Existing Hydraulic actuators & Servo valve will be used
102.	Servo Valve Driver / amplifier	Servo Valve driver is a Voltage to Current converter that transforms ± 10 V input signals into current signals capable of driving hydraulic servo valves. Servo valve driver to be supplied by the bidder.
103.	Servo valve resistance and current requirement	Servo valve drive current of ± 10 mA for Servo valve resistance of 1000 Ohms. Servo valve drive current of ± 20 mA for Servo valve resistance of 500 Ohms
104.	Servo valve distance from controller	up to 50 meters
105.	Display of valve current	A suitable current source/ converter shall be used to meet the current and voltage requirements of the servo valve. The actual valve current is to be sensed and displayed in the "DISPLAY monitors" in real time.
Existing load cell specification which are to be integrated with RTDCT control system		
106.	Type	Strain gauge type tension load cells
107.	Capacity:	10 kN, 20 kN, 50 kN, 100 kN, 150 kN, 200 kN, 300 kN and 500 kN
108.	Bridge sensitivity:	1 mV/V
109.	Excitation voltage:	10 V DC
110.	Connector	6-wire shielded configuration
111.	Length of the cable from controller/bridge exciter to load cell:	up to 200 m. (6 core shielded cable to be supplied by the bidder and refer Sl. No. 98)
Load cell calibration		
112.	Load cell calibration	Before and after every use, each load cell (bridge output) is calibrated against a standard proven ring certified by the concerned authority/ body. CSIR-SERC/TTRS has a separate calibration lab for this purpose. GUI has to be available in the application software for calibration, data logging into central database. The data will be retrieved and used during test process and post-test process.
Load cell Amplifier/ conditioner (to be supplied by the bidder)		

Sl. No.	Parameters	SERC Requirements
113.	Type	Bridge based sensor, strain gauge full bridge
114.	Excitation voltage	10 VDC
115.	Offset	Zero adjustment facility
116.	Package	Modular to facilitate easy expansion/replacement
117.	AC/DC excitation	DC excitation
118.	Bandwidth	> 1 kHz
119.	No. of terminals	Standard 6 wire + shield
120.	Bridge Resistance	Upto 1000 ohms
121.	Output	Voltage: +/- 10 V
122.	Gain	0.1 mV/V to 2 mV/V
123.	Distance	Cable length: ~200m between load cell and signal conditioner
124.	Output filter	Low pass filtering, selectable filter type, order and cut-off frequency
125.	Supply Voltage	24 VDC
126.	Power Switch	Each channel should be provided with a separate power ON/OFF switch.
127.	Protection	Built in short circuit protection etc.
128.	Accuracy	0.1 Class
HMI Server PC's at Control Room		
129.	Specifications of HMI Server PC	• Description: HMI SERVER • Type: Desk Top • Qty: 2 nos. • Function: SCADA, PLC Programming, Drive Programming • CPU: Intel Xeon 6 processor (Gen12 server platforms) (2.4 GHz/Minimum 16 Core/Max 150W) (or latest available Intel processor) • Storage: 2x HPE 960GB SAS 24G Read Intensive SFF BC Multi Vendor SSD (Configured in RAID 1 mirror) • Memory: 32 GB (2 x 16 GB) DDR5 Registered ECC Memory • Embedded NIC: Quad-port (4 x 1GbE) Network Interface Controller with dedicated HPE iLO 7 Standard management port • Optical Drive: 16DVD Writer • RAID Controller: Gen12 (or equivalent) Hardware/Software RAID Controller; Supporting RAID Levels 0, 1, 5, 6, 10, 60 and other Advanced RAID Levels • Power Supply: Minimum 1000W Hot-Plug Redundant Power Supply Kit • External SSD: 2TB External USB-C SSD for data backup

Sl. No.	Parameters	SERC Requirements
		• Monitor: 65 inch 4K LED touch screen (with appropriate wall/desk mount brackets and HDMI/DisplayPort cables) • Graphics Interface: Dedicated Enterprise Workstation Graphics Card; Minimum 8GB GDDR6 or equivalent HPE-certified GPU natively supporting 4K UHD resolutions @ 60Hz. • Accessories: USB Keyboard, USB Optical Mouse, and all necessary power/interface cables • Operating System: Windows Server 2022 Standard Edition (Licensed, 64-bit)
Client PC at Control Room		
130.	Specifications of Client PC	• Description: Engineering Workstation • Type: Desk Top • Qty: 1 no. • Function: SCADA, PLC Programming, Drive Programming • CPU: Intel, Xeon Z4 G5 W3-2525 8C (8 Crores, 16 threads, 4.3 Ghz, 33.75 MB cache) (Equivalent or latest Intel processor) • Hard Disk: 1TB Gen 4 NVMe m.2 SSD, and 1TB enterprise grade SSD • Memory: 2* 16 GB DDR5 support up to 64GB • Graphics: Nvidia RTX PRO 2000 16GB Blackwell generation GPU or better • Network Interface: 1GB/S CARD • External Hard disk: 2TB External SSD as Backup • Display Monitor: 65 inch 4K LED touch screen on mobile stand • Accessories: Keyboard and Mouse • Operating System: Windows 11 Professional or latest available at the time of supply with Licensed latest MS Office
Printer at control room		
131.	Specifications of Printer	• Quantity: 1 no. • Function: Print, Copy, Scan, ADF, Duplex • Print Size: A4, colour, 35 ppm (max Speed) • Connectivity USB, EtherNet, Wifi • Automatic Duplex Printing/Two-sided printing
UPS and battery backup		
132.	Specifications of UPS and Battery Bank	• Capacity : 10.0 KVA • Quantity: 4 nos.

Sl. No.	Parameters	SERC Requirements
		- Location: Control room, Servo Drive room-VRS, Servo Drive room-TRS and Servo Drive room-LRS. - Input: 415 V, $\pm 10\%$, 3 Phase, 50 Hz $\pm 3\%$ - Output: 220 V, $\pm 1\%$, 1 Phase, 50 Hz $\pm 1\%$ - Battery: Lithium Ion batteries - Backup Time: 60 minutes - Static Switch: Transfer time less than 5 milliseconds - Isolation Transformer in Bypass path - Static Stabiliser in Bypass path - Static Bypass Arrangement - AC DB- UPS
Cameras		
133.	Specifications of cameras	5 MP 2560 X 1920 PTZ Camera with mounting kit and power supply – 4 nos. 5 MP fixed IP camera with 50M IR Range – 2 nos. 16 CH NVR, 8 bay with free Remote Client viewing software with 80 TB Expandable capacity and built in 10 TB Storage for backup, e-SATA for future expansion of storage - Display: 65-inch 4K LED touchscreen display on a mobile stand for real-time camera monitoring of the TUT - Associated accessories like Fiber Panels, Patch Cards, Single mode Gigabit media converters, POE Switches, POE Injectors, Outdoor weather proof Racks with required accessories, Armoured outdoor Fiber Optic Cables, pipes (GI Only), CAT 6 Armoured Outdoor cables, Power Cables, etc.
Other Requirements		
134.	Winch mounting fixtures	Design, fabrication, supply and installation of suitable steel mounting fixtures to install all the 48 winches by removing the existing fixtures & rams in the respective foundation bases at VRS, TRS & LRS (refer Fig 5 drawing of the existing foundation). All fixtures shall accommodate swivel rotation of winches in the horizontal plane about a central (0°) position and shall be provided with a mechanical locking mechanism. The swivel rotation shall be adjustable in both clockwise and anticlockwise directions within the following ranges: Fixtures at LRS: -45° to $+45^\circ$ Fixtures at VRS: -15° to $+15^\circ$

Sl. No.	Parameters	SERC Requirements
		Fixtures at TRS: -15° to $+15^{\circ}$ The locking mechanism shall permit locking at discrete positions in 5° to 15° increments within the specified ranges. A minimum factor of safety of 5 should be adopted in the design of winch mounting fixtures. The design approval of the mounting fixtures should be obtained from CSIR-SERC prior to the fabrication.
135.	Fabrication of steel blocks for load diversion in longitudinal ram station and movable gantry frame at transverse ram station	As the new winches will be installed on the wall of longitudinal ram station, the diversion blocks made of structural steel sections are required to be fabricated for load diversion in longitudinal ram station. A movable gantry frame to handle sheave pulley blocks should be fabricated and erected at transverse ram station. The design approval of the diversion blocks and movable gantry frame should be obtained from CSIR-SERC prior to the fabrication.
136.	Warranty	Three-year warranty followed by three years AMC. The bid should include three years of AMC after the warranty period. The AMC charges will be taken for evaluating the technical bid. The commercial quote should include the charges for the above.
137.	Installation and commissioning	The firm should take full responsibility for supply, installation and commissioning of the equipment. Installation and commissioning should be carried out in CSIR-SERC and performance of the system demonstrated to the satisfaction of the users in CSIR-SERC.
138.	Technical evaluation criteria	A) The bidder has to meet all technical parameters of Chapter IV and B) The bidder has to successfully demonstrate one channel closed-loop feedback load/force control using the winches and hydraulic actuators available at TTRS, CSIR-SERC, with the sheave pulley mechanism within 15 days of intimation. Technical Evaluation Test to be carried out: One channel closed-loop feedback load/force control using the winches and hydraulic actuators available at TTRS, CSIR-SERC, with the sheave pulley mechanism. a. A closed loop demo upto 50 kN load in

Sl. No.	Parameters	SERC Requirements
		required rate of loading and steps. Time for achieving the set load variable from 1 minute to 5 minutes. b. Holding the set load for required time within $\pm 0.5\%$ set load value (Hold time from 2 minutes to 10 minutes). c. Demonstrating the closed loop using sheave pulley mechanism upto 400kN. d. Demonstrating the stability of the set load for varying external load conditions of the test structure (PA effect). Note: The bidder has to bring their PLC, Servo drive, Servo motor, Servo valve driver required for the demo. CSIR-SERC will provide winch with planetary gear, hydraulic actuator, load cell and sheave pulley for closed loop demonstration of electrical winch and hydraulic actuator. The bidder should satisfy evaluation criteria mentioned in A & B to be considered as technically qualified.
139.	Training for hardware, software and operation & maintenance	a. Integrated Development Environment (IDE) training: Independent 10 days onsite IDE training should be provided by the vendor for configuring the PLC's, servo drives, motors, associated I/O's, closed loop, tuning the control parameters, etc. Training should also be given on the complete software programming. The training should cover aspects such as operation of control system and modification in the source code. b. Operation & Maintenance training: 10 days training, immediately after successful installation and commissioning. This training shall focus on the procured hardware, software, safety features and include demonstrations using actual test specimens. c. Hand hold training after 3 months and deputing technical experts during commercial tests:

Sl. No.	Parameters	SERC Requirements
		A hand holding training shall be provided after three months of installation, which shall include preliminary as well as advance level training of the operation of the Equipment, Software & other Accessories. The vendor should depute technical experts to TTRS for a minimum of five commercial testing of transmission towers. Please note the hand holding training and deputation of technical experts for 5 commercial tests shall be mandatory and free of cost. The initial IDE and operation maintenance training alone shall be reckoned for payment of 100%. Training materials shall be supplied by the manufacturer.
140.	Acceptance Test Plan(ATP)	• A defined ATP document prepared by both Vendor and User to cover the most critical specifications of the system. ATP document has to be produced at the beginning of the project so that the same shall be used for clearance and execute the project in coordination with CSIR-SERC approval at every stage and strict compliance with tender specification. • Both vendor and user shall sign ATP. ATP tests shall be executed at CSIR-SERC/TTRS site after successful integration by vendor at CSIR-SERC/TTRS. • The Acceptance Test Report shall be generated and signed by both parties for completeness of installation and integration activities after successful demonstration as follows: a) Demonstration of all 64 channel loading points with different test load cases in hybrid mode with hydraulic actuator and winches on full-scale prototype testing of transmission tower or tower-like structure, over a period of 45 days. b) Demonstration of synchronous loading of upto 5 winches with sheave pulley

Sl. No.	Parameters	SERC Requirements
		mechanism.
141.	Details about credentials of the firm, list of clients, details of similar equipment supplied in the last 5 years	The bidder should have supplied and commissioned at least one project of multi axis servo controlled closed loop tension/load/position control system as a complete turn key project during the last 05 years (as on date of bid opening) in Govt institutes/ Govt. research organizations/ Govt. PSU's/ Public funded Universities / National Testing laboratories/Reputed private firms in India. The supplied tension/load/position control system should be of PLC-Servo drive-Servo motor based multi axis closed loop tension/force/position control system including mechanical assembly/hardware for applying tension/force/position. The bidder / supplier has to provide the PO copies including successful Installation reports and Performance Certificate of the same POs.
142.	Maintenance and service support of the equipment during and after the warranty period.	The vendor should have competent and reliable service network in India for quick and necessary onsite repair and maintenance of the equipment within 24 hours of service request. Details of the nature of service support the firm can provide should be given along with the quotation. The firm should commit to provide maintenance service and supply necessary spares for the equipment for at least 15 years after successful installation and commissioning.
143.	Software, operating system and related hardware	The vendor should agree to give technical and service support to the test software, operating system and related hardware for a minimum period of 15 years from the date of completion of installation and commissioning. Up-gradation of test software, operating system and security patches should be carried out by the firm at no cost to CSIR-SERC for 15 years. The Integrated Development Environment(IDE) software used for developing the application programme should be provided with valid perpetual license in the name of "The Director, CSIR-SERC, Taramani, Chennai –600 113". The intellectual property right / copyright of developed software should be in the name of CSIR-SERC.
144.	Technical documents and catalogues	The vendor should enclose all the relevant technical documents and catalogues for all the components included in the quotation. Quotations without proper technical documents

Sl. No.	Parameters	SERC Requirements
		and catalogues will be rejected.
145.	Compliance statement (Annexure – VII)	The quote should explicitly include every requirement of the CSIR-SERC as mentioned above. In case the offer does not include any or some of the points requirements contained in CSIR-SERC enquiry, then CSIR-SERC will be given to understand that the offer does not satisfy the points about which no mention is made by the vendor. Compliance statement, clearly mentioning point-wise compliance, should accompany the main technical offer without fail.
146.	Operation and maintenance manuals	Two sets of operation and maintenance manuals along with all necessary drawings should be supplied along with the test system. Backup for total firmware, background software and the application software packages should be supplied.

4.2.2 General Criteria: -

1. List of installations of similar work with contact details should be provided. Performance Statement Form (Annexure VI)
2. The bidder shall furnish documentary evidence to demonstrate that the bidder satisfies the bidders' eligibility criteria.
3. Bidders shall invariably furnish documentary evidence (client's certificate) in support of the satisfactory operation of the similar systems executed by him.
4. Spares and service support for the instrument for the period of 15 years from the date of installation.
5. Details of make, model, service support for the outsourced items/ supporting accessories (Technical details in Technical bid)
6. Details of Service Centre and information on service support facilities that would be provided after the warranty period (in the Service Support Form-Annexure IX).

4.3 Scope of Supply

Supply, Installation, Commissioning & Training of Real Time Hybrid Digital Control System with Electrical winches

4.4 Inspection & Tests:

4.4.1 General

1. The Supplier shall at its own expense and at no cost to the Purchaser carry out all such tests and/or inspections of the Goods and Related Services as are specified here.
2. The inspections and tests may be conducted on the premises of the Supplier or its subcontractor(s), at the point of delivery and/or at the Goods final destination.
3. Whenever the Supplier is ready to carry out any such test and inspection, it shall give a reasonable advance notice, including the place and time, to the Purchaser. The Supplier shall obtain from any relevant third party or manufacturer any necessary permission or consent to enable the Purchaser or its designated representative to attend the test and/or inspection.
4. Should any inspected or tested Goods fail to conform to the specifications, the Purchaser may reject the goods and the Supplier shall either replace the rejected Goods/software or make alterations necessary to meet specification requirements free of cost to the Purchaser.
5. The Purchaser's right to inspect, test and, where necessary, reject the Goods after the Goods' arrival at final destination shall in no way be limited or waived by reason of the Goods having previously been inspected, tested and passed by the Purchaser or its representative prior to the Goods shipment.
6. The Supplier shall provide the Purchaser with a report of the results of any such test and/or inspection.
7. Before the goods and equipment's are taken over by the Purchaser, the Supplier shall supply operation and maintenance Manuals together with Drawings of the goods and equipment's built. These shall be in such details as will enable the Purchase to operate, maintain, adjust and repair all parts of the works as stated in the specifications.
8. The Manuals, Drawings and Guides shall be in the ruling language (English) and in such form and numbers as stated in the Contract.
9. Unless and otherwise agreed, the goods and equipment shall not be considered to be completed for the purposes of taking over until such Manuals, Drawing and Guides have been supplied to the Purchaser.
10. On successful completion of acceptability test, receipt of deliverables, etc., and after the Purchaser is satisfied with the working of the equipment, the acceptance certificate signed by the Supplier and the representative of the Purchaser will be issued. The date on which such certificate is signed shall be deemed to be the date of successful commissioning of the equipment.
11. Specifications should be strictly adhered to without compromise. At the time of supply, all the parts supplied should be the latest one i.e. should there be a new and improved version of the part(s) developed after the quote was furnished the improved versions should only be supplied and without any additional cost to the buyer.
12. A simple step-by-step operating procedure which will be kept near the equipment indicating the precautions for eg. Safe pressures, dos and don'ts for safe and correct use of the entire equipment including software should be provided to help extend the life of the system.
13. The service manual to be given.

4.4.2 Pre-dispatch Inspection by CSIR-SERC

Not Applicable

4.4.3 Manufacturer's Inspection Certificate

After the goods are manufactured and assembled, inspection and testing of the goods shall be carried out at the supplier's plant by the supplier, prior to shipment to check whether the goods are in conformity with the technical specifications. Manufacturer's test certificate with data sheet shall be issued to this effect and submitted along with the delivery documents. The purchaser reserves the options to be present at the supplier's premises during such inspection and testing.

4.4.4 Third Party Inspection

Not Applicable

4.4.5 Acceptance Test

The acceptance test will be conducted by the Purchaser, their consultant or other such person nominated by the Purchaser at its option after the item is installed at Purchaser's site in the presence of supplier's representatives. The acceptance will involve trouble free operation. There shall not be any additional charges for carrying out acceptance test. No malfunction, partial or complete failure of any part of the item is expected to occur.

The Supplier shall maintain necessary log in respect of result of the test to establish to the entire satisfaction of the Purchaser, the successful completion of the test specified. In the event of the ordered item failing to pass the acceptance test, a period not exceeding two weeks will be given to rectify the defects and clear the acceptance test, failing which, the Purchaser reserve the right to get the item replaced by the Supplier at no extra cost to the Purchaser.

Successful conduct and conclusion of the acceptance test for the installed goods and items shall also be the responsibility and at the cost of the Supplier.

4.5 Training

The manufacturer shall provide training as below:

(a) IDE Training:

Independent 10 days onsite IDE training should be provided by the vendor for configuring the PLC's, servo drives, motors, associated I/O's, closed loop, tuning the control parameters, etc. Training should also be given on the complete software programming. The training should cover aspects such as operation of control system and modification in the source code.

(b) Operation & Maintenance training:

10 days training, immediately after successful installation and commissioning

This training shall focus on the procured hardware, software, safety features and include demonstrations using actual test specimens.

(c) Hand hold training after after 3 months and deputing technical experts during commercial tests:

A hand holding training shall be provided after three months of installation, which shall include preliminary as well as advance level training of the operation of the Equipment, Software & other Accessories.

The vendor should depute technical experts to TTRS for a minimum of five commercial testing of transmission towers.

Please note the hands hold training and deputation of technical experts for 5 commercial tests shall be mandatory and free of cost. The initial IDE and operation maintenance training alone shall be reckoned for payment of 100%.

Training materials shall be supplied by the manufacturer.

4.6 Warranty

The warranty of the equipment should be for a period of **Three years (36 Months)** from the date of final acceptance by CSIR-SERC.

4.7 Annual Maintenance contract (AMC)

4.8.1 The supplier has to quote for Non-comprehensive AMC for a period of 3 years after the expiry of the

warranty period, detailing the number of breakdown and preventive maintenance visit, exclusions if any and other terms and conditions.

4.8.2 The AMC cost will be consider for price evaluation of L1.

4.8.3 The bidder who emerges as overall L1 will be asked to match the AMC cost as well as product cost of other bidders which is lowest as compared to his cost.

4.8.4 In case AMC is freezed along with Purchase Order then payment of AMC will be released at the end of each AMC period for the services provided terms and conditions have been adhered.

4.9 Incidental Services

Not Applicable

CHAPTER - 5

PRICE SCHEDULE FORM

Please upload the prices in the .xls sheet uploaded in cover 2 — Price Bid.

Kindly follow instructions hereunder to fill Bill of Quantities (BoQ). Any discrepancy in following instructions would lead to rejection of the bid.

Instructions:—

- On Opening the BOQ (Bill of Quantity) “Please Enable Macros to View BOQ Information”. Please go to **enable editing** just below the task bar.
- As macros have to be enabled, please click on **enable content**.
- **BoQ1**
Bidders are requested to fill columns marked in blue only i.e. i) **BASIC RATE in Figures to be entered by the Bidder Rs. P (Column M)**, ii) **Make / Model (Column A-J)**

CHAPTER - 6

CONTRACT FORM

Contract No. _____

Date: _____

THIS CONTRACT AGREEMENT is made

the [*insert: number*] day of [*insert: month*], [*insert: year*].

BETWEEN

- (1) The Director, CSIR-Structural Engineering Research Centre, Taramani, Chennai- 600 113., a constituent Laboratory of Council of Scientific and Industrial Research registered under the Societies Registration Act 1860 of the Government of India having its registered office at 2, Rafi Marg, New Delhi-110001, India represented by Controller of Stores and Purchase, CSIR-SERC, Taramani, Chennai- 600 113, INDIA, (hereinafter called "the Purchaser"), and
- (2) [*insert name of Supplier*], a corporation incorporated under the laws of [*insert: country of Supplier*] and having its principal place of business at [*insert: address of Supplier*] (hereinafter called "the Supplier").

WHEREAS the Purchaser invited bids for certain Goods / software and ancillary services, viz., [*insert brief description of Goods and Services*] and has accepted a Bid by the Supplier for the supply of those Goods and Services in the sum of [*insert Contract Price in words and figures, expressed in the Contract currency(ies)*] (hereinafter called "the Contract Price").

NOW THIS AGREEMENT WITNESSETH AS FOLLOWS:

01. In this Agreement words and expressions shall have the same meanings as are respectively assigned to them in the Conditions of Contract referred to.
02. The following documents shall constitute the Contract between the Purchaser and the Supplier, and each shall be read and construed as an integral part of the Contract:
 - (a) This Contract Agreement
 - (b) Special Conditions of Contract
 - (c) General Conditions of Contract
 - (d) Technical Requirements (including Schedule of Requirements and Technical Specifications)
 - (e) The Supplier's Bid and original Price Schedules
 - (f) The Purchaser's Notification of Award
 - (g) [*Add here any other document(s)*]
03. This Contract shall prevail over all other Contract documents. In the event of any discrepancy or inconsistency within the Contract documents, then the documents shall prevail in the order listed above.
04. In consideration of the payments to be made by the Purchaser to the Supplier as hereinafter mentioned, the Supplier hereby covenants with the Purchaser to provide the Goods and Services and to remedy defects therein in conformity in all respects with the provisions of the Contract.

05. The Purchaser hereby covenants to pay the Supplier in consideration of the provision of the Goods and Services and the remedying of defects therein, the Contract Price or such other sum as may become payable under the provisions of the Contract at the times and in the manner prescribed by the Contract.

IN WITNESS whereof the parties hereto have caused this Agreement to be executed in accordance with the laws of Union of India on the day, month and year indicated above.

For and on behalf of the Council of Scientific & Industrial Research

Signed: *[insert signature]*
in the capacity of *[insert title or other appropriate designation]*
in the presence of *[insert identification of official witness]*

Signed: *[insert signature]*
in the capacity of *[insert title or other appropriate designation]*
in the presence of *[insert identification of official witness]*

For and on behalf of the Supplier

Signed: *[insert signature of authorized representative(s) of the Supplier]*
in the capacity of *[insert title or other appropriate designation]*
in the presence of *[insert identification of official witness]*

CHAPTER - 7

Annexures to be enclosed with Techno - Commercial Bid

Table of Contents

SL. NO.	NAME	ANNEXURE
1	Bidder Information Form (to be enclosed with the technical bid)	I
2	Declaration by the Bidder for Code of Integrity & conflict of interest (to be enclosed with the technical bid)	II
3	Manufacturers' Authorization Form (to be enclosed with the technical bid)	III
4	Bid Security Form (to be enclosed with the technical bid)	IV
5	Bid Securing Declaration (to be enclosed with the technical bid)	V
6	Performance statement Form (to be enclosed with the technical bid)	VI
7	Deviation Statement Form (to be enclosed with the technical bid)	VII
8	Pre-Installation Requirement (to be enclosed with the technical bid)	VIII
9	Service support details (to be enclosed with the technical bid)	IX
10	Bid Form (To be submitted along with price bid)	X
11	Performance Security Form	XI
12	Acceptance Certificate Form	XII
13	Self-Certification regarding Local Content (to be enclosed with the technical bid)	XIII
14	Integrity Pact (to be enclosed with the technical bid)	XIV
15	Certificate with regard to the bidder not having a land border with India (to be enclosed with the technical bid)	XV
16	Certificate with regard to the bidder having a land border with India (to be enclosed with the technical bid)	XVI
17	Undertaking for Technical Demonstration (to be enclosed with the technical bid)	XVII
18	SERC Online Bank Details	XVIII
19	Terms & Conditions (to be enclosed with the technical bid)	XIX
20	Tender Acceptance Letter (to be enclosed with the technical bid)	XX
21	Non-Disclosure Agreement (to be enclosed with the technical bid)	XXI
22	Self-declaration of the Firm that, they are not black listed/debarred bidder with any of the Government/ Autonomous Institutions in the last one (1) year (to be enclosed with the technical bid)	XXII
23	Bank details of the Bidder/ Supplier	XXIII

BIDDER INFORMATION FORM

- (a) *[The Bidder shall fill in this Form in accordance with the instructions indicated below. No alterations to its format shall be permitted and no substitutions shall be accepted. This should be done of the letter head of the firm].*

Date: *[insert date (as day, month and year) of Bid Submission]*

Tender No.: *[insert number from Invitation for bids]*

01.	Bidder's Legal Name <i>[insert Bidder's legal name]</i>
02.	In case of JV, legal name of each party: <i>[insert legal name of each party in JV]</i>
03.	Bidder's actual or intended Country of Registration: <i>[insert actual or intended Country of Registration]</i>
04.	Bidder's Year of Registration: <i>[insert Bidder's year of registration]</i>
05.	Bidder's Legal Address in Country of Registration: <i>[insert Bidder's legal address in country of registration]</i>
06	NAME AND ADDRESS OF BANK: BANK ACCOUNT NUMBER: TYPE OF ACCOUNT: IFSC CODE:
07.	Bidder's Authorized Representative Information Name: <i>[insert Authorized Representative's name]</i> Address: <i>[insert Authorized Representative's Address]</i> Telephone/Fax numbers: <i>[insert Authorized Representative's telephone/fax numbers]</i> Email Address: <i>[insert Authorized Representative's email address]</i>
08	COUNTRY OF ORIGIN OF PRODUCT (S):
09	ADDRESS OF THE PLACE MANUFACTURE / FACTORY / PLACE WHERE LOCAL CONTENT VALUE ADDITION IS DONE BY MANUFACTURER:OF
10	If item is imported and is from a country sharing land border with India, then Registration certificate details like number, date and validity date:
11	Are you a MSE registered for the Item under procurement: if Yes then furnish details of the certificate, date and validity along with copy of the same.

12	Are you Class I Vendor or Class II Vendor as defined by Make In India circular. It is mandatory to attach the certificate from the OEM for Local content percentage and place of value addition.
13	Attached are copies of original documents of: <i>[check the box(es) of the attached original documents]</i> Articles of Incorporation or Registration of firm named in 1, above.

Signature of Bidder _____

Name _____

Business Address _____

Format for declaration by the Bidder for Code of Integrity & conflict of interest
(On the Letter Head of the Bidder)

Ref. No: _____

Date: _____

To,

(Name & address of the Purchaser)

Sir,

With reference to your Tender No. _____ dated _____ I/We hereby declare that we shall abide by the Code of Integrity for Public Procurement as mentioned under Para 1.3.0 of ITB of your Tender document and have no conflict of interest.

The details of any previous transgressions of the code of integrity with any entity in any country during the last three years or of being debarred by any other Procuring Entity are as under:

- a.
- b.
- c.

We undertake that we shall be liable for any punitive action in case of transgression/ contravention of this code.

Thanking you,

Yours sincerely,

Signature
(Name of the Authorized
Signatory
Company)

MANUFACTURER'S AUTHORIZATION FORM

[The Bidder shall require the Manufacturer to fill in this Form in accordance with the instructions indicated. This letter of authorization should be on the letterhead of the Manufacturer and should be signed by a person with the proper authority to sign documents that are binding on the Manufacturer.]

Date: *[insert date (as day, month and year) of Bid Submission]*

Tender No.: *[insert number from Invitation For Bids]*

To: *[insert complete name and address of Purchaser]*

WHEREAS

We *[insert complete name of Manufacturer]*, who are official manufacturers of *[insert type of goods manufactured]*, having factories at *[insert full address of Manufacturer's factories]*, do hereby authorize *[insert complete name of Bidder]* to submit a bid the purpose of which is to provide the following Goods, manufactured by us *[insert name and or brief description of the Goods]*, and to subsequently negotiate and sign the Contract.

We hereby extend our full guarantee and warranty in accordance with Clause 2.21 of the General Conditions of Contract, with respect to the Goods offered by the above firm.

Signed: *[insert signature(s) of authorized representative(s) of the Manufacturer]*

Name: *[insert complete name(s) of authorized representative(s) of the Manufacturer]*

Title: *[insert title]*

Duly authorized to sign this Authorization on behalf of: *[insert complete name of Bidder]*

Dated on _____ day of _____, _____ *[insert date of signing]*

BID SECURITY FORM

Whereas _____ (hereinafter called the tenderer) has submitted their offer dated _____ for the supply of _____ (hereinafter called the tenderer")

Against the purchaser's tender enquiry No. _____

KNOW ALL MEN by these presents that WE _____ of _____ having our registered office at _____ are bound unto _____ (hereinafter called the "Purchaser")

In the sum of _____

For which payment will and truly to be made to the said Purchaser, the Bank binds itself, its successors and assigns by these presents. Sealed with the Common Seal of the said Bank this _____ day of _____ 20____.

THE CONDITIONS OF THIS OBLIGATION ARE:

- (1) If the tenderer withdraws or amends or modifies or impairs or derogates from the Tender in any respect within the period of validity of this tender.
- (2) If the tenderer having been notified of the acceptance of his tender by the Purchaser during the period of its validity:-
- (3) If the tenderer fails to furnish the Performance Security for the due Performance of the contract.
- (4) Fails or refuses to accept/execute the contract.

WE undertake to pay the Purchaser up to the above amount upon receipt of its first written demand, without the Purchaser having to substantiate its demand, provided that in its demand the Purchaser will note that the amount claimed by it is due to it owing to the occurrence of one or both the two conditions, specifying the occurred condition or conditions.

This guarantee will remain in force up to and including 45 days after the period of tender validity and any demand in respect thereof should reach the Bank not later than the above date.

(Signature of the authorized officer of the Bank)

Name and designation of the officer

Seal, name & address of the Bank and address of the Branch

Note: Whenever the bidder chooses to submit the Bid Security in the form of Bank Guarantee, then he should advise the banker issuing the Bank Guarantee to immediately send by Speed Post. An unstamped duplicate copy of the Guarantee directly to the Purchaser with a covering letter to compare with the original BG for the correctness, genuineness, etc.

BID-SECURING DECLARATION FORM

Date: _____

Bid No. _____

To (insert complete name and address of the purchaser)

I/We. The undersigned, declare that:

I/We understand that, according to your conditions, bids must be supported by a Bid Securing Declaration.

I/We accept that I/We may be disqualified from bidding for any contract with you for a period of one year from the date of notification if I am /We are in a breach of any obligation under the bid conditions, because I/We have withdrawn/modified/amended, impairs or derogates from the tender, my/our Bid during the period of bid validity specified in the form of Bid; or having been notified of the acceptance of our Bid by the purchaser during the period of bid validity (i) fail or reuse to execute the contract, if required, or (ii) fail or refuse to furnish the Performance Security, in accordance with the Instructions to Bidders.

I/We understand this Bid Securing Declaration shall cease to be valid if I am/we are not the successful Bidder, upon the earlier of (i) the receipt of your notification of the name of the successful Bidder; or (ii) thirty days after the expiration of the validity of my/our Bid.

Signed: (insert signature of person whose name and capacity are shown) in the capacity of (insert legal capacity of person signing the Bid Securing Declaration).

Name: (insert complete name of person signing the Bid Securing Declaration)

Duly authorized to sign the bid for an on behalf of : (insert complete name of Bidder)

Dated on _____ day of _____ (insert date of signing)

Corporate Seal (where appropriate)

(Note: In case of a Joint Venture, the Bid Securing Declaration must be in the name of all partners to the Joint Venture that submits the bid)

PERFORMANCE STATEMENT FORM

Name of the Firm.....

Order Placed by (full address of Purchaser)	Order No. and date	Description and quantity of ordered software	Value of order	Date of completion of delivery as per Contract	Date of actual completion of delivery	Remarks indicating reasons for late delivery, if any	Has the software been installed satisfactorily? (Attach a certificate from the purchaser/C onsignee)	Contact person along with Telephone No., and e-mail address

Signature and Seal of the manufacturer/Bidder

Place :

Date :

DEVIATION STATEMENT FORM/ TECHNICAL COMPLIANCE STATEMENT FORM
(ALL COLUMNS ARE MANDATORY)

Detailed Specifications for Supply, Installation, Integration, Commissioning, Testing, Training and Documentation of State -of-the-Art Real Time Hybrid Digital Control system with electrical winches for existing tower testing facility (RTDCT) at TTRS, CSIR-SERC for testing of transmission line towers and tower-like structures.

Sl. No.	Parameters	SERC Requirements	Offered Specification	Compliance (Yes/No)	Deviation	Page no. reference in the technical document / brochure
1.	End use and Requirements of the Real Time Hybrid Digital Control system with electrical winches for existing tower testing facility (RTDCT)	The test facility is to be used for testing of transmission line towers and tower-like structures. It is the responsibility of supplier to integrate and synchronize the functioning of the newly proposed 48 electrical winches and existing hydraulic actuators to the proposed RTDCT control system.				
2.	Total number of loading channels of the RTDCT.	The RTDCT should be of 64 channel capacity with the provision for future expansion. Each channel should have necessary hardware and software to control both servo valve driven hydraulic actuator and servo motor driven electrical winch. The user should be able to configure either a servo valve driven hydraulic actuator or a servo motor driven electrical winch to each channel, based on requirement (user-selectable) at the time of testing.				

3.	Distribution of loading channels among three locations (Vertical Ram Station(VRS), Transverse Ram Station (TRS) & Longitudinal Ram Station (LRS)) of the test facility.	The 64 loading channels of the RTDCT are distributed among three locations of VRS, TRS & LRS of the test facility as per the details given below. Vertical Ram station: 20 loading channels Transverse Ram station: 26 loading channels Longitudinal Ram station: 18 loading channels				
4.	Main functional components of the Real Time Hybrid Digital Control system with electrical winches for existing tower testing facility (RTDCT)	RTDCT consisting of • Master & Redundant PLC, Slave PLCs. • User control Panel, Test monitor panels. • Analog and Digital I/Os • 64 loading channels. Each loading channel capable of controlling either electrical winch or hydraulic actuator mapped to that channel at the time of testing. • 64 set of Servo drives and servo motor for electrical winch control with individual remote control handsets to manually control the connected electrical winch at the time of rigging. • 64 nos. of Servo valve drivers/amplifiers with individual remote control handsets to manually control the hydraulic actuators at the time of rigging. • 64 load cell signal conditioner for the load cells which will be connected to the Tower Under Test (TUT).				

		• 64 analog outputs for external data logging of load cell signals. • Load cell cables from TUT to load cell junction box (ground floor) and from load cell junction box to control room (3rd floor). • Communication & control cables and associated hardware and software. • Additional 16(8+8) analog input modules with signal conditioners - 8 for external strain measurement and 8 for displacement transducers. • 48 Nos. of Integrated Planetary gear based electrical winches of 5T & 10T capacity. • Clutch mechanism between servo motor drive and gear box input drive. • Sheave multiplier assemblies for 5T and 10T capacity winches to achieve maximum load of 50T. • Suitable steel mounting fixtures to install all the 48 electrical winches and Sheave multiplier assemblies in the existing foundation bases of VRS, TRS & LRS. (Please refer schematic diagram Fig 6). • Strain gauge based Load cells (will be provided by CSIR-SERC) • Servo valve driven hydraulic actuators (will be provided by CSIR-SERC) Please refer schematic diagram Fig 4.				
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5.	Electrical Winch type and capacity	Electrical winches of 5T and 10T capacity with integrated planetary gear and rope guide. These Electrical winches are to be accommodated in the existing foundation (Please refer Fig. 5 Dimensions of RAM footings). Suitable steel fixtures to be fabricated and installed to accommodate the winches in the existing Ram footings. Bidders are requested to make a site visit to understand actual site conditions and space available for installation of winch assembly before submitting the offer. Proposed distribution of the winches in the ram stations are as follows. Vertical Ram station <table><tr><td>Electrical winches of 5 ton capacity</td><td>17</td></tr></table> Transverse Ram station <table><tr><td>Electrical winches of 5 ton capacity</td><td>15</td></tr><tr><td>Electrical winches of 10 ton capacity</td><td>5</td></tr></table> Longitudinal Ram station <table><tr><td>Electrical winches of 5 ton capacity</td><td>11</td></tr></table>	Electrical winches of 5 ton capacity	17	Electrical winches of 5 ton capacity	15	Electrical winches of 10 ton capacity	5	Electrical winches of 5 ton capacity	11				
Electrical winches of 5 ton capacity	17													
Electrical winches of 5 ton capacity	15													
Electrical winches of 10 ton capacity	5													
Electrical winches of 5 ton capacity	11													
Real Time Digital Controller Specification														
6.	Working principle, Hardware & software requirements of RTDCT hybrid digital controller to control both electrical winch and hydraulic actuator.	- RTDCT controller should have a master PLC with hot swappable redundant master at control room and a slave PLC at each station (VRS, LRS and TRS) in Master/Slave Architecture control philosophy. - The Master PLC will have user interface panel with switches, control knobs,												

		keyboards, touch screen monitors, indicators, etc., to receive command and control inputs from user and to display the real time status of all the loading channels. • The master PLC will have required number of analog & digital I/O modules, load cell signal conditioners to receive Force/Load signals from load cells mounted on TUT. • The master PLC in the control room should receive command and control inputs from user, Force/Load signals from load cells and communicate and control the slave PLCs through a dedicated EtherCAT / ProfiNet or equivalent high speed Industrial Communication Protocol. The slave PLCs at each station will communicate and control the servo motor driven electrical winches and servo valve driven hydraulic actuators. • Server PC with a redundant Server. • A control desk to house the Server PC and redundant Server, 65 inch 4K LED touch screen and overall master and individual emergency push buttons. The touch screen is to monitor real time status and to set/modify different set points, limits, safety interlocks of all the 64 channels. • A Client PC with 65 inch 4K LED touch screen display on mobile stand for graphical display of the test progress (test load, set load, actual load and load point				
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		related information) for each channel individually in the load tree format with scope to display auxiliary and client related information. • Dedicated licensed application software programmed to control both servo valve driven hydraulic actuator and servo motor driven electrical winch. The user should be able to configure either a servo valve driven hydraulic actuator or a servo motor driven electrical winch to each channel, based on requirement (user-selectable) at the time of testing. • 10 kVA UPS systems with 60 minutes Lithium Ion batteries backup along with isolation transformer for the control room and servo drive rooms (VRS, TRS & LRS) : Total 4 nos. • 6 nos. of cameras and associated hardware and software for live streaming the tower testing. • 65-inch 4K LED touchscreen display on a mobile stand for real-time camera monitoring of the TUT. • Printer: A color laser jet network printer for repot printing Please refer schematic diagram Fig 4.				
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7.	Master, Redundant Master and Slave PLCs	Master & Redundant PLCs • Multi-axis synchronization: Up to 64 axes • Motion refresh cycle: ≤ 10 ms • Bump less transfer: Less than 50 ms Change over • I/O points to accommodate: ➤ Analog inputs for 64 load cell signals ➤ Analog inputs for 8 strain measurement signals ➤ Analog inputs for 8 displacement transducers ➤ Analog inputs for Temperature & wind speed sensor signal inputs ➤ Analog outputs for external data logging of all the above analog inputs. ➤ Digital I/Os to accommodate safety alarms and safety interlocks. Slave PLCs at 3 Ram stations: • I/O points for each Slave PLC to accommodate: ➤ 8 Analog inputs ➤ Required no. of Analog outputs for servo valve drivers/amplifiers ➤ 8 Digital inputs ➤ 8 Digital outputs.				
8.	Communication	EtherCAT / ProfiNet or equivalent high speed Industrial Communication Protocol to achieve Multi-axis synchronization up to 64 axes with Motion refresh cycle time of ≤ 10 ms. (Details of the protocol to be provided).				

		A redundant fiber optic cable to be provided as standby to restore communication in case of main cable failure. The communication cables between control room and ram stations should be enclosed by providing GI pipes. GI Pipes should be buried/ supported as per field requirement.				
9.	Application Software	- Application software shall configure/calibrate test artifacts and store the information for the following: a) Test setup and loading details. b) Sensor list. c) Sensor calibration data into central database from calibration room (remote room). d) Sensor initial condition data. e) Sensor bias data. f) Actual test results at each load conditions. - Application software shall have the following safety features: a) Self-diagnostic features for the system and software to mitigate the safety scenarios during testing. b) Software shall have Built-In-Test (BIT) for initial GO/NO-GO status information. User shall execute this functionality before the start of actual test. The BIT software, which is a part of the main software, shall test all the hardware in loop along with the integrity of the database and artifacts for correctness and safety boundaries.				

		c) Emergency stop and safety procedure shall be part of the software, which shall be critically designed to ensure the complete controlled monitoring. d) In case of system hanging scenario, the software shall have the feature of holding the loads or releasing the loads(based on the option selected by the user) automatically. Hence the detection of system hang state shall be part of safety measure in the software. e) The condition of the servo drives, servo valve coils, load cell bridges and valve drivers should be monitored online and automatic alarm to be activated in case of any faults with them. f) In total, the software shall have complete in-built diagnostic management system. • The application software should be scalable to allow future expansion.				
10.	Test Control features and requirements of the RTDCT	• 3 user selectable control modes - Individual channel control (one load point at a time) - Group control (multiple channels) - Central control (all configured channels). • Manual override controls. • Emergency stop (software + hardware).				

11.	Servo control Modes for electrical winches	• Position Mode: – Position feedback: Absolute encoder – User defined rate of movement to the defined target set point. – Absolute and relative movement of position. – Speed range: 0.1 m/min – 0.7 m/min – User defined cyclic ramp movement in tension mode • Speed Mode: – Range: 0.1 m/min – 0.7 m/min – Smooth acceleration/deceleration • Torque/Force Mode: – Real-time force feedback from load cells – Closed-loop PID control – User defined set point in percentage of test load in user defined time duration (Eg: 25%, 50%, 75%, 90%, 95%, 100% of test load in 1 minute, 2 minutes or 5 minutes). – During destruction test, the test load applied will be beyond 100% of test load in steps of 5% till failure – After reaching the set point load in Torque/Force Mode, the servo system should hold the load continuously by generating				
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		necessary holding torque at zero speed without applying brake for user defined waiting period. • Manual Mode: –Jog forward/reverse –Variable speed control –Manual release of clutch –Remote handset for each winch –Disable/enable option should be provided for each winch and override option to be provided in the main control system • Emergency stop functionality Emergency Release Mode: In emergency release mode by activating the master emergency, the integrated gear-winch mechanism should disengage from the servo motor by suitable clutch mechanism and all the winch loads should be released immediately. Emergency Stop Mode: In emergency stop mode by activating the stop emergency, all the winch loads to be held at current value with an option to continue to set point or reduce to user defined set point.				
12.	Control Modes for Hydraulic actuators	• Servo Mode: –Force/Load control mode with feedback from				

		load cells, servo drive amplifier and buffer. –Closed-loop PID control • Manual Mode: –In / Out –Parking of hydraulic actuators –Remote handset for hydraulic actuator • Emergency stop functionality Emergency Release Mode: In emergency release mode by activating the master emergency, the servo valve driver should supply required negative current to the servo valve to bring the system to safe zero load condition immediately. Emergency Stop Mode: In emergency stop mode by activating the stop emergency, all the loads to be held at current value with an option to continue to set point or reduce to user defined set point.				
13.	Monitoring & logging of test parameters	• Trend charts (real-time and historical) - Data tables - Statistical analysis - Alarm history - Event log. • Logged Parameters (per channel): - Date/time (millisecond precision) - Load				

		(kN or tonnes) - Position (mm) - Speed (m/min) - Status flags - Environmental conditions (temperature, wind speed)				
14.	Auxiliary Measurements	• Thermometer (1 no.) for ambient temperature measurement. • Anemometer (3 nos.) for wind speed measurement at different positions/levels.				
15.	Test Programming	Graphical test sequence editor - Load step programming - Time-based or event-based triggers – Tension cyclic loading patterns - Custom test protocols.				
16.	Data Storage	Suitable/appropriate universal format should be provided. Preferably SQL database.				
17.	Report Generation	The system should generate reports like Calibration Report, Provisional report, Sequence of events reports, Final test report as per template provided by CSIR-SERC.				
Electrical Servo drive specification for electric winches						
18.	Input AC Supply	3-phase 415 V AC +/-10% 50Hz +/-5 %. Power supply PDB is available at each servo drive room. Power supply cable between PDB and the servo drives is under the scope of the supplier.				
19.	Output Voltage to drive the servomotor.	Variable 3-phase output voltage up to 95% of input voltage or better				
20.	Output Frequency	0 to 500 Hz variable				
21.	Power rating of the drive	≥ 5 kW				
22.	Rated continuous nominal output current for output drive voltage frequency greater than 10 Hz	≥ 13 Amps with 110% overload for 60 seconds				

23.	Rated continuous stall current (at 0 Hz) supply capability of the servo drive to the servomotor without exceeding thermal limits.	≥ 6.5 Amps (50% of rated output current of servo drive) Continuous stall current supply rating of the servo drive should be greater than or equal to the continuous stall current requirement of the servo motor to generate the required maximum static torque. The performance characteristics curve for 0 Hz operation of the servo drive to be enclosed. (Refer servomotor specification for the stall torque and stall current requirement).				
24.	Motor control modes	Torque/Load, Speed, Position control modes in closed loop. V/f control mode in open loop.				
25.	In built PID control	Servo drive should have in built PID mechanism for closed loop.				
26.	Servo motor type to be controlled by the drive	Three phase Permanent magnet synchronous motors of 2.0 kW to 3.0 kW power rating. (Refer servomotor specification)				
27.	Line Reactor/AC choke in the input side	Line reactor / choke to be provided to reduce harmonics and to reduce RMS input current.				
28.	EMC Filters	EMC filter to be provided to reduce electromagnetic emission				
29.	Braking Chopper	To be provided to store the regenerative energy				
30.	Braking resistor	To be provided to dissipate the excess regenerative energy				
31.	Encoder support	The drive should support absolute and incremental encoders				
32.	Digital and analog I/O	• Minimum 8 DIs • Minimum 4 DOs • Minimum 2 AIs (12 bit, ± 10 V or better) • Minimum 1 AOs (12 bit, ± 10 V or better)				

33.	Safety features to be provided	• Safe Torque Off (STO) function according to standards to be provided. • Over current & over voltage protection. • High temperature protection of servo drive and servo motor.				
34.	Data communication protocol in the data communication field bus	EtherCAT / ProfiNet or equivalent high speed Industrial Communication Protocol				
35.	External power supply for the control units of the drive	External power supply for the control units of the drives to be provided to keep the control units active and maintain field bus communication in case main supply failure.				
36.	Memory unit	Removable memory unit to be provided to store parameters, firmware and application program of the servo drive.				
Electrical Servo motor specification for the winch						
37.	Servomotor type	Three phase Permanent magnet synchronous motor with in-built brake and encoder, compatible with the servo drive offered in the bid.				
38.	Operating voltage and frequency.	Variable 3-phase voltage and frequency (Note: Operating voltage and frequency must be Compatible with the servo drive offered in the bid.)				
39.	Continuous stall torque rating	$\geq 10 \text{ Nm}$				
40.	Continuous stall current required to generate stall torque of 10 Nm.	$\leq 6.5 \text{ Amps.}$ Continuous stall current requirement of the motor to generate required stall torque should be less than or equal to the continuous stall current (0				

		Hz) rating of the servo drive offered in the bid.				
41.	Rated speed	2000 RPM.				
42.	Rated torque @ rated speed	≥ 10 Nm.				
43.	Rated Power (@ 2000 RPM speed and 10 Nm Torque)	≥ 2.1 kW				
44.	Holding brake	In-built holding brake				
45.	Encoder	In-built Multi turn absolute encoder				
46.	Thermal protection	In-built thermal sensor to sense thermal overload				
47.	Performance characteristics of servomotor	The performance characteristics curve for zero speed operation to normal speed operation of the motor to be enclosed. The performance characteristics should meet the performance requirements.				
48.	Modes of operation	Position control mode, speed control mode, torque/force control mode, manual control mode and remote-control mode.				
Servomotor mechanical holding brake						
49.	Power supply and control logic for servomotor mechanical holding brake	Separate electrical power supply to be provided to servomotor in-built holding brake and to be controlled by the servo drive control logic.				
Clutch mechanism between servo motor drive and gear box input drive						
50.	Power supply and control logic for clutch mechanism between servo motor and gear box input drive.	Clutch mechanism between servo motor and gear box input drive to be provided to isolate the servo motor from winch drum-gear box during emergency. The clutch is to be controlled by the servo drive control logic.				
5 ton capacity Electrical winch planetary gear and winch drum assembly specification						

51.	Working Load capacity	5 ton (designed with factor of safety of 3)				
52.	Quantity	VRS: 17 Nos TRS : 15 Nos. LRS: 11 Nos				
53.	Active Rope length required	150 m				
54.	Wire rope diameter	14 mm (Standard)				
55.	Winch drum diameter	> 400 and <500 mm				
56.	No of layers of rope	Multi-layer preferably 4 to 5 layers				
57.	No of turns in each layer in the drum	~ 30 turns				
58.	Planetary Winch drum assembly length including drum flange mounting bracket and servo motor	Less than 800 mm. Note: The space availability is limited for mounting winch assembly. The approximate size of base frame is about 850 mm X 600 mm.				
59.	Total Planetary Gear reduction ratio	Approximately 1700				
60.	Maximum input drive torque	>9 Nm (To be designed with a factor of safety of 3)				
61.	Maximum Planetary gear output drive torque in the drum shaft	~ 15,000 Nm (To be designed with a factor of safety of 3)				

62.	Rope pulling force capacity at 1 st layer	≥5900 Kg				
63.	Rope pulling force capacity at 4 th layer	≥5000 Kg				
64.	Winch drum RPM range	0.05 RPM to 1 RPM (with variable speed electrical motor)				
65.	Wire rope speed range	For 1 st layer : 0.1 m/min – 0.70 m/min (with variable speed electrical motor) For 4 th layer : 0.1 m/min – 0.90 m/min (with variable speed electrical motor)				
66.	Mounting direction of electrical motor at input drive stage	Vertical (perpendicular to the winch drum axis)				
67.	Input drive to the planetary gear	Electrical servo motor of rated speed upto 3000 RPM , rated power upto 3 kW and drive torque upto 10 Nm .				
68.	Clutch mechanism	Mechanism for automatic & manual disengaging of the gear from the servo motor in case of emergency release mode / manual mode.				
69.	Rope winding guide	To be provided				
70.	Safety enclosure	Collapsible curved roller shelter				
10-ton capacity Electrical winch planetary gear and winch drum assembly specification						
71.	Working Load capacity	10 ton (designed with a factor of safety of 3)				
72.	Quantity	VRS: -- TRS : 5 Nos.				

		LRS: --				
73.	Active Rope length required	75 m				
74.	Wire rope diameter	20 mm				
75.	Winch drum diameter	> 400 and < 600 mm				
76.	No of layers of rope	Multi-layer preferably 2 to 4 layers				
77.	No of turns in each layer in the drum	~13 turns				
78.	Planetary Winch drum assembly length including drum flange mounting bracket and servo motor	Less than 1100 mm. Note: The space availability is limited for mounting winch assembly. The approximate size of base frame is about 1100 mm X 750 mm.				
79.	Total Planetary Gear reduction ratio	~3900				
80.	Maximum input drive torque	>9 Nm (To be designed with a factor of safety of 3)				
81.	Maximum planetary gear output drive torque in the drum shaft	~28,000 Nm (To be designed with a factor of safety of 3)				
82.	Rope pulling force capacity at 1 st layer	≥12,000 Kg				
83.	Rope pulling force capacity at 4 th layer	≥10,000 Kg				

84.	Winch drum RPM range	0.02 RPM to 0.8 RPM (with variable speed electrical motor)				
85.	Wire rope speed range	For 1 st layer : 0.02 m/min – 0.70 m/min (with variable speed electrical motor) For 4 th layer : 0.02 m/min – 0.90 m/min (with variable speed electrical motor)				
86.	Direction of electrical motor input drive mounting.	Vertical (perpendicular to the winch drum axis)				
87.	Input drive to the planetary gear	Electrical servo motor of rated speed upto 3000 RPM , rated power upto 3 kW and drive torque upto 10 Nm.				
88.	Rope winding guide	To be provided				
89.	Safety enclosure	Collapsible curved roller shelter				
Sheave multiplier assemblies specifications						
90.	End use and requirements of sheave multiplier assemblies (Typical sheave pulley multiplier mechanism is shown in Fig. 6)	A Sheave multiplier assembly includes two Sheave pulley blocks at both ends with specified length of wire rope wound between them. Each sheave pulley block should have provisions to wind, unwind and change the wire ropes with Ferrule secured eyes on each end. Each sheave pulley block should also have provision inside them to attach the wire ropes having Ferrule secured eyes. The sheave pulley blocks and wire ropes are to be optimized with high strength steel to achieve the most compact dimensions without compromising the safety factors specified in the relevant IS Codes. The design approval of the sheave pulley blocks should be obtained from CSIR-SERC prior to the fabrication.				

91.	Sheave Pulley block & rope	Sheave Pulley block		Rope of Diameter 14mm				
		Capacity	No. of Sheaves	Length of rope for assembly with 2 sheave				
				blocks				
		10 tonne	1(2 falls)	20 metres				
		20 tonne	2 (4 falls)	20 metres				
		30 tonne	3 (6 falls)	30 metres				
		50 tonne	5 (10 falls)	50 metres				
92.	Safe Working Load (KN) per single part of Rope	50 kN						
93.	Indicative Rope Specification	35x7(6-1)- Wire Strand Core(WSC) (2160 grade steel cable) Non Compacted Rope or an equivalent or better - with a minimum FOS of 3. Material Test Certificate (MTC) will be required at the time of supply. The rope has to be tested for safe working load at supplier's end. 10% of ropes will be tested at CSIR-SERC for final acceptance. The ropes should have Ferrule secured eye at the end. The Ferrule secured eye arrangement should be capable of taking 1.8 times the MBL of the wire rope used.						

94.	Min. FOS Sheave Block	4								
95.	Min. FOS wire rope	3 as per IS2266								
96.	Required Quantities	Ram Station	Sheave Capacity							
			10 tonn e	20 tonn e	30 tonn e	50 tonn e				
		VRS	12	12	10	4				
		LRS	12	12	10	7				
		TRS	12	15	10	7				
Load Cell cable and load cell junction box										
97.	Load cell cable	To be provided by the bidder for connecting the tower mounted load cells to the control room. Approximate length = 64 x 200 meter = 12800 meters								
98.	Cable specification	6 Core, Multistrand 14/0.2mm annealed tinned copper conductor PVC insulated, PVC sheathed Melinex paper and Aluminium foil wrapped helically braided shield by ATC conductor with better than 90% coverage. Distinct colour coded, providing fibre thread at centre of cores for mechanical strength, suitable for indoor/outdoor use, flexible cable core resistance less than 15 ohms for 150 Mts. The colour for each core should be distinctly coded(Red, Green, Yellow, Blue, White and Black).								
99.	Load Cell Junction box	To be located on the ground floor of the building. Should be of IP55 class protection, shielded and body earth.								

100.	Cabling for Load cells	- The load cell amplifiers are to be located in the control room, while the load cells are typically located out in the open, at suitable/ different locations to measure the load. They have to be properly connected through shielded six core cables. Suitable number of junction boxes at the ground floor level shall be provided for this purpose. These boxes should have 64 connectors, one connector for each channel. Each connector should have 6 spring clamp DIN terminal or round connectors with provision for connecting shield wires. - All the signal conditioners/ load-cell amplifiers terminals in the control room are to be terminated directly onto the connectors at this junction box. The load cell cables from the field shall also be terminated at the junction box. - Since low voltage signals are involved, the junction box should be designed for relevant standards like shielding, etc.				
Existing Hydraulic actuators & Servo valve specification which are to be integrated with RTDCT control system						
101.	Hydraulic Actuators	Existing Hydraulic actuators & Servo valve will be used				
102.	Servo Valve Driver / amplifier	Servo Valve driver is a Voltage to Current converter that transforms ± 10 V input signals into current signals capable of driving hydraulic servo valves. Servo valve driver to be supplied by the bidder.				
103.	Servo valve resistance and current requirement	Servo valve drive current of ± 10 mA for Servo valve resistance of 1000 Ohms.				

		Servo valve drive current of +/- 20 mA for Servo valve resistance of 500 Ohms.				
104.	Servo valve distance from controller	up to 50 meters				
105.	Display of valve current	A suitable current source/ converter shall be used to meet the current and voltage requirements of the servo valve. The actual valve current is to be sensed and displayed in the "DISPLAY monitors" in real time.				
Existing load cell specification which are to be integrated with RTDCT control system						
106.	Type	Strain gauge type tension load cells				
107.	Capacity	10 kN, 20 kN, 50 kN, 100 kN, 150 kN, 200 kN, 300 kN and 500 kN				
108.	Bridge sensitivity	1 mV/V				
109.	Excitation voltage	10 V DC				
110.	Connector	6-wire shielded configuration				
111.	Length of the cable from controller/bridge exciter to load cell	up to 200 m. (6 core shielded cable to be supplied by the bidder and refer Sl. No. 98)				
Load cell calibration						
112.	Load cell calibration	Before and after every use, each load cell (bridge output) is calibrated against a standard proven ring certified by the concerned authority/ body. CSIR-SERC/TTRS has a separate calibration lab for this purpose. GUI has to be available in the application software for calibration, data logging into central database. The data will be retrieved and used during test process and post-test process.				

Load cell Amplifier/ conditioner (to be supplied by the bidder)						
113.	Type	Bridge based sensor, strain gauge full bridge				
114.	Excitation voltage	10 VDC				
115.	Offset	Zero adjustment facility				
116.	Package	Modular to facilitate easy expansion/replacement				
117.	AC/DC excitation	DC excitation				
118.	Bandwidth	> 1 kHz				
119.	No. of terminals	Standard 6 wire + shield				
120.	Bridge Resistance	Upto 1000 ohms				
121.	Output	Voltage: +/- 10 V				
122.	Gain	0.1 mV/V to 2 mV/V				
123.	Distance	Cable length: ~200m between load cell and signal conditioner				
124.	Output filter	Low pass filtering, selectable filter type, order and cut-off frequency				
125.	Supply Voltage	24 VDC				
126.	Power Switch	Each channel should be provided with a separate power ON/OFF switch.				
127.	Protection	Built in short circuit protection etc.				
128.	Accuracy	0.1 Class				
HMI Server PC's at Control Room						
129.	Specifications of HMI Server PC	• Description: HMI SERVER • Type: Desk Top • Qty: 2 nos. • Function: SCADA, PLC Programming, Drive Programming				

		• CPU: Intel Xeon 6 processor (Gen12 server platforms) (2.4 GHz/Minimum 16 Core/Max 150W) (or latest available Intel processor) • Storage: 2x HPE 960GB SAS 24G Read Intensive SFF BC Multi Vendor SSD (Configured in RAID 1 mirror) • Memory: 32 GB (2 x 16 GB) DDR5 Registered ECC Memory • Embedded NIC: Quad-port (4 x 1GbE) Network Interface Controller with dedicated HPE iLO 7 Standard management port • Optical Drive: 16DVD Writer • RAID Controller: Gen12 (or equivalent) Hardware/Software RAID Controller; Supporting RAID Levels 0, 1, 5, 6, 10, 60 and other Advanced RAID Levels • Power Supply: Minimum 1000W Hot-Plug Redundant Power Supply Kit • External SSD: 2TB External USB-C SSD for data backup • Monitor: 65 inch 4K LED touch screen (with appropriate wall/desk mount brackets and HDMI/DisplayPort cables) • Graphics Interface: Dedicated Enterprise Workstation Graphics Card; Minimum 8GB GDDR6 or equivalent HPE-certified GPU natively supporting 4K UHD resolutions @ 60Hz.				
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		- Accessories: USB Keyboard, USB Optical Mouse, and all necessary power/interface cables - Operating System: Windows Server 2022 Standard Edition (Licensed, 64-bit)				
Client PC at Control Room						
130.	Specifications of Client PC	- Description: Engineering Workstation - Type: Desk Top - Qty: 1 no. - Function: SCADA, PLC Programming, Drive Programming - CPU: Intel, Xeon Z4 G5 W3-2525 8C (8 Cores, 16 threads, 4.3 Ghz, 33.75 MB cache) (Equivalent or latest Intel processor) - Hard Disk: 1TB Gen 4 NVMe m.2 SSD, 1TB enterprise grq, SSD, additional 1TB SSD NVMe for storage - Memory: 2* 16 GB DDR5 support up to 64GB - Graphics: Nvidia RTX PRO 2000 16GB Blackwell generation GPU or better - Network Interface: 1GB/S CARD - External Hard disk: 2TB External SSD as Backup - Display Monitor: 65 inch 4K LED touch screen on mobile stand - Accessories: Keyboard and Mouse - Operating System: Windows 11 Professional or latest available at the time of supply with Licensed latest MS Office				

Printer at control room						
131.	Specifications of Printer	• Quantity: 1 no. • Function: Print, Copy, Scan, ADF, Duplex • Print Size: A4, colour, 35 ppm (max Speed) • Connectivity USB, EtherNet, Wifi • Automatic Duplex Printing/Two-sided printing.				
UPS and battery backup						
132.	Specifications of UPS and Battery Bank	• Capacity: 10.0 KVA • Quantity: 4 nos. • Location: Control room, Servo Drive room-VRS, Servo Drive room-TRS and Servo Drive room-LRS. • Input: 415 V, $\pm 10\%$, 3 Phase, 50 Hz $\pm 3\%$ • Output: 220 V, $\pm 1\%$, 1 Phase, 50 Hz $\pm 1\%$ • Battery: Lithium Ion batteries • Backup Time: 60 minutes • Static Switch: Transfer time less than 5 milliseconds • Isolation Transformer in Bypass path • Static Stabiliser in Bypass path • Static Bypass Arrangement • AC DB- UPS				
Cameras						
133.	Specifications of cameras	• 5 MP 2560 X 1920 PTZ Camera with mounting kit and power supply – 4 nos. • 5 MP fixed IP camera with 50M IR Range – 2 nos. • 16 CH NVR, 8 bay with free Remote Client viewing software with 80 TB Expandable capacity and built in 10 TB Storage for				

		backup, e-SATA for future expansion of storage • Display: 65-inch 4K LED touchscreen display on a mobile stand for real-time camera monitoring of the TUT • Associated accessories like Fiber Panels, Patch Cards, Single mode Gigabit media convertors, POE Switches, POE Injectors, Outdoor weather proof Racks with required accessories, Armoured outdoor Fiber Optic Cables, pipes (GI Only), CAT • 6 Armoured Outdoor cables, Power Cables, etc.				
Other Requirements						
134.	Winch mounting fixtures	Design, fabrication, supply and installation of suitable steel mounting fixtures to install all the 48 winches in the existing foundation bases at VRS, TRS & LRS (refer Fig 5 drawing of the existing foundation). All fixtures shall accommodate swivel rotation of winches in the horizontal plane about a central (0°) position and shall be provided with a mechanical locking mechanism. The swivel rotation shall be adjustable in both clockwise and anticlockwise directions within the following ranges: Fixtures at LRS: – 45° to +45° Fixtures at VRS: – 15° to +15° Fixtures at TRS: – 15° to +15° The locking mechanism shall permit locking at				

		discrete positions in 5° to 15° increments within the specified ranges . A minimum factor of safety of 5 should be adopted in the design of winch mounting fixtures. The design approval of the mounting fixtures should be obtained from CSIR-SERC prior to the fabrication.				
135.	Fabrication of steel blocks for load diversion in longitudinal ram station and movable gantry frame at transverse ram station	As the new winches will be installed on the wall of longitudinal ram station, the diversion blocks made of structural steel sections are required to be fabricated for load diversion in longitudinal ram station. A movable gantry frame to handle sheave pulley blocks should be fabricated and erected at transverse ram station. The design approval of the diversion blocks and movable gantry frame should be obtained from CSIR-SERC prior to the fabrication.				
136.	Warranty	Three-year warranty followed by three years AMC. The bid should include three years of AMC after the warranty period. The AMC charges will be taken for evaluating the technical bid. The commercial quote should include the charges for the above.				
137.	Installation and commissioning	The firm should take full responsibility for supply, installation and commissioning of the equipment. Installation and commissioning should be carried out in CSIR-SERC and performance of the system demonstrated to the satisfaction of the users in				

		CSIR-SERC.				
138.	Technical evaluation criteria	A) The bidder has to meet all technical parameters of Chapter IV and B) The bidder has to successfully demonstrate one channel closed-loop feedback load/force control using the winches and hydraulic actuators available at TTRS, CSIR-SERC, with the sheave pulley mechanism within 15 days of intimation. Technical Evaluation Test to be carried out: One channel closed-loop feedback load/force control using the winches and hydraulic actuators available at TTRS, CSIR-SERC, with the sheave pulley mechanism. - A closed loop demo upto 50 kN load in required rate of loading and steps. Time for achieving the set load variable from 1 minute to 5 minutes. - Holding the set load for required time within $\pm 0.5\%$ set load value (Hold time from 2 minutes to 10 minutes). - Demonstrating the closed loop using sheave pulley mechanism upto 400kN. - Demonstrating the stability of the set load for varying external load conditions of the test structure (PA effect). Note: The bidder has to bring their PLC, Servo drive, Servo motor, Servo valve driver required for the demo. CSIR-SERC will provide winch				

		with planetary gear, hydraulic actuator, load cell and sheave pulley for closed loop demonstration of electrical winch and hydraulic actuator. The bidder should satisfy evaluation criteria mentioned in A & B to be considered as technically qualified.				
139.	Training for hardware, software and operation & maintenance	a. Integrated Development Environment (IDE) Training: Independent 10 days onsite IDE training should be provided by the vendor for configuring the PLC's, servo drives, motors, associated I/O's, closed loop, tuning the control parameters, etc. Training should also be given on the complete software programming. The training should cover aspects such as operation of control system and modification in the source code. b. Operation & Maintenance training: 10 days training, immediately after successful installation and commissioning This training shall focus on the procured hardware, software, safety features and include demonstrations using actual test specimens. c. Hand hold training after 3 months and deputing technical experts during commercial tests:				

		A hand holding training shall be provided after three months of installation, which shall include preliminary as well as advance level training of the operation of the Equipment, Software & other Accessories. The vendor should depute technical experts to TTRS for a minimum of five commercial testing of transmission towers. Please note the hand holding training and deputation of technical experts for 5 commercial tests shall be mandatory and free of cost. The initial IDE and operation maintenance training alone shall be reckoned for payment of 100%. Training materials shall be supplied by the manufacturer.				
140.	Acceptance Test Plan(ATP)	- A defined ATP document prepared by both Vendor and User to cover the most critical specifications of the system. ATP document has to be produced at the beginning of the project so that the same shall be used for clearance and execute the project in coordination with CSIR-SERC approval at every stage and strict compliance with tender specification. - Both vendor and user shall sign ATP. ATP tests shall be executed at CSIR-SERC/TTRS site after successful integration by vendor at CSIR-SERC/TTRS.				

		- The Acceptance Test Report shall be generated and signed by both parties for completeness of installation and integration activities after successful demonstration as follows: - Demonstration of all 64 channel loading points with different test load cases in hybrid mode with hydraulic actuator and winches on full-scale prototype testing of transmission tower or tower-like structure. - Demonstration of synchronous loading of upto 5 winches with sheave pulley mechanism.				
141.	Details about credentials of the firm, list of clients, details of similar equipment supplied in the last 5 years	The bidder should have supplied and commissioned at least one project of multi axis servo controlled closed loop tension/load/position control system as a complete turn key project during the last 05 years (as on date of bid opening) in Govt institutes/ Govt. research organizations/ Govt. PSU's/ Public funded Universities/ National Testing laboratories/Reputed private firms in India. The supplied tension/load/position control system should be of PLC-Servo drive-Servo motor based multi axis closed loop tension/force/position control system including mechanical assembly/hardware for applying tension/force/position. The bidder / supplier has to provide the PO copies including successful Installation reports and Performance Certificate of the same POs.				

142.	Maintenance and service support of the equipment during and after the warranty period.	The vendor should have competent and reliable service network in India for quick and necessary onsite repair and maintenance of the equipment within 24 hours of service request. Details of the nature of service support the firm can provide should be given along with the quotation. The firm should commit to provide maintenance service and supply necessary spares for the equipment for at least 15 years after successful installation and commissioning.				
143.	Software, operating system and related hardware	The vendor should agree to give technical and service support to the test software, operating system and related hardware for a minimum period of 15 years from the date of completion of installation and commissioning. Up-gradation of test software, operating system and security patches should be carried out by the firm at no cost to CSIR-SERC for upto 15 years. The Integrated Development Environment(IDE) software used for developing the application programme should be provided with valid perpetual license in the name of “The Director, CSIR-SERC, Taramani, Chennai –600 113”. The intellectual property right / copyright of developed software should be in the name of CSIR-SERC.				

144.	Technical documents and catalogues	The vendor should enclose all the relevant technical documents and catalogues for all the components included in the quotation. Quotations without proper technical documents and catalogues will be rejected.				
145.	Compliance statement	The quote should explicitly include every requirement of the CSIR-SERC as mentioned above. In case the offer does not include any or some of the points requirements contained in CSIR-SERC enquiry, then CSIR-SERC will be given to understand that the offer does not satisfy the points about which no mention is made by the vendor. Compliance statement, clearly mentioning point-wise compliance, should accompany the main technical offer without fail.				
146.	Operation and maintenance manuals	Two sets of operation and maintenance manuals along with all necessary drawings should be supplied along with the test system. Backup for total firmware, background software and the application software packages should be supplied.				

- ✓ The technical and commercial deviations should be indicated separately.
- ✓ If the bidder fails to enclose the compliance statement, his bid is likely to be rejected.

Place:
Date:

**Signature and seal of the
Manufacturer/Bidder**

PRE-INSTALLATION REQUIREMENT

Name of Firm.....

File No.....

Sl. No.	Name of Requirement	Supplier Response
1.	Nature of Flooring	
2.	Room Size / Space	
3.	Air-conditioning Yes / No	
4.	Water Yes / No	
5.	Industrial Gases with Purity	
6.	Power Single Phase / Three Phase 230V / 440 V, 50 Hz in kW	
7.	Stabilized Power Supply Yes / No If Yes rating	
8.	UPS online / offline, rating, backup	
9.	Drainage / Treatment of Waste	
10.	Protective Garments / Clothing	
11.	Fume Hood / Exhaust for Gases	
12.	Chemicals / Standards	
13.	Distilled Water / Chilled Water	
14.	Any furniture like lab table etc.	
15.	Any other	

SERVICE SUPPORT DETAIL FORM

Sl. No.	Nature of training imparted	List of similar type of service in the past 3 years	Address, Telephone Nos., Mobile Nos and e-mail address

Signature and Seal of the manufacturer/Bidder.....

Place :

Date:

Bid Form

[The Bidder shall fill in this Form in accordance with the instructions indicated No alterations to its format shall be permitted and no substitutions shall be accepted.]

Date: [insert date (as day, month and year) of Bid Submission]

Tender No.: [insert number from Invitation for Bids]

To:

Director, CSIR – SERC, Taramani, Chennai - 600113

We, the undersigned, declare that:

(a)	We have examined and have no reservations to the Bidding Documents, including Addenda No.: <i>[insert the number and issuing date of each Addenda]</i> ;
(b)	We offer to supply in conformity with the Bidding Documents and in accordance with the Delivery Schedules specified in the Schedule of Requirements the following Goods and Related Services [insert a brief description of the Goods and Related Services]
(c)	The total price of our Bid, excluding any discounts offered in item (d) below, is: [insert the total bid price in words and figures, indicating the various amounts and the respective currencies]
(d)	The discounts offered and the methodologies for their application are: Discounts. If our bid is accepted, the following discounts shall apply. [Specify in detail each discount offered and the specific item of the Schedule of Requirements to which it applies.]
(e)	Our Non-comprehensive AMC cost is Rs. _____ + GST amount for 1 st year. Our Non-comprehensive AMC cost is Rs. _____ + GST amount for 2 nd year. Our Non-comprehensive AMC cost is Rs. _____ + GST amount for 3 rd year. This amount includes for labour charges only and excludes spare parts.
(f)	Our bid shall be valid for the period of time specified in ITB Clause 1.17.1, from the date fixed for the bid submission due date in accordance with ITB Clause 1.19 and it shall remain binding upon us and may be accepted at any time before the expiration of that period
(g)	If our bid is accepted, we commit to obtain a performance security in accordance with ITB Clause 1.41 and GCC Clause 2.13 for the due performance of the Contract and also submit order acceptance within 14 days from the date of contract in accordance with ITB Clause 1.42 and GCC Clause 2.44;
(h)	The following commissions, gratuities, or fees have been paid or are to be paid with respect to the bidding process or execution of the Contract: [insert complete name of each Recipient, its full address, the reason for which each commission or gratuity was paid and the amount and currency of each such commission or gratuity]

Name of Recipient	Address	Reason	Amount
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____

(If none has been paid or is to be paid, indicate "none.")

(i)	We understand that this bid, together with your written acceptance thereof included in your notification of award, shall constitute a binding contract between us, until a formal contract is prepared and executed.
(j)	We understand that you are not bound to accept the lowest evaluated bid or any other bid that you may receive.

Signed: [insert signature of person whose name and capacity are shown]

In the capacity of [insert legal capacity of person signing the Bid Submission Form]

Name: [insert complete name of person signing the Bid Submission Form]

Duly authorized to sign the bid for and on behalf of: [insert complete name of Bidder]

Dated on _____ day of _____, _____ [insert date of signing]

PERFORMANCE SECURITY FORM

MODEL BANK GUARANTEE FORMAT FOR PERFORMANCE SECURITY

To,

.....

WHEREAS (name and address of the supplier) (hereinafter called "the supplier") has undertaken, in pursuance of contract No. dated to supply (description of goods and services) (herein after called "the contract").

AND WHEREAS it has been stipulated by you in the said contract that the supplier shall furnish you with a bank guarantee by a scheduled commercial bank recognized by you for the sum specified therein as security for compliance with its obligations in accordance with the contract;

AND WHEREAS we have agreed to give the supplier such a bank guarantee;

NOW THEREFORE we hereby affirm that we are guarantors and responsible to you, on behalf of the supplier, up to a total of (amount of the guarantee in words and figures), and we undertake to pay you, upon your first written demand declaring the supplier to be in default under the contract and without cavil or argument, any sum or sums within the limits of (amount of guarantee) as aforesaid, without your needing to prove or to show grounds or reasons for your demand or the sum specified therein.

We hereby waive the necessity of your demanding the said debt from the supplier before presenting us with the demand.

We further agree that no change or addition to or other modification of the terms of the contract to be performed there under or of any of the contract documents which may be made between you and the supplier shall in any way release us from any liability under this guarantee and we hereby waive notice of any such change, addition or modification.

This guarantee shall be valid until the day of, 20.....

(Signature of the authorized officer of the Bank)

.....

Name and designation of the officer

.....

Seal, Name & Address of the Issuing Branch of the Bank

Note: Whenever, the bidder chooses to submit the Performance Security in the form of Bank Guarantee, then he should advise the banker issuing the Bank Guarantee to immediately send by Speed Post . An unstamped duplicate copy of the Guarantee directly to the Purchaser with a covering letter to compare with the original BG for the correctness, genuineness, etc.

ACCEPTANCE CERTIFICATE FORM

No. _____

Dated: _____

M/s. _____

_____**Sub:** Certificate of commissioning of equipment / software

01. This is to certify that the equipment / software as detailed below has/have been received in good condition along with all the standard and special accessories / latest updates (subject to remarks in Para 2). The same has been installed and commissioned / activated.

(a) Contract No. _____ Date _____

(b) Description of the equipment _____

(c) Name of the consignee _____

(d) Scheduled date of delivery of the consignment to the Lab./Instts. _____

(e) Actual date of receipt of consignment by the Lab./Instts. _____

(f) Scheduled date for completion of installation/commissioning / activation _____

(g) Training Starting Date _____

(h) Training Completion Date _____

(i) Names of People Trained _____

(j) Actual date of completion of installation/commissioning / activation _____

(k) Penalty for late delivery (at Lab./Instts. level) Rs. _____

(l) Penalty for late installation (at Lab./Instts. level Rs. _____

Details of accessories/items not yet supplied and recoveries to be made on that account:

Sl. No.	Description	Amount to be recovered

02. The acceptance test has been done to our entire satisfaction. The supplier has fulfilled his contractual obligations satisfactorily

Or

The supplier has failed to fulfil his contractual obligations with regard to the following:

- (a)
- (b)
- (c)
- (d)

The amount of recovery on account of failure of the supplier to meet his contractual obligations is as indicated at Sr. No. 1.

For Supplier

For Purchaser

Signature

Signature.....

Name

Name.....

Designation.....

Designation.....

Name of the firm.....

Name of the Lab/Instt.....

Date

Date.....

Tender No.:

Certificate of Local Content

Tender No. _____

Date: _

I _____ S/o, D/o, W/o _____,
Resident of _____ do hereby solemnly affirm and declare as under:

That I will agree to abide by the terms and conditions of the policy of Government of India issued vide Notification – Public procurement (preference to Make in India) Order 2017 dt 16th September 2020 & 19th July 2024.

That the information furnished hereinafter is correct to be of my knowledge and belief and I undertake to produce relevant records before the procuring entity or any authority so nominated for the purpose of assessing the local content.

That the local content for all inputs which constitute the said R&D equipment as per the enclosed list has been verified by me and I am responsible for the correctness of the claims made therein.

That in the event of the domestic value addition of the product mentioned herein is found to be incorrect and not meeting the prescribed value-addition norms, based on the assessment of an authority so nominated for the purpose of assessing the local content, action will be taken against me as per Order No. P-45021/2/2017/-PP (BE-II) dated 16.09.2020.

I agree to maintain the following information in the Company's record for a period of 8 years and shall make this available for verification to any statutory authority: (Kindly fill up the below mentioned particulars)

- i. Name and details of the Domestic Manufacturer (Registered Office, Manufacturing Unit location, nature of legal entity)
- ii. Date on which this certificate is issued
- iii. R & D consumable for which the certificate is produced
- iv. Procuring entity to whom the certificate is furnished – CSIR – SERC
- v. Details of domestic value addition in terms of Minimum Local content
 - 1.
 - 2.
 - 3.
- vi. Details of Location where the Local Value additions are added/done
 - 1
 - 2
 - 3

vii. Name and contact details of the unit of the manufacturer

viii. Percentage of Local Content: %

Sale Price of the product, Ex-Factory Price of the product, Freight, insurance and handling, Total Bill of Material, List and total cost value of inputs used for manufacture of the R &D equipment, List and total cost of inputs which are domestically sourced, value addition certificates from suppliers, if the input is not in-house to be attached, List and cost of inputs which are imported, directly or indirectly which go into calculation of Local content and like records shall be produced in case of any verification. (Note: The “Class of Supplier (Class-I / Class-II)”, Local Content %, Details of Domestic value addition in terms of Minimum Local Content and Details of Location where the Local value additions are added / done etc., should be provided by the bidder).

Note:

2. The bidder offering imported products will fall under the category of Non-Local Suppliers and they can't claim themselves as Class-I Local Supplier /Class –II Local Supplier by Claiming Profit, Warehousing, Marketing, Logistics, Freight etc. as Local value addition.
3. False declaration will be in breach of the Code of integrity under Rule 175(1)(1)(h) of the General Financial Rules for which a bidder or its successors can be debarred for up to Two years as per Rule 151(iii) of the General Financial Rules along with such other actions as may be permissible under law.
4. A bidder/supplier who has been debarred by any Procuring Entity for violation of this shall not be eligible for preference for procurement by any other Procuring Entity for the duration of the debarment as per the DPIIT Order dt. 16th September 2020.

(Name & Signature of Authorized Signatory)
To be duly authorized by the Board of Director

(The Class-I Local Supplier & Class-II Local Suppliers are required to provide the “Local Content Certificate” from a Statutory Auditor (or) Cost Auditor of the company (in case of company) or from a practicing Cost Accountant (or) practicing Chartered Accountant in respect of suppliers other than companies)

Format of Integrity Pact**INTEGRITY PACT**

Between

Council of Scientific & Industrial Research (CSIR) a Society registered under the Indian Societies Act 1860 represented by _____ hereinafter referred to as "The Principal".

And herein referred to as "The Bidder/ Contractor."

Preamble

The Principal intends to award, under laid down organizational procedures, contract/s for The Principal values full compliance with all relevant laws of the land, rules, regulations, economic use of resources and of fairness/ transparency in its relations with its Bidder(s) and/or Contractor(s).

In order to achieve these goals, the Principal will appoint an Independent External Monitor (IEM), who will monitor the tender process and the execution of the contract for compliance with the principles mentioned above.

Section 1 – Commitments of the Principal

- (1) The Principal commits itself to take all measures necessary to prevent corruption and to observe the following principles:
 - (a) No employee of the Principal, personally or through family members, will in connection with the tender for, or the execution of a contract, demand, take a promise for or accept, for self or third person, any material or immaterial benefit which the person is not legally entitled to.
 - (b) The Principal will, during the tender process treat all Bidder(s) with equity and reason. The Principal will in particular, before and during the tender process, provide to all Bidder(s) the same information and _____ will not provide to any Bidder(s) confidential/additional information through which the Bidder(s) could obtain an advantage in relation to the tender process or the contract execution.
 - (c) The Principal will exclude from the process all known prejudiced persons.
- (2) If the Principal obtains information on the conduct of any of its employees which is a criminal offence under the IPC/PC Act, or if there be a substantive suspicion in this regard, the Principal will inform the Chief Vigilance Officer and in addition can initiate disciplinary action.

Section 2 – Commitments of the Bidder(s)/Contractor(s)

- (1) The Bidder(s)/Contractor(s) commit himself to take all measures necessary to prevent corruption. He commits himself to observe the following principles during his participation in the tender process and during the contract execution.
 - (a) The Bidder(s)/Contractor(s) will not, directly or through any other Person or firm, offer, promise or give to any of the Principal's employees involved in the tender process or the execution of the contract or to any third person any material or other benefit which he/she is not legally entitled to, in order to obtain in exchange any advantage of any kind whatsoever during the tender process or during the execution of the contract.
 - (b) The Bidder(s)/Contractor(s) will not enter with other Bidders into any undisclosed agreement or understanding, whether formal or informal. This applies in particular to prices, specifications, Certifications, subsidiary contracts, submission or non-submission of bids or any other actions to restrict competitiveness or to introduce cartelization in the bidding process.

हस्ताक्षर

भंडार एवं क्रय नियंत्रक
Controller of Stores & Purchase
 सीएसआईआर-संरचनात्मक अभियंत्रिकी अनुसंधान केन्द्र
CSIR - Structural Engineering Research Centre
 सी.एस.आई.आर. रोड, तारमणि, चेन्नै-600 113.
CSIR Road, Taramani, Chennai - 600 113.

महोदय का पद
Controller of Stores & Purchase
 सीएसआईआर-संरचनात्मक अभियंत्रिकी अनुसंधान केन्द्र
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CSIR Road, Taramani, Chennai - 600 113.

- (c) The Bidder(s)/Contractor(s) will not commit any offence under the relevant IPC/PC Act; further the Bidder(s)/Contractor(s) will not use improperly, for purposes of competition or personal gain, or pass on to others, any information or document provided by the Principal as part of the business relationship, regarding plans, technical proposals and business details, including information contained or transmitted electronically.
- (d) The Bidder(s)/Contractor(s) of foreign origin shall disclose the name and address of the Agents/representatives in India, if any. Similarly the Bidder(s)/Contractor(s) of Indian Nationality shall furnish the name and address of the foreign principals, if any. Further details as mentioned in the "Guidelines on Indian Agents of Foreign Suppliers" shall be disclosed by the Bidder(s)/Contractor(s). Further, as mentioned in the Guidelines all the payments made to the Indian agent/representative have to be in Indian Rupees only. Copy of the "Guidelines on Indian Agents of Foreign Suppliers" is annexed and marked as Annexure.
- (e) The Bidder(s)/Contractor(s) will, when presenting his bid, disclose any and all payments he has made, is committed to or intends to make to agents, brokers or any other intermediaries in connection with the award of the contract.
- (2) The Bidder(s)/Contractor(s) will not instigate third persons to commit offences outlined above or be an accessory to such offences.

Section 3 – Disqualification from tender process and exclusion from future Contracts

- (1) If the Bidder(s)/Contractor(s), before award or during execution has committed a transgression through a violation of Section 2, above or in any other form such as to put his reliability or credibility in question, the Principal is entitled to disqualify the Bidder(s)/Contractor(s) from the tender process or take action as per the procedure mentioned in the "Guidelines on Banning of business dealings". Copy of the "Guidelines on Banning of business dealings" is annexed and marked as Annex - "B".

Section 4 – Compensation for Damages

- (1) If the Principal has disqualified the Bidder(s) from the tender process prior to the award according to Section 3, the Principal is entitled to demand and recover the damages equivalent to Earnest Money Deposit/ Bid Security.
- (2) If the Principal has terminated the contract according to Section 3, or if the Principal is entitled to terminate the contract according to Section 3, the Principal shall be entitled to demand and recover from the Contractor liquidated damages of the contract value or the amount equivalent to Performance Bank Guarantee.

Section 5 – Previous transgression

- (1) The Bidder declares that no previous transgressions occurred in the last 3 Years with any other Company in any country conforming to the anti-corruption approach or with any other Public Sector Enterprise in India that could justify his exclusion from the tender process.
- (2) If the Bidder makes incorrect statement on this subject, he can be disqualified from the tender process or action can be taken as per the procedure mentioned in "Guidelines on Banning of business dealings."

Section 6 – Equal treatment of all Bidders / Contractors/ Sub-contractors

- (1) The Bidder(s)/Contractor(s) undertake(s) to demand from all Subcontractors a commitment in conformity with this Integrity Pact, and to submit it to the Principal before contract signing.
- (2) The Principal will enter into agreements with identical conditions as this one with all Bidders, Contractors and Subcontractors.
- (3) The Principal will disqualify from the tender process all bidders who do not sign this Pact or violate its provisions.

निदेशक

भंडार एवं क्रय नियंत्रक
Controller of Stores & Purchase
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Section 7 – Criminal charges against violating Bidders / Contractors/ Subcontractors

- (1) If the Principal obtains knowledge of conduct of a bidder, Contractor or Subcontractor or of an employee or a representative or an associate of a bidder, Contractor or Subcontractor which constitutes corruption, or if the Principal has substantive suspicion in this regard, the Principal will inform the same to the Chief Vigilance Officer.

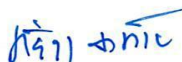
Section 8 - Independent External Monitors

- (1) The Principal appoints competent and credible Independent External Monitor for this Pact. The task of the Monitor is to review independently and objectively, whether and to what extent the parties comply with the obligations under this agreement.
- (2) The Monitor is not subject to instructions by the representatives of the parties and performs his functions neutrally and independently. He reports to the JS (A), CSIR.
- (3) The Bidder(s)/Contractor(s) accepts that the Monitor has the right to access without restriction to all Project documentation of the Principal including that provided by the Contractor. The Contractor will also grant the Monitor, upon his request and demonstration of a valid interest, unrestricted and unconditional access to his project documentation. The same is applicable to Subcontractors. The Monitor is under contractual obligation to treat the information and documents of the Bidder(s)/ Contractor(s) / Subcontractor(s) with confidentiality.
- (4) The Principal will provide to the Monitor sufficient information about all meetings among the parties related to the Project provided such meetings could have an impact on the contractual relations between the Principal and the Contractor. The parties offer to the Monitor the option to participate in such meetings.
- (5) As soon as the Monitor notice, or believes to notice, a violation of this agreement, he will so inform the Management of the Principal and request the Management to discontinue or take corrective action, or to take other relevant action. The monitor can in this regard submit non-binding recommendations. Beyond this, the Monitor has no right to demand from the parties that they act in a specific manner, refrain from action or tolerate action.
- (6) The Monitor will submit a written report to the JS(A), CSIR within 8 to 10 weeks from the date of reference or intimation to him by the Principal and should the occasion arise, submit proposals for correcting problematic situations.
- (7) Monitor shall be entitled to compensation on the same terms as being extended to/provided to Independent Directors on the CSIR.
- (8) If the Monitor has reported to the JS(A), CSIR, a substantiated suspicion of an offence under relevant IPC/PC Act, and the JS(A), CSIR has not, within the reasonable time taken visible action to proceed against such offence or reported it to the Chief Vigilance Officer, the Monitor may also transmit this information directly to the Central Vigilance Commissioner.
- (9) The word 'Monitor' would include both singular and plural.

Section 9 – Pact Duration

This Pact begins when both parties have legally signed it. It expires for the Contractor 10 months after the last payment under the contract, and for all other Bidders 6 months after the contract has been awarded.

If any claim is made/lodged during this time, the same shall be binding and continue to be valid despite the lapse of this pact as specified above, unless it is discharged/determined by JS(A), CSIR.



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Section 10 – Other provisions

- (1) This agreement is subject to Indian Law. Place of performance and Jurisdiction is the Registered Office of the Principal, i.e. New Delhi
- (2) Changes and supplements as well as termination notices need to be made in writing. Side agreements have not been made.
- (3) If the Contractor is a partnership or a consortium, this agreement must be signed by all partners or consortium members.
- (4) Should one or several provisions of this agreement turn out to be invalid, the remainder of this agreement remains valid. In this case, the parties will strive to come to an agreement to their original intentions.

(For & On behalf of the Principal)
(Office Seal)

(For & On behalf of Bidder/Contractor)
(Office Seal)

Place.....

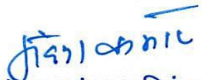
Place.....

Date.....

Date.....

Witness 1: (Name & Address): _____

Witness 2: (Name & Address): _____


भंडार एवं क्रय नियंत्रक
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Certificate with regard to the bidder not having a land border with India

(Ref.- Govt. of India, Ministry of Finance, Dept. of Expenditure Order No. F.No.6/18/2019-PPD dated 23.07.2020 {Public Procurement No.1} and subsequent orders on the subject)

Tender No: _____

Date _____

To,

The Director,
CSIR-SERC
CSIR Road, Taramani
Chennai - 600113

Sir,

I hereby certify that, Bidder M/s. _____ or OEM M/s. _____ do not share any land border as per Govt. of India, Ministry of Finance, Dept. of Expenditure Order No. F.No.6/18/2019-PPD dated 23.07.2020 {Public Procurement No.1} and subsequent orders on the subject.

"I have read the clause regarding restrictions on procurement from a bidder of a country which shares a land border with India; I certify that bidder _____ M/s. _____ or OEM M/s. _____ is not from such a country.

For and on behalf of

(Name of firm/entity)

Authorized signatory (To be duly authorized by the Board of Director)

Certificate with regard to the bidder having a land border with India

(Ref.- Govt. of India, Ministry of Finance, Dept. of Expenditure Order No. F.No.6/18/2019-PPD dated 23.07.2020 {Public Procurement No.1} and subsequent orders on the subject)

Tender No: _____

Date _____

To,

The Director,
CSIR-SERC
CSIR Road, Taramani
Chennai - 600113

Sir,

I hereby certify that, Bidder M/s. _____ or OEM M/s. _____ share a land border as per Govt. of India, Ministry of Finance, Dept. of Expenditure Order No. F.No.6/18/2019-PPD dated 23.07.2020 {Public Procurement No.1} and subsequent orders on the subject.

I / We, have registration with the competent authority [Evidence of valid registration by the Competent Authority should be attached.]. Accordingly, I / we fulfills all requirements in this regard and is eligible to be considered.

For and on behalf of

(Name of firm/entity)

Authorized signatory (To be duly authorized by the Board of Director)

Undertaking for Technical Demonstration

Tender No: _____

Date _____

To,
The Director,
CSIR-SERC
CSIR Road, Taramani
Chennai - 600113

Sir,

I hereby certify that and agree that I will show a demonstration of one channel closed loop force / load control (of the product quoted) after submission of bid for technical evaluation.

I agree to bring our PLC, Servo drive, Servo motor, Servo valve driver required for the demo.

The demo will be carried out using the planetary gear based electrical winch, hydraulic actuator, load cell and sheave pulley provided by CSIR-SERC.

Technical Evaluation Test to be carried out:

One channel closed-loop feedback load/force control using the winches and hydraulic actuators available at TTRS, CSIR-SERC, with the sheave pulley mechanism.

- a. A closed loop demo upto 50 kN load in required rate of loading and steps. Time for achieving the set load variable from 1 minute to 5 minutes.
- b. Holding the set load for required time **within $\pm 0.5\%$ set load value** (Hold time from 2 minutes to 10 minutes).
- c. Demonstrating the closed loop using sheave pulley mechanism upto 400kN.
- d. Demonstrating the stability of the set load for varying external load conditions of the test structure ($P\Delta$ effect).

In case of failure to show the demo of my product, my bid can be rejected.

**For and on behalf of
(Name of firm/entity)**

Authorized signatory (To be duly authorized by the Board of Director)

ANNEXURE - XVIII

ISO 9001 Organization
सी.एस.आई.आर.-संरचनात्मक अभियांत्रिकी अनुसंधान केन्द्र
CSIR-STRUCTURAL ENGINEERING RESEARCH CENTRE
(वैज्ञानिक तथा औद्योगिक अनुसंधान परिषद Council of Scientific and Industrial Research)
सी.एस.आई.आर.परिसर CSIR CAMPUS, तारमणि TARAMANI, चेन्नै CHENNAI - 600 113. भारत INDIA
दूरभाष Tel: 044-22549108/09, 22541238 फैक्स Fax: 044-22542211 ई-मेल E-mail: puroff@serc.res.in

Electronic Fund Transfer Account Details CSIR-SERC, Chennai

01.	Name of the Account Holder	Director CSIR SERC
02.	Address	CSIR Road, CSIR Campus, Taramani, Chennai – 600 113
03.	E-Mail address	finoff@serc.res.in
04.	Phone Number/Mobile Number	044-22549105/06/07
05.	(1) Permanent Account Number (PAN)	AAATC2716R
	(2) GSTIN	33AAATC2716R3ZK
06.	Particulars of Bank Account	
	(i) Name of the Bank	State Bank of India
	(ii) Name of the Branch	Taramani Branch
	(iii) Branch Code	010673
	(iv) Address	State Bank of India, CSIR Campus, Taramani Branch, Chennai 600 113.
	(v) S B I Telephone Number	044 - 2254 4519 / 2254 1848
	(vi) Account Number	30225927924
	(vii) Type of Account	Saving Bank Account
	(viii) IFSC Code (RTGS/NEFT)	SBIN0010673
	(ix) MICR Code	600002130

ANNEXURE- XIX

Terms & Conditions		
Sl. No.	Description	Values
1.	Approximate weight of the Consignment	
2.	Approximate dimensions of the consignment	
3.	Order to be placed [Full Name, Full address, Tel #, Fax #, Email Id, Contact Person]	
4.	HSN No./ SAC no.	
5.	Country of Origin	
6.	Delivery Term [FOR]	CSIR – Structural Engineering Research Centre, CSIR Campus, Taramani, Chennai – 600 113 (Tamil Nadu) INDIA
7.	Delivery of the Item as per Chapter-4 /BoQ [In weeks / Days / Months] from the date of PO [Mention the appropriate term]	
8.	Installation & Commissioning from the date of delivery of item	
9.	Training from the date of Installation & Commissioning of item	
10.	Statutory Levies [GST/IGST or any other taxes, duties] % of tax to be mentioned	
11.	Bidder GST No.	
12.	Warranty :	
13.	Other Terms & Conditions if any	
14.	Payment Terms:	
15.	Bid validity period:	

TENDER ACCEPTANCE LETTER
(To be given on Company Letter Head)

Date:

To,
The Director,
CSIR-SERC, Chennai – 600113

Sub: Acceptance of Terms & Conditions of Tender

Tender Reference No: _____
Name of Tender/Work: _____

Dear Sir,

1. I / We have downloaded / obtained the tender document(s) for the above mentioned 'Tender/Work' from the web site(s) namely:

_____ as per your advertisement, given in the above mentioned website(s).
2. I / We hereby certify that I / we have read the entire terms and conditions of the tender documents from Page No. _____ to _____ (including all documents like annexure(s), schedule(s) etc.) which form part of the contract agreement and I / we shall abide hereby by the terms / conditions / clauses contained therein.
3. The corrigendum(s) issued from time to time by your department/ organization too has also been taken into consideration, while submitting this acceptance letter.
4. I / We hereby unconditionally accept the tender conditions of above-mentioned tender document(s) / corrigendum(s) in its totality / entirety.
5. I / We do hereby declare that our Firm has not been blacklisted/ debarred/banned/suspended by any CSIR Labs or its constituent units/Govt. Department/Public sector undertaking.
6. I / We do hereby declare that our Firm has is not a consortium.
7. I / We do hereby declare that the quoted prices are the minimum and we have not quoted the same item on lesser rates than those being offered to CSIR-SERC to any other customer nor they will do so till the validity of offer or execution of the purchase order, whichever is later.
8. I / We do hereby declare that as per the Order No. P45021/2/2017-PP(BE-II) dated: 16thSep 2020 issued by DPIIT, Ministry of Commerce and Industries, Govt. of India and subsequent amendments issued thereon from time to time. We are _____ (Class-I or Class – II) and the Local Content _____(%).
9. Goods and/or services quoted by us are manufactured within India (or) we fulfill the conditions for eligibility criteria as applicable for Land Border Share and has provided certificate as per appropriate Annexure [Strike out which is not applicable] as per Order No. F.No.6/18/2019-PPD dated 23.07.2020 [Public Procurement No.1] and subsequent orders on the subject issued by Department of Expenditure, Ministry of India, Govt. of India.
10. I / We do hereby declare that we will submit the necessary Performance Security Form in the event of award of Contract/PO to our firm.
11. I / We certify that all information furnished by our firm is true & correct and, in the event, that the information is found to be incorrect/untrue or found violated, then your department/ organization shall without giving any notice or reason therefore or summarily reject the bid or terminate the contract, without prejudice to any other rights or remedy including the forfeiture of the full said earnest money deposit absolutely.

Yours faithfully,
(Signature of the Bidder, with Official Seal)

Confidentiality and Non-Disclosure Agreement

This Confidentiality and Non-Disclosure Agreement (“Agreement”) is made and entered into on this ____ day of (“Effective Date”) by and between....., a company incorporated under the provisions of the Companies Act, 1956, having its Business Office at, (“XYZ”), and **Council of Scientific and Industrial Research**, a society registered under the societies Registration Act XXI of 1860, having its Registered Office at Anusandhan Bhavan, 2 Rafi Marg, New Delhi 110001, represented by its **CSIR-STRUCTURAL ENGINEERING RESEARCH CENTRE**, located at CSIR Campus, CSIR Road, Taramani, Chennai 600 113, India (“**CSIR-SERC**”). Hereinafter either of the **Parties** is individually referred to as a "**Party**" and collectively as the "**Parties**" in this **Agreement**.

1. Disclosure of Confidential Information

For the purpose of this agreement, “**CSIR-SERC**” is “**Disclosing Party**” and “**XYZ**” is “**Receiving party**” Under this agreement, CSIR-SERC may disclose confidential information to the **Receiving Party** either orally or in any recorded medium, during discussions and pre-bid meetings for providing information comprising or relating to : techniques, schematics, designs, contracts, financial information, sales and marketing plans, business plans, clients, client data, business affairs, operations, strategies, inventions, methodologies, technologies, employees, subcontractors, pricing, service proposals, methods of operations, procedures, products and/or services ("Confidential Information") related to **Supply, Installation, Integration, Commissioning, Testing, Training and Documentation for State-of-the- Art Real Time Hybrid Digital Control system with electrical winches for existing tower testing facility (RTDCT) at CSIR-SERC**. Based on the disclosure, **Receiving Party will submit the tender for the RFQ generated from CSIR-SERC (“Purpose”)**. Confidential Information shall include all nonpublic information furnished, disclosed or transmitted regardless of form.

2. Confidentiality

It is agreed that:

Receiving Party will use the Confidential Information solely for above stated purpose of this agreement. Receiving Party shall not copy, reproduce or use the Confidential Information in any way that is directly or indirectly detrimental to Disclosing Party or its subsidiaries or affiliates, and shall not disclose the Confidential Information to any unauthorized third party without written authorization by the Disclosing Party. Receiving Party shall ensure that access to Confidential Information is granted only to those of its employees or agents (“**Representatives**”) who have a demonstrated need to know such information in order to carry out the business purpose of this Agreement. Prior to disclosing any Confidential Information to such **Representatives**, Receiving Party shall inform them of the confidential nature of the information and their obligation to refrain from disclosure of the Confidential Information. Receiving Party and its **Representatives** will take all reasonable measures to maintain the confidentiality of the Confidential Information, but in no event less than the measures it uses for its own information of similar type. Receiving Party and its **Representatives** shall not disclose to any person including, without limitation, any corporation, sovereign, partnership, limited liability company, entity or individual (i) the fact that any investigations, discussions or negotiations are taking place concerning the actual or potential business relationship between the parties, (ii) that it has requested or received Confidential Information, or (iii) any of the terms, conditions or any other fact about the actual or potential business relationship. Receiving Party and its **Representatives** will immediately notify Disclosing Party of any use or disclosure of the Confidential

Information that is not authorized by this Agreement. Receiving Party and its Representatives will use its best efforts to assist Disclosing Party in remedying any such unauthorized use or disclosure of the Confidential Information.

The parties have appointed the following individuals to coordinate the disclosure and receipt of Confidential Information under this Agreement:

<u>For</u> Name: Title: Address: Telephone: E-mail: Fax:	<u>For CSIR-SERC</u> Name: Head, TTRS Division: Tower Testing & Research Station (TTRS) Address: Tower Testing & Research Station (TTRS) CSIR - SERC Opposite to Chennai International Airport, Trisulam, Chennai – 600 043. Telephone: 044-2254 5577 Fax: E-mail: anoop.serc@csir.res.in
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Either Party may change above designated technical point of contact by informing other Party.

Any Notices will be in writing and sent to each party at its address below which may be changed upon written notice. Notices will be effective upon receipt.

<u>For</u> Name: Title: Address: Telephone: Fax: E-mail:	<u>For CSIR-SERC</u> Name: Director, CSIR-SERC Address: CSIR Campus, CSIR Road, Taramani, Chennai – 600 113. Telephone: 044 – 2254 4801 Fax: 044 2254 1508 E-mail: director.serc@csir.res.in
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The obligations contained in this Section 2 will not apply to the extent that Receiving Party can demonstrate that the Confidential Information: (a) was part of the public domain at the time of disclosure or properly became part of the public domain, by publication or otherwise; (b) was rightfully acquired by Receiving Party from third Party prior to disclosure by Disclosing Party; (c) was independently developed by Receiving Party or its Representatives without reference to the Confidential Information; or (d) is in the possession of Receiving Party at the time of disclosure that may be demonstrated by business records of Receiving Party (e) is required to be disclosed by a government agency or by a proper court of competent jurisdiction; provided, however, that

Receiving Party and its Representatives shall provide Disclosing Party prompt prior written notice of such requirement, shall consult with and assist Disclosing Party in obtaining a protective order prior to such disclosure, and shall only disclose the portion of Confidential Information which it has been advised by written opinion of counsel is legally required to be disclosed and shall use its best efforts to obtain assurance that confidential treatment will be accorded such information if the protective order is not obtained or if Disclosing Party waives disclosure of such information.

3. Ownership of Confidential Information

Disclosing Party retains all rights, title and interest to its Confidential Information. No license under any trademark, patent or copyright, or application for same which are now or hereafter may be obtained by Disclosing Party is either granted or implied by the disclosure of Confidential Information to Receiving Party. Confidential Information is provided "as is" basis. In no event shall Disclosing Party be liable for the accuracy or completeness of the Confidential Information.

4. Term

Unless renewed for a further period, this Agreement shall terminate **Five (05) years** from the Effective Date. For the term of this Agreement and **Ten (10) years** thereafter, the receiving party shall neither disclose the Disclosing Party's confidential information to any other third party.

5. Return of Confidential Information

During the term of this agreement, upon written request of Disclosing Party, Receiving Party and its Representatives shall promptly return to Disclosing Party all copies of Confidential Information in its possession including, without limitation, all copies of any analyses, compilations, studies or other documents prepared by Receiving Party or its Representatives containing or reflecting any Confidential Information. Receiving party shall certify in writing that it and its Representatives have returned all such information to Disclosing Party.

6. General

- a) This Agreement and all questions relating to its validity, interpretation, performance and enforcement (including, without limitation, provisions concerning limitations of actions), shall be governed by and construed in accordance with the laws of India and is subject to the exclusive jurisdiction of the Courts of Bangalore, India and may be modified only in writing and signed as accepted by both the Parties.
- b) Receiving Party agrees that the breach of the provisions of this Agreement by it, will cause Disclosing Party irreparable damage for which recovery of money damages would be inadequate. Disclosing Party will, therefore, be entitled to obtain timely injunctive relief to protect its rights under this Agreement in addition to any and all remedies available at law or in equity. Any Dispute or claim arising out of or relating to this Agreement shall be first tried to solve through mutual discussions by authorized representatives of both the Parties. If no conclusion is arrived at through such mutual discussions within a period of 30 days, then the dispute should be settled by arbitration in accordance with Delhi International Arbitration Center (DIAC), Delhi High Court, New Delhi. Decision of arbitral tribunal shall be final and binding on the Parties. Parties shall equally bear the cost of arbitration and its proceedings unless the award provides otherwise. The Parties shall continue to perform their respective obligations under this Agreement during the pendency of the arbitration proceedings except insofar as such obligations are the subject matter of the said arbitration proceedings.

- c) Neither party may assign any of its rights or obligations under this Agreement without the prior written consent of the other party. This Agreement shall be binding upon and inure to the benefit of the parties permitted successors and assigns.
- d) This Agreement may be amended or supplemented only by a writing that is signed by duly authorized representatives of both parties.
- e) No term or provision hereof will be considered waived by either party, and no breach excused by it, unless such waiver or consent is in writing signed an authorized representative of the non-breaching party. No consent to, or waiver of, a breach by a party, whether express or implied, will constitute a consent to, waiver of, or excuse of any other, different, or subsequent breach.
- f) Either party may terminate this Agreement upon service of 60 days' prior written notice to the said effect on the other party with return of confidential information as stated in Clause 5.
- g) If any part of this Agreement is found invalid or unenforceable, that part will be amended to achieve as nearly as possible the same economic and legal effect as the original provision and the remainder of this Agreement will remain in full force.
- h) This Agreement constitutes the entire agreement between the parties relating to this subject matter and supersedes all prior or simultaneous representations, discussions, negotiations, and agreements, whether written or oral.

In witness whereof, the parties hereto have Accepted and agreed this agreement as of the date first above written by the following authorized Party representatives:

FOR AND ON BEHALF OF	FOR AND ON BEHALF OF CSIR-SERC
Signature: Name: Designation & Seal:	Signature: Name: Designation & Seal: Head, TTRS
Witnesses (Name & Signature): 1. 2.	Witnesses (Name & Signature): 1. 2.

Annexure – XXII

(On the Letter Head of the Bidder)

We, M/s. _____ authorized
representative of M/s. _____ are not black
listed/debarred bidder with any of the Government/ Autonomous Institutions in the last
one (1) year.

(Signature of the Bidder, with Official Seal)

BANK DETAILS OF BIDDER / SUPPLIER

1	खाताधारककानाम/ Name of account holder	
2	पता /Address	
3	ईमेलपता / e-mail address	
4	दूरभाषसंख्या/मोबाईलनंबर /Phone No./Mobile No.	
5	फेक्ससंख्या / Fax No.	
6	स्थायीखातानंबर /PAN No	
7	बैंकखाताकाविवरण /Particulars of Bank Account	
	(क) बैंककानाम / A. Name of the Bank	
	(ख). शाखाकानाम / B. Name of the Branch	
	(ग). शाखाकोडनंबर / C. Branch Code	
	(घ). पता /D. Address:	
	(च). दूरभाषसंख्या / E. Telephone No.	
	(छ). खातासंख्या /F. Account No.	
	(ज). प्रकार /G. Type of Account	
	(झ). आईएफएससीकोड (आर.टी.जी.एस/एन.ई.एफ.टी) H. IFSC Code (RTGS / NEFT)	
	IBAN No. & Swift Code (if any)	
	(ट). एम.आई.सी.आर. कोड /I. MICR code	

We/ I hereby declare that the particulars given above are correct and complete. If the transaction is delayed or lost because of incomplete or incorrect information, I/ we would not hold SERC responsible.

Signature of the Account holder

बैंकप्रमाणपत्र

यहसत्यापितकियाजाताहैकिमेसर्स _____ काखातासंख्या _____
हमारेबैंक/शाखामैंहैंऔरऊपरदिआएविवरणहमारेअभिलेखन/रिकार्डकेअनुसारसत्यहै.

दिनांक: / /

स्थान:

प्राधिकृतअधिकारीकाहस्ताक्षरएवम्बैंककामुहर

Bank Certificate

It is certified that M/S _____ has an Account No _____ with
our Bank and it is confirmed that the details given above are correct as per our record.

Date: / /

Place:

Signature of the Authorized Official
of Bank with seal