

भारत सरकार/**GOVERNMENT OF INDIA**  
अंतरिक्ष विभाग/**DEPARTMENT OF SPACE**  
विक्रम साराभाई अंतरिक्ष केंद्र/**VIKRAM SARABHAI SPACE CENTRE**  
तिरुवनंतपुरम/**THIRUVANANTHAPURAM - 695 022**

**विज्ञा. सं. वीएसएससी/पी/विज्ञा./309/2021 दि. 29.06.2021**  
**ADVT. NO. VSSC/P/ADVT/309/2021 DT. 29.06.2021**

भारत के राष्ट्रपति के लिए तथा उनकी ओर से वरिष्ठ प्रधान, क्रय एवं भंडार, विक्रम साराभाई अंतरिक्ष केंद्र (वीएसएससी), तिरुवनंतपुरम, निम्नलिखित के लिए मोहरबंद निविदाएं (क्रम सं. 1 के लिए), ई-प्रापण के ज़रिए निविदाएं (क्रम सं. 2 से 10 तक) तथा (क्रम सं. 11 के लिए) अभिरुचि की अभिव्यक्ति आमंत्रित करता है।

For & on behalf of the President of India, the Sr. Head Purchase & Stores, Vikram Sarabhai Space Centre (VSSC), Thiruvananthapuram invites Sealed Tenders (for Sl. No. 1), Tenders through e-procurement (for Sl. No. 2 to 10) & Expression of Interest (Sl. No. 11) for the following :-

क्रम सं. Sl. No	निविदा सं. Tender No.	वर्णन / Description	मात्रा Qty.	निविदा शुल्क Tender Fee
01.	3046-2020-3410-01 [दो भाग / <b>TWO PART</b> ]	वीएसएससी के विविध क्षेत्रों में संस्थापित 275 क्रेनों के अनुरक्षण एवं परीक्षण के लिए एएमसी AMC for maintenance and testing of 275 Nos. of Cranes installed at various areas of VSSC	2 वर्ष/years	रु. 560/-
नोट:- विनिर्देशन तथा विस्तृत निबंधन एवं शर्तें निविदा दस्तावेज़ के अनुसार Note :- Specification and detailed terms & conditions as per Tender document				
02.	VSSC/ PURCHASE UNIT II (AVN)/VS202100023501 [दो भाग / <b>TWO PART</b> ]	आरएफआइडी प्रौद्योगिकी का उपयोग करते हुए आबंध भंडार में सामान का स्वचालन Automation of inventory in bonded stores using RFID technology	1 लॉट/Lot	लागू नहीं / NA
03.	VSSC/ PURCHASE UNIT II (AVN)/VS202100078301 [एकल भाग / <b>SINGLE PART</b> ]	पीसीबी रूपरेखाओं का फोटो-प्लॉटिंग Photoplotting of PCB layouts	50,00,000 वर्ग से.मी / Sq. Cm	
04.	VSSC/ PURCHASE UNIT III (SPRE)/VS202100079201 [दो भाग / <b>TWO PART</b> ]	एकल गर्डर 2 टन अंडरस्लंग ईओटी ज्वालासह क्रेन Single girder 2T underslung EOT proof crane	1 सं./No.	
05.	VSSC/ PURCHASE UNIT III (SPRE)/VS202100092601 [दो भाग / <b>TWO PART</b> ]	निराद्रीकारक सुविधा की आपूर्ति, संस्थापन और कमीशनिंग Supply, Installation and Commissioning of Dehumidifier facility	1 सं./No.	

06.	VSSC/ PURCHASE UNIT III (SPRE)/VS202100109001 <b>[दो भाग / TWO PART]</b>	उपसाधनों सहित विद्युत-रासायनिक वर्क-स्टेशन Electrochemical workstation with accessories	1 सं./No.	
07.	VSSC/PURCHASE UNIT III (SPRE)/VS202100104501 <b>[दो भाग / TWO PART]</b>	हेवी ड्यूटी भंडारण रैकों की अभिकल्पना, संविरचन, आपूर्ति, समुच्चयन तथा कमीशनिंग Design, fabrication, Supply, Assembly and Commissioning of Heavy duty storage racks	39 सं./No.	
08.	VSSC/ PURCHASE UNIT V (MME PURCHASE)/ VS202100199201 <b>[दो भाग / TWO PART]</b>	प्रेस रूट के माध्यम से टाइटेनियम मिश्रधातु फोर्जनों का विकास Development of Titanium alloy forgings through press route	1 लॉट/Lot	लागू नहीं / NA
09.	VSSC/PURCHASE UNIT VI (CMSE Purchase)/ VS202100131201 <b>[दो भाग / TWO PART]</b>	एसएसएलवी क्रोड ऊष्मीय बूट व एल40 ऊष्मीय बूट का प्रक्रमण तथा आपूर्ति Processing & Supply of SSLV core thermal boot & L40 Thermal boot	25 सं./No.	
10.	VSSC/PURCHASE UNIT VI (CMSE Purchase)/ VS202100148401 <b>[एकल भाग / SINGLE PART]</b>	आइडीआरएसएस के लिए प्रस्तरणीय परावर्तकों के परिवहन कंटाइनर Transportation Container for Deployable Reflectors for IDRSS	2 सं./No.	

**अभिरुचि की अभिव्यक्ति (ईओआइ) / EXPRESSION OF INTEREST (EOI)**

11.	6089-2020-3864-01	वांतरिक्ष गुणता के संचकनों की आपूर्ति के लिए अभिरुचि की अभिव्यक्ति Expression of Interest for Supply of Aerospace Quality Castings		
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इच्छुक प्रत्याशी विक्रेता, हमारी संदर्भ संख्या का उद्धरण देते हुए, दिनांक 30.07.2021 को या उससे पहले [16:00 बजे] अपनी अभिरुचि की अभिव्यक्ति ईओआइ में उल्लिखित पते पर प्रस्तुत कर सकते हैं। / Interested prospective Vendors can furnish their Expression of Interest quoting our reference No. on or before 30.07.2021 [16:00 Hrs.] to the address mentioned in the EOI.

निविदा प्रारूप जारी करने की अंतिम तिथि <b>Last Date for issue of Tender Forms</b> (क्रम सं. / Sl. No. 1)	<b>28/07/2021 up to 16:00 Hrs.</b>
निविदा प्राप्त करने की अंतिम तिथि / <b>Due Date for Receipt of Tender</b> (क्रम सं. / Sl. No. 1)	<b>29/07/2021 up to 16:00 Hrs.</b>
निविदा खोलने की तिथि / <b>Tender Opening Date</b> (क्रम सं. / Sl. No. 1)	<b>30/07/2021 at 10:00 Hrs.</b>

Sl. No.	बोली प्रस्तुत करने की समय-सीमा Time limit for submission of Bid	बोली खोलने की तिथि Bid Opening date
02.	Upto 10.08.2021 [11:00 Hrs.]	12.08.2021 [11:00 Hrs.]
03.	Upto 19.08.2021 [14:00 Hrs.]	19.08.2021 [14:00 Hrs.]
04.	Upto 29.07.2021 [14:01 Hrs.]	29.07.2021 [14:01 Hrs.]
05.	Upto 22.07.2021 [14:00 Hrs.]	22.07.2021 [14:01 Hrs.]
06.	Upto 30.07.2021 [14:00 Hrs.]	30.07.2021 [14:05 Hrs.]
07.	Upto 13.07.2021 [14:00 Hrs.]	13.07.2021 [14:01 Hrs.]
08.	Upto 27.07.2021 [14:00 Hrs.]	27.07.2021 [14:01 Hrs.]
09.	Upto 02.08.2021 [14:00 Hrs.]	02.08.2021 [15:00 Hrs.]
10.	Upto 12.08.2021 [14:00 Hrs.]	12.08.2021 [14:01 Hrs.]

क्रम सं. 02 से 10 तक, विवरण ई-प्रापण पोर्टल <https://eproc.vssc.gov.in> पर उपलब्ध है।  
For Sl. No. 02 to 10, details are available on ISRO e-procurement portal <https://eproc.vssc.gov.in>.

शुद्धिपत्र, यदि कोई हो तो, हमारे वेबसाइट [www.vssc.gov.in](http://www.vssc.gov.in) / [www.isro.gov.in](http://www.isro.gov.in) में मात्र प्रकाशित किया जाएगा।

Corrigendum, if any will be published in our websites : [www.vssc.gov.in](http://www.vssc.gov.in) / [www.isro.gov.in](http://www.isro.gov.in) only.

हस्ताक्षरित/Sd/-

वरि. प्रधान, क्रय एवं भंडार / Sr. Head, Purchase & Stores

**Note :-**

1. Full details and specification of the item and general instructions to be followed regarding submission of tender is indicated in the tender document.
2. Tender Documents can be downloaded from our websites and also be obtained from the following address on request and submission of tender fee :

Sr. Purchase & Stores Officer, Main Purchase, RFF Area, VSSC, ISRO PO, Thumba, Thiruvananthapuram - 695 022, Ph : 0471-256 3139 / 3523.

While requesting for Tender Documents please indicate on the envelope as "Request for Tender Documents- Tender No..... dt.....".

3. Tender Fee (Rs. 560/-) shall be paid in the form of CROSSED DEMAND DRAFT ONLY. Other mode of payment is not acceptable. **The Demand Draft should be in favour of : Accounts Officer, Centre Accounts payable at State Bank of India, Thumba, Thiruvananthapuram [The tender fee is NON-REFUNDABLE].**

**Government Departments, PSUs (both Central and State), Small Scale Industries units borne in the list of NSIC and foreign sources are exempted from submission of tender fee. Those who are coming under the above category should submit documentary evidence for the same.**

4. While submitting your offer, the envelope shall be clearly superscribed with Tender No. and Due Date and to be sent to the following address.

Sr. Purchase & Stores Officer, Main Purchase, RFF Area, VSSC, ISRO PO, Thumba, Thiruvananthapuram - 695 022, Ph : 0471-256 3139 / 3523.

5. Quotations received after the Due Date/Time will not be considered.
6. VSSC, Thiruvananthapuram is not responsible for any postal delay/loss of documents in transit.
7. Sr. Head, Purchase & Stores, VSSC, Thiruvananthapuram reserves the right to accept or reject any/or all the tenders in part or full without assigning any reasons thereof.

भारत सरकार  
अंतरिक्ष विभाग (अं.वि.)  
विक्रम साराभाई अन्तरिक्ष केन्द्र  
तिरुवनन्तपुरम -695022  
क्रय एवं भंडार

GOVERNMENT OF INDIA  
DEPARTMENT OF SPACE (DOS)  
VIKRAM SARABHAI SPACE CENTRE  
THIRUVANANTHAPURAM 695022  
PURCHASE UNIT-I, MAIN PURCHASE, RFF AREA  
Ph No. 0471-2563139, 3676, 3522, 3523 Fax. 0471-2705092 / 2562065  
e-mail : spsd\_psd@vssc.gov.in

निविदा आमंत्रण  
INVITATION TO TENDER

मैसर्स  
M/s 00000 हमारी संदर्भ सं  
Our Ref. No. 3046 2020-003410-01  
निविदा अंतिम तिथि  
Tender Due at

महोदय

Dear Sirs,

कृपया निम्नलिखित मदों की आपूर्ति के लिए अनुलग्नक (फार्म सं. संलग्न ) में उल्लिखित निबंधन एवं शर्तों के अनुसार संलग्न निविदा प्रपत्र में वर्णनात्मक सूचीपत्र/पैम्फलेट/साहित्य सहित हमारी संदर्भ सं. एवं अंतिम तिथि (मोटे अक्षरों में) ऊपर लिखते हुए अपनी मुहरबंद निविदा प्रस्तुत करें।

Please submit your sealed quotation , in the Tender Form enclosed here along with the descriptive catalogues /pamphlets /literature ,superscribed with Our Ref.No. and Due Date for the supply of the following items as per the terms & conditions mentioned in Annexure(Form No. null )

क्र.सं. Sl. No.	विनिर्देशों सहित मद का विवरण Description of items with Specifications	इकाई Unit	मात्रा Quantity
1	AMC for maintenance and testing of 275 nos of cranes installed at various areas of VSSC for 2years. Detailed scope of work and specifications as per annexures. GST extra as applicable.		0
2	Charges for the maintenance and load testing of cranes	Year	2
3	Charges for Major Break down works	Year	2
4	Charges for the replacement of spares	Year	2

सुपुर्दगी स्थल

Delivery At VSSC

प्रेषण की विधि

Mode of Despatch ON SITE

शुल्क छूट

Duty Exemptions

विशेष अनुदेश

Special Instructions NIL

विशेष निबंधन

Specific Terms

निविदाकारों को अनुदेश

Instructions to Tenderers

U

भारत के राष्ट्रपति के लिए एवं ओर से  
For and on behalf of the President of India  
क्रेता / The Purchaser

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# NON – COMPREHENSIVE ANNUAL MAINTENANCE CONTRACT FOR CRANES AT VSSC

## INTRODUCTION:

The indented requirement is for the annual non-comprehensive maintenance of cranes which includes a preventive maintenance, annual maintenance, load testing and break down repair services of all the cranes available at VSSC.

## PERIOD OF CONTRACT:

This Contract shall be operational for a period of Two years from the date of placement of purchase order. However, VSSC reserve the rights to extend the same for further periods on mutual agreements at same rates, terms & conditions or short close the same by giving one month prior notice in writing, without any financial obligation on either side.

## 1. SCOPE OF WORK:

The Contractor shall provide the service on demand basis as per VSSC's requirement at various locations (VSSC Thumba, VKC Vattiyoorkavu, VMC Valiamala and APEP, Aluva) for the following works:

The work which involves maintenance (including mechanical, electrical and electronics in nature) and load testing of cranes during the validity of the contract. The scope includes periodical service, maintenance (breakdown/half yearly/annual) and load testing as specified in section 3.0. Detailed checks which are to be carried out during service, maintenance and load testing of cranes are provided as **ANNEXURE-1**. A separate checklist shall be issued after the award of the Contract for each type of cranes. The same check list is variable based on site conditions.

- 1.0 The total number of cranes available at VSSC is 275. The list of cranes along with details are given in **ANNEXURE-2**.
- 1.1 Break-down calls shall be attended to within 24 hours. In case of emergency, the breakdown complaint shall be attended even on holidays and early hours, after office hours up on intimation from the concerned User Division/ AMC Focal Point, Safety Divison.
- 1.2 The general maintenance of VVVF (Variable Voltage & Variable Frequency) drives which includes verification of contactors& its cables, interpretation of VVVF fault codes is under the scope of the contract. Works like replacement of VVVF drives and control card, programming of the drive is under the scope of VSSC.
- 1.3 Replacement of essential spares is under the scope of the contractor. The list of essential spares is given in **ANNEXURE-C1**. The Warranty Certificates for spares, wherever applicable, shall be provided along with the supply of the spares.
- 1.4 Required tested & certified slings, D-shackles and rings, safety

equipment/gadgets etc for service/maintenance/load testing shall be brought along with the necessary test certificates for the same, by the contractor.

- 1.5 Apart from regular load testing along with annual maintenance, performance testing with Safe Working Load (SWL) and essential safety checks shall be done for each crane after every brake adjustment/major breakdown maintenance, separate charges for this load testing shall be quoted as per **ANNEXURE-B**.
- 1.6 Tools needed during the service, maintenance and load testing shall be brought by the contractor. No tools except dead weights/concrete blocks& forklift support for movement of dead weights/concrete blocks shall be provided by VSSC.
- 1.7 The consumables like grease, sealants, metal pastes, insulation tapes, Teflon tapes and cleaning agents like cotton waste, solvents, emery sheets, special tools/regular tools, gland packing, gasket materials, kerosene, wire brush etc. are to be brought by the contractor.
- 1.8 Every crane shall be properly cleaned and painted with epoxy paint (2coats of epoxy primer and 2 coats of epoxy paint) if called for. The charges for painting shall be quoted based on the square feet of application (**ANNEXUREC2**). The crane shall be painted with Golden Yellow(for girder) and Black (for plummer block etc.). Scaffolding for the painting of cranes of different heights is under the scope of party and charges for the scaffolding shall be as per **ANNEXURE-C.2** of Price bid.
- 1.9 Marking the date of testing, due date for next testing, crane number, for each crane is under the scope of the contractor.
- 1.10 A separate checklist shall be issued after the award of the Contract for each type of cranes and same shall be duly filled and submitted by the contractor to concerned user division, on the same day after completion of each maintenance. All the observations and faults noted during the maintenance shall be recorded in the checklist and same shall be informed to the Engineer in charge by the maintenance personnel or supervisor of the team.
- 1.11 No modifications shall be carried out in the crane wiring circuit without the approval of engineer in charge and focal point for crane maintenance.

## **2. QUALIFICATION CRITERIA:**

Bidder shall meet the following qualification criteria. The Contractor shall submit all the relevant documents supporting the qualification criteria. Bids of those contractors who do not meet the criteria will not be considered for evaluation.

- a. Only Indian parties shall quote
- b. Contractor shall have a minimum of TWO years of experience in the relevant field of erection, commissioning and maintenance of cranes.

- c. The contractor shall submit a copy Company's registration certificate / Certificate of incorporation / Partnership Deed / Any other registration certificate (as applicable).
- d. The contractor shall have executed at least one order against the maintenance of 10 Nos. of EOT cranes in a year out of which at least 03 nos. shall be of higher capacity cranes (i.e.10T and above) in the past two years ending up to 31.12.2020. The Contractor shall furnish the copies of Purchase orders/ Work orders (Government, PSU's and Private sector) along with Techno-Commercial Bid(**Part-I**).
- d) The contractor shall submit a copy of GST registration, EPF registration and remittance details of the last paid GST/EPF.
- e) The contractor shall furnish copy of audited Balance Sheet, IT Returns for the last two years (2018-19&2019-20).
- f) The contractor shall submit a copy of PAN & TAN Cards.
- g) Contractor shall furnish stipulated documents in support of fulfillment of above qualifying criteria. Non submission or incomplete submission or false information of documents may lead to rejection of offer.
- h) All experience, purchase orders and other qualification criteria related documents shall be certified by the authorized signatory of the contractor firm. The credentials regarding experience and past performance as per qualification criteria submitted by contractor may be verified from the parties for whom work has been carried out, for which the contact details for each work order shall also be provided.
- i) **EARNEST MONEY DEPOSIT / BID SECURITY:**  
Earnest Money Deposit (EMD) or Bid Security is obtained to ensure the earnestness of the vendor in the procurement process. Registered Vendors of VSSC shall not furnish EMD or Bid Security in the procurement process. Other Vendors participating in the tender process has to furnish EMD through Demand Draft/Banker's Cheque for **Rs. 3,00,000/- (Rupees Three Lakh Only)** drawn in favour of **Sr. Accounts Officer, Main Accounts, VSSC-Trivandrum** payable at State Bank of India, Thumba Branch. EMD shall be interest free. EMD shall also be furnished in the form of Fixed Deposit Receipts or Bank Guarantee from any of the Scheduled Banks executed on non-judicial stamp paper of value Rs.200/-. In case of Bank Guarantee, it shall be valid for a period of 45 days beyond the final tender validity date.

Also, Foreign Vendors, Registered Vendors who have already applied for renewal of registration, Central PSUs, PSEs, Autonomous Bodies, Micro and Small Enterprises, KVIC, National Small Industries Corporation etc., are exempted from the payment of EMD.

Any tender not accompanied with EMD shall be treated as invalid tender and rejected. Vendors seeking exemption from payment of EMD shall submit necessary proof like registration number etc.

EMD of vendor shall be forfeited if the tenderer / contractor withdraws or amends his tender or deviates from the tender in any respect within the period

of the validity of the tender. Failure to furnish Security Deposit/Performance Bond by a successful vendor within the specified period shall also result in forfeiture of EMD.

EMD shall be refunded to all the unsuccessful vendors within thirty days after placement of the Purchase Order. EMD shall be refunded to the successful tenderer/contractor after payment of the Security Deposit. EMD shall be refunded to all the participants in cases where the tender is cancelled or withdrawn by the Centre/Unit, within thirty days from the date of such cancellation or withdrawal.

**3. TECHNICAL SPECIFICATIONS:**

**3.1 Periodicity of Maintenance and load test:**

The periodicity of maintenance shall be as follows:

<b>Annual maintenance with load Testing</b>	<b>: Once in 12 months. i.e., one time in a year.</b>
<b>Validity of load testing</b>	<b>: One year from the date of last load testing (Provided no major repairs or major break down maintenance). ie., 01 time in a year after annual maintenance.</b>
<b>Preventive Maintenance</b>	<b>: Six months after the completion of annual maintenance with load test.</b>
<b>Breakdown Maintenance</b>	<b>: As and when required.</b>

- a) **A gap of six months shall be ensured between the preventive maintenance and the annual maintenance along with load testing.**
- b) The contractor shall conduct the load test of cranes within two days of completion of Annual Maintenance.
- c) During the two-year period of PO contract, minimum 2 annual maintenance and 4 preventive maintenance shall be executed based on the availability of the crane.

**3.2 Load Testing:**

- a) Every crane shall be tested once in 12 months with a dummy load equal to the cranes rated capacity (SWL) at the time of annual maintenance.
- b) Proof load test with a dummy load equal to the rated capacity of cranes shall be done, after any major breakdown works are carried-out as part of the contract. The charges for the load test carried out during the breakdown maintenance shall quoted in **Annexure-B**.
- c) The deflection measurements shall also be carried out at Safe Working Load SWL and recorded. The necessary equipment/instruments for deflection measurement as mentioned in **Annexure-1**(section **2.7.2**) shall be brought by the Contractor.
- d) The load test report shall be certified by the concerned Engineer in charge of the facility.

### **3.3 Breakdown Maintenance:**

- a) Failures involving brake system, electrical failures such as connectors, contact failures, fuse wire, slip ring/brush contact failures, electrical/electronic component failure and such other failures shall be attended by the contractor as part of the Annual Maintenance Contract.
- b) Major Breakdown activities such as gearbox overhauling, opening and rectification of gears, Motors rewinding/replacement & alignment including works to be done outside VSSC on need basis. Charges for the same shall be quoted by the contractor in **ANNEXURE-B** of Price bid. The payment for the Major breakdown shall be paid after due certification of the bills by the user facility Engineer In-charge and concerned Divisional Head and approval of Deputy Director.
- c) The major breakdown works not mentioned/included under the **ANNEXURE-B** of Price bid which needs to be carried out for the efficient functioning of the crane shall be done by the respective user division for which separate purchase order will be issued.
- d) Removing and bringing down any defective equipment/components such as motors, gear box, brakes, shafts, etc. from the crane for further repair is the responsibility of the contractor along with necessary tools and tackles/equipment. The contractor shall refit the parts immediately after repair.

### **3.4 Replacement of Spares/Materials:**

- a) A tentative list of essential spares is provided along with this document as per **ANNEXURE-C.1**.
- b) Required replacement of materials, spares, components like gear oil, brake oil, wire rope compound, brake shoes, etc. shall be under the scope of the contractor and rate for the same shall be quoted separately in **ANNEXURE-C.1** of Price bid. Only genuine OE parts and approved high quality spares shall be supplied by the contractor. The same shall be ensured/replaced only with the approval of the Engineer in-charge of user division and its Division Head.

### **3.5 Painting:**

- a) Every crane shall be properly cleaned and painted periodically or as suggested by the Division with epoxy paint (2 coats of epoxy primer and 2 coats of epoxy paint) refer **ANNEXURE-C.2** of Price bid.
- b) The rate for scaffolding for the purpose of painting of cranes of different heights shall be quoted as per **ANNEXURE-C.2** of Price bid.
- c) The date of testing, due date of next testing, SWL and crane number shall

be painted on each crane. The date of testing and due date shall be updated after each testing/ painting of the cranes for free of cost.

- d) The paints, primer, thinner and kerosene for the work including brushes and other accessories/consumables required for the job are under the scope of the Contractor. The charges for painting shall be quoted based on the square feet area of application (ANNEXURE-C.2). The crane shall be painted with Golden Yellow (for girder), Black (for Plummer block, etc.) and P.O Red (for hooks).

#### **4. VSSC's OBLIGATIONS**

Dead weights/concrete blocks & Fork lift for the movement, handling of concrete blocks & dead weights, for load testing shall be arranged by VSSC (refer **Section 1.6**).

#### **5. ARBITRATION:**

In the event of any dispute/s, difference/s or claim/s arising out of or relating to the interpretation and application of the Contract, such dispute/s or difference/s or claim/s shall be settled amicably by mutual consultations of the good Offices of the respective Parties and recognizing their mutual interests attempt to reach a solution satisfactory to both the parties. If such a resolution is not possible, within 30 days from the date of receipt of written notice of the existence of such dispute/s, then the unresolved dispute/s or difference/s or claim/s shall be referred to the Arbitrators appointed by the Parties by mutual consent in accordance with the rules and procedures of Arbitration and Conciliation Act (Amendment 2015) as amended from time to time. The arbitration shall be conducted in Bengaluru in the Arbitration and Conciliation Centre – Bengaluru (Domestic and International) as per its rules and regulations. The expenses for the Arbitration shall be shared equally or as may be determined by the Arbitrator. The considered and written decision of the Arbitrator shall be final and binding between the Parties. The applicable language for Arbitration shall be “English” only.

Work under the Contract shall be continued by the Contractor during the pendency of arbitration proceedings, without prejudice to a final adjustment in accordance with the decision of the Arbitrator unless otherwise directed in writing by the Department or unless the matter is such that the works cannot be possibly continued until the decision (whether final or interim) of the Arbitrator is obtained.

#### **6. WORKFORCE & RESPONSE TIME:**

The contractor shall mobilize skilled workforce immediately upon the call/ placement of order by VSSC. The contractor shall ensure the response time is contained with 24 hours.

- The contractor shall mobilize the following minimum qualified and experienced

workforce for maintenance of the cranes.

Sl.No	Category	Qualification and competency/knowledge of crane service Personnel's
1	Supervisor	Diploma in Mechanical/Electrical Engineering with Two years' experience in erection, commissioning and Maintenance of cranes.
2	Fitter	ITI certificate in fitter trade with minimum Two Years' experience in Maintenance of EOT cranes.
3	Electrician	ITI certificate in Electrician trade with minimum Two years' experience in Maintenance of EOT cranes and shall be electrical license holder  <b>or</b>  Diploma in Electrical Engineering with <u>minimum Two years' experience in Maintenance of EOT cranes.</u>
4	Helpers	10 <sup>th</sup> class minimum with Two years experience in Maintenance of EOT cranes.

- The following minimum work force needs to be deployed by the Contractor for the maintenance of each crane for two years.

Sl.No	Category	No of persons (Minimum)	Remark
1	Supervisor	3	Minimum Three teams to be engaged by the contractor for carrying out the maintenance activity at VSSC, VKC, VMC & APEP campus based on the requirement. However, at any point of time three teams shall be mandatorily available for maintenance.
2	Fitter	3	
3	Electrician	3	
4	Helpers	6	
<b>Total</b>		15	

- Depending on the workload, the contractor shall increase their work force to work before and after office working hours/day as per the due instructions of the user facility Engineer-in-charge and AMC engineer in-charge/Focal point, Safety division. **No extra payment will be made** for the additional manpower engaged.
- The contractor shall appoint an overall supervisor for the co-ordination of the teams and supervisor shall update the focal point, safety division regarding the deputation of crane maintenance teams on daily basis.
- The contractor shall furnish complete details of the workforce deployed (Number of persons, qualification and experiences of work) to the AMC focal point, Safety Division before the commencement of the work for arranging entry passes.
- General working timings for the maintenance workforce including supervisor is 9.00 hrs to 17.00 hrs on working days (Monday to Friday, Five days a week). Depending on requirement, the working day/hour shall be

extended on mutual agreement between Engineer-In-charge of the facility and service agency and approval of AMC focal point, as applicable.

- e) In case, if the contractors fail to complete the maintenance of cranes which is due for maintenance/load testing in a particular month, it is the responsibility of the contractor to mobilize required work force(day/hour) to complete the same within the stipulated time.

#### **7. GENERAL CONDITIONS:**

- a) The Contractor shall arrange own conveyance/transport for their team and materials etc.
- b) Some of the cranes may be deleted from the scope of work during the contract period. Similarly, some new cranes may be included in scope. The contractor shall undertake servicing of such additional cranes at the same rates available **(Annexure-A)** in the contract for similar type/capacity of cranes.
- c) Any workforce deployed by the contractor should be medically fit and the fitness is mandatory to work within VSSC premises. In case any health problem is noticed, they shall not be allowed to work inside the premises.
- d) The Contractor shall make their own arrangements for lodging and boarding of their maintenance team during the period of contract. **Contractor shall mandatorily arrange a local office in Trivandrum within 15 days from the award of the contract** and same shall be communicated to VSSC. If the contractor fails, the purchase order is deemed to be cancelled.
- e) The Contractor shall register the list of all their items, tools, and equipment etc., brought inside the range, every time at the main CISF security gate.
- f) For Contractor's equipment, tools, materials, etc. which are to be taken out from VSSC campus after completion of work, proper entry shall be made at the main gate duly endorsed by CISF.
- g) The Department shall issue necessary gate passes for taking out the Contractor's materials, as and when required and after completion of work.
- h) Department shall not provide any place to keep a lockable storage cabinet at Work centre for keeping the tools. The contractor shall be self-equipped with infrastructure towards various gadgets for their materials, issuing reports, documentation and certificates and along with provision for rendering printouts/scanning after approval of competent authority. The Contractor shall not make any claim on the Department for the loss of their instruments, tools etc.

- i) The Contractors shall **indemnify the Purchaser**/and/or any Officer, employee or any assignee thereof harmless from any loss, damage, liability or expense, on account of damage to the property or environment and injuries including death, to any persons not limited to, employees or agents of the Department, workforce of the contractor or its sub-contractors and all other persons performing any part of the work here under any occurrence caused by any act of commission/omission of the contractor or their sub-contractors or any of them. The contractor shall at their expense defend any suits or proceedings brought against the Department on account thereof and shall satisfy all judgments and pay all expenses which may be incurred by or rendered against them or any of them in connection therewith. The Contractor shall ensure the minimum wages to their work force as per Minimum Wages Act from time to time.
- j) The contractor and their workforce shall insure against accidents for the duration of the contract period at his cost. The contractor shall produce proof of insurance coverage before starting the work at site in VSSC. The Department will not be responsible for any type of injury including death caused to the contractor's personal **during the work**. Contractor shall also submit the proof of renewal of the same policy at least two days before the expiry date of the previous policy to VSSC. **The contractor shall not be allowed to carry out any activity without necessary insurance coverage of their workforce.**
- k) The Department shall not accept any liability for the contractor or their sub- contractors, their officers, employees or agents, servants or assigners or any of them or for their property while on the premises or in the service of the Department.  
i.e., Department shall not be responsible for any loss of life of your service personnel while performing the contract at our premises due to natural calamities/accidents/ explosion etc.
- l) In case of any equipment or property of the Department is damaged by the contractor or their work force/agents, the same shall be rectified "free of cost" by the contractor within the period specified by the AMC Engineer-in-charge/focal point and respective facility in-charge. If the repair is not carried out within the specified period, the contractor shall pay immediately, the amount specified by the Department for the damage otherwise it will be recovered from their dues.
- m) The offer shall include all the necessary labour, materials, equipment, transportation services and incidentals connected with the servicing and maintenance (breakdown/preventive/annual/load-test/spares/service for 2

- years) of the cranes.
- n) A feedback form certified by the user facility and the Load Test Certificate duly signed by the contractor, user facility engineer in-charge and Head of the concerned division, shall be submitted to the AMC focal point, Safety Division after the completion of each maintenance. The feedback form will be provided to the user division after the award of the contract.
  - o) **The Department reserve the right to add/delete any number of similar equipment to this Contract during the currency of the Contract.**
  - p) Before quoting, if required, **the contractor shall visit the site** for getting necessary inputs about the site conditions such as crane locations and other aspects. Site visit of the facility shall be arranged, with prior communication and on mutually agreed dates, on any working day at least 7 days prior to due date of bid submission.
  - q) The offer for Servicing & maintenance of EOT Cranes, Major modifications / rectifications works and total maintenance cost shall be as per tender ANNEXURE- 1,2, A, B, C.1, C.2 of Tender document. (Other type of offers or offer with any other conditions will not be accepted).
  - r) If there is any dispute, on the quality of the work or schedules, the decision of the Engineer in-charge of the respective user facility and Focal Point, Crane Maintenance is final and binding on the contractor.
  - s) The contractor shall provide required Personnel Protective Equipment (PPE) such as helmets, cotton uniform, gloves, safety belts, shoes, safety goggles etc to all the work force engaged and same shall be worn at worksite.
  - t) The contractor shall not remove or engage any person without the knowledge and concurrence of the AMC focal point, Safety Division.
  - u) The contractor shall abide by the statutory provisions, rules and regulations of Government of India and Government of Kerala in force from time to time for their workforce including ensuring of minimum wages, remittance of EPF and insurance, medical allowance etc. The contractor shall furnish necessary documentary proof to that effect to the satisfaction of the Department as and when demanded. The **proof of remittance of EPF subscription** and the employee's contributions etc., shall be submitted to the Department authorities from time to time.
  - v) The contractor shall follow strictly the checklist for performing any maintenance like preventive/annual/load test etc., If any deviation found, Department shall reserve rights to close the contract, if required.

- w) It is the responsibility of the contractor/ their work force to maintain the cleanliness of the maintenance bay, office working premises etc.
- x) The contractor should mobilize their team within 10 days from the date of receipt of the purchase order.
- y) The contractor shall deploy their maintenance staff with age not exceeding 60 years.
- z) The technical information, drawings, specifications and other related documents forming part of enquiry or contract shall be the property of the Department and shall not be used for any other purpose, except for execution of the contract. This technical information, drawings, specifications and other related documents shall be returned to the Department with all approved copies and duplicates, if any, immediately after they have been used for the agreed purpose.

**8. ENTRY PASSES FOR CONTRACTOR'S WORKFORCE:**

- a) The contractor and their work force shall be allowed to entry to VSSC against photo entry passes issued by the Department. For this purpose, the contractor shall provide copy of Aadhaar card proof of all their work force, attested copies of educational qualification and Police Verification Certificate to the department before commencement of the work. The contractor shall abide by the security restriction imposed by the Department for their workforce, tools and materials from time to time.
- b) In respect of those Contract workforce, who are removed from rolls, their entry passes shall be returned to the Department immediately under intimation to the AMC focal point. Non- surrender or misplacement of any entry pass shall be charged from the contractor at the rates prescribed by the Department from time to time. As VSSC, Thiruvananthapuram is a highly restricted and sensitive area, the work force deputed for maintenance shall have very good character and high integrity.
- c) The request for entry pass and complete details of the workforce deployed along with their qualification and areas of work shall be submitted to AMC Focal Point Safety Division.
- d) If the Contractor needs to add any workforce to the contract, the contractor shall submit necessary document in order to verify the qualification criteria.

**9. COMPLIANCE OF SAFETYREGULATION:**

- a) Contractor shall ensure that the workforce deployed to render the service

shall observe all safety norms at their cost. VSSC shall not be responsible for any eventuality arising out of any negligence on the part of contract or in observing the safety norms.

- b) Contractor should engage only those workforces who are qualified and experienced for the work to be done and for which PO has been placed.
- c) The Contractor's workforce shall be Indian Nationals for execution of the work. Only skilled workforce with experience of this particular work shall be employed. No workforce below the age of 18 years shall be employed. The contractor shall pay to each work force, wages not less than those specified by Minimum Wages Act.
- d) Work shall be supervised all the time during the execution period either by the contractor themselves or by qualified authorized supervisor of the contractor.
- e) It is the responsibility of the contractor to ensure safe working of their workers while carrying out the work and shall follow all Statutory Safety norms and precautions. The Contractor shall provide and ensure use of PPE's such as Safety Belts, Face Shield, Masks, Goggles, Glasses, Ear Plug, Welding Shields, Hand Gloves, Safety Shoes, safety belts etc. By their workers for safe working.
- f) The Contractor shall ensure proper size of Slings and 'D' Shackles etc., with test certificate are used in consultation with user Facility Engineer. In no case under capacity or rejected or damaged wire ropes/Slings/'D' Shackles, winches etc. shall be used. Test certificate of slings and 'D' Shackles shall be submitted to AMC focal point, Safety Division before the commencement of work.
- g) Special precautions shall be taken while working at height or handling heavy jobs. The Contractor shall ensure that none of their workers work at a height without using Safety Belts. The Contractor themselves or their qualified supervisor only shall supervise the work while their work force work at heights or while handling heavy jobs.
- h) In case of any damage to VSSC property/equipment by the contractor due to their negligence or otherwise, the total expenses for repair/replacement of property/equipment shall be borne by the contractor.
- i) In case any accident occurs causing injury or casualty to any of Contractor's work force while carrying out the work, the complete responsibility lies with the Contractor. Contractor shall ensure to provide

immediate medical help to their injured worker/workers and shall provide compensation as per Workmen's Compensation Act' 1923.

**10. TAXES AND DUTIES:**

The contractor shall clearly indicate the HSN code and respective GST rates applicable for the services rendered under this contract. The Contractor shall submit to VSSC documentary evidence of GST registration certificate specifying name of services covered under this contract. The Contractor shall submit serially numbered GST invoice, signed by them or a person so authorized by him in respect of taxable services provided, and shall contain the following, namely,

- a) The name, address and the registration number of the contractor,
- b) The name and address of the contractor receiving taxable service,
- c) Description, classification and value of taxable service provided and,
- d) The GST payable there on.

All the four conditions shall be fulfilled in the invoice before release of GST payment.

**11. REJECTION OF TENDER & OTHER CONDITIONS:**

The acceptance of tender shall rest with VSSC, which does not bind itself to accept any tender and reserves to itself full rights for the following: -

- a) To reject any or all tenders.
- b) To award the work in part for different types of cranes.
- c) Conditional tenders, tender containing unrealistic rates, tenders which are incomplete or otherwise defective and tenders not in accordance with the tender conditions, ANNEXURE, specifications, etc., are liable to be rejected.

**12. SECURITY DEPOSIT:**

The contractor shall deposit a sum equivalent of 3% of annual cost of maintenance as interest free security deposit in the form of bank guarantee or Fixed Deposit Receipt valid till the contract period towards performance of contract. In case cancellation of contract due to default contractor, the security deposit shall be forfeited. In case of successful completion of contract, the security deposit will be refunded/adjusted without any interest.

**13. DOWN-TIME COMPENSATION:**

In case the maintenance/breakdown is not attended to in time, down□time compensation at the rate of 0.5% ( Half Percent)of the order value per week shall be recovered from the contractor. The reasons for non-attending the maintenance calls in time shall be informed to the division within 12 hours and if the reasons are genuine and convincing, the Engineer in-charge of AMC and Facility In-charge of crane/crane custodian shall mutually certify service report condoning the delay with the approval of Division Head. The total

amount of compensation for delay to be paid under this condition shall not exceed 10% of the maintenance value of the particular crane.

i.e., In case the break-down calls are not attended in time, i.e., within 24 hours of our intimation, down-time compensation at the rate of 0.5% of the Annual Maintenance Charges per day shall be recovered from you subject to a maximum of 5%.

#### **14. PAYMENT TERMS:**

- a) Payment shall be made on pro-rata basis after the completion of periodical maintenance or annual maintenance with load testing of each crane. The break down charges shall be paid as per work carried out by the contractor and the rates shall be as per **ANNEXURE-B**. The bills shall be certified by the user facility Engineer in-charge and duly approved by Division Head.
- b) Pro-rata payment shall be made after satisfactory completion of each Maintenance work for each cranes.
- c) List of essential spares/consumables and its cost, applicable GST shall be furnished along with your quotation.
- d) The Contractor should submit the monthly status of the maintenance of cranes performed to AMC focal point, safety division.
- e) For **arranging payment**, the contractor shall submit invoice, service call report, to Accounts officer through AMC focal point, safety division after duly certified and approved by the user facility Engineer In-charge, crane custodian and concerned Division head. The invoice shall include the following:
  - Maintenance works attended in detail.
  - Spare parts supplied if any,
  - Breakdown works carried if any
- f) The feedback form (Form-1) certified by the user division and the load test certificate duly signed by the Engineer in-charge, crane custodian and Division Head of the concerned division shall be forwarded to the Engineer in-charge/focal Point, Safety Division after completion of each maintenance. The feedback form will be provided to the user division after the award of the contract.

#### **15. CANCELLATION OF ANNUAL MAINTENANCE CONTRACT:**

- a) The **scope of work cannot be split into parts (preventive and annual maintenance)**, as the resources for executing the contract are shared over a period of execution of contract uniformly. Contractor shall complete the maintenance of cranes due for maintenance/load testing in a year. As per the scope of the tendered works viz. maintenance works (Periodical/Annual

Maintenance/Major Break down), load testing and supply & installation of spares etc., are not separable.

- b) In case the contractor does not carry out the work as per terms and conditions of the Contract or their services are not satisfactory, the Department reserves the right to cancel the Annual Maintenance Contract with the contractor by giving an advance notice of two weeks.
- c) The contractor shall be bound by the details furnished by them to the Purchaser while submitting the Bid or at any subsequent stage. In case, any of the documents furnished by them is found to be false at any stage, it would be deemed to be a breach of the Terms and conditions of the Work order making the Vendor liable for legal action besides termination of Work order/blacklisted and forfeiture of Security deposit.
- d) The department shall **reserve the right to terminate the contract** in the circumstances detailed here under:
  - i. If the Contractor fails to rectify, re-construct or replace any defective system/sub-system/equipment within a specified period after the Department having given a notice to the Contractor to rectify, re-construct or replace the said defective system/subsystem/equipment or the Contractor delays, suspends or is unable to complete the system/sub-system/equipment by the date mutually agreed upon.
  - ii. If the Contractor commits breach of any of the terms and conditions of the contract.
  - iii. If the government of India decides to terminate the contract in public interest.
- e) When the Contractor makes themselves liable for action under the circumstances mentioned above, the Department will have power to **forfeit the security deposit** of the Contractor and the Contractor shall have no claim for damages whatsoever on such forfeiture.

**16. REPLACED COMPONENTS/SPARES & QUANTITY VARIATION:**

- i. All components/spares replaced during the maintenance work shall be returned to the concerned user division of VSSC on completion of each work and to obtain a certificate for payment terms from user facility as per check list.
- ii. Contractor shall provide the rates for the spare parts required for any replacement during AMC as per **ANNEXURE -C.1**. The contractor shall supply the item based on need basis only. VSSC shall also provide the spares in case of availability and contractor shall replace the spares as per the AMC terms & conditions.

- iii. Contractor shall be paid only for the spares included in ANNEXURE – C.1 which is replaced during the AMC period.
- iv. Contractor shall obtain approval from the user facility Engineer In-charge before replacement of any spares parts.
- v. For all the items regarding this scope and the delivery point is at VSSC.
- vi. All the materials supplied or used shall be new and of first quality and manufactured and tested in accordance with the latest editions of the relevant Indian/International standards. Any material or work, where no specific standard is applicable, shall be fabricated as per the instructions and directions of the Department.
- vii. All the electrical equipments used shall conform to the latest Indian Electricity Rules as regards safety, earthing and other essential provisions specified there in for installation and operation of electrical parts.

**17. SCHEDULE OF WORK:**

On receipt of the AMC purchase order, the contractor shall contact the AMC focal point, Safety Division for the details of the cranes which are due for maintenance/load testing.

The actual work schedule shall be confirmed by the AMC focal point, Safety Division in consultation with Engineer-in-charge of user facility based on the field requirements and informed to the contractor well in advance for planning the resources.

The maintenance work shall be executed by the contractor as per the instruction of the AMC focal point, safety division.

**18. SUB-CONTRACT:**

- a) The contractor shall not subcontract the job or part of it to any other agency without the written permission of VSSC. In case VSSC permits to employ a subcontractor if found competent and in the interest of the work, it shall not imply any limitation of contractor's liability to fulfil the work order. The subcontractor shall also abide by the terms & conditions of the contract.
- b) All the works carried-out by such sub-contractors shall also be scrutinized, inspected and approved by the Department. However, the responsibility of the performance of such sub-contracted systems shall lie with the Contractor. Any delay in carrying out the work by the sub-contractor which affects the overall schedule of the work does not absolve the Contractor from payment of compensation for the delays. All terms and conditions applicable to the Contractor shall also be applicable to the sub-contractor who has been assigned the sub- systems.

**19. COMPLIANCE OF STATUTORY REQUIREMENT:**

- a. The contractor shall abide by the statutory provisions, rules and regulations of Government of India and Government of Kerala in force from time to time for their workforce including ensuring of minimum wages, remittance of PF, insurance, etc., The contractor shall furnish the documentary proof to that effect to the satisfaction of the Department as and when demanded. The proof of remittance of PF subscription and the employee's contributions etc. shall be submitted from time to time as and when demanded.
- b. All statutory requirements as per labour laws, ESI, PF etc. shall be met by the contractor.

**20. FALL CLAUSE:**

The charges quoted by you (CONTRACTOR) shall in no event exceed the lowest charges at which you undertake AMC of identical description to any other contractor during the period of this contract. If at any time, during the said period, you reduce such charges to any other customers, it shall be forthwith notified to us and the charges payable under the contract for servicing done after the date of coming into force of such reduction of charges shall stand correspondingly reduced.

**21. INFORMATION TO BIDDERS:**

21.1 The quotation shall be submitted in two parts

**PART-I: TECHNICAL AND COMMERCIAL BID**

**PART-II: PRICE BID**

**Part – I : Un priced Techno-Commercial Part of the Bid for the Work**

- a) Confirmation to the pre-qualification criteria
- b) Confirmation/ Compliance statement as per Annexure-D
- c) Any other techno-commercial information related to the tender
- d) Confirmation of submission of price bid as per Annexure-A, B, C1 & C2 along with 'Price Bid' (Part-II).

**Part – II : Price Part of the Bid for the Work**

- a) The Contractor is required to submit a complete bid for the entire work mentioned herein. Any incomplete bid will be summarily rejected.
- b) The tenderer shall give a **minimum validity period of SIX MONTHS** from the tender due date for the bids.
- c) Any bids / offers with price details in Techno-Commercial Offer (Part –I) shall be rejected.

**21.3 BIDSUBMISSION:**

Bids duly filled in by the Bidder should invariably be submitted as stipulated in the Letter inviting bid.

### **21.3 EVALUATION CRITERIA FOR L1 BIDDER**

Lowest Bidder(L1) shall be determined on the basis of total quoted price for maintenance items (Exclusive of GST) as per Annexure-A. The lowest bidder (L1) will be considered for further processing for the placement of order.

**NATURE OF SERVICING AND MAINTENANCE TO BE CARRIED OUT PERIODICALLY  
ONCE IN SIX MONTHS IN A YEAR**

**1.0 PERIODICAL AND PREVENTIVE MAINTENANCE: ONCE IN SIX MONTHS IN A YEAR WORKS TO BE CARRIED OUT FOR EACH CRANE:**

**1.1 BRIDGE RAILS (L.T & C.T) WITH CLAMPING SYSTEM:**

1.1.1 Check the fastening of crane rails and clamps and rectify, if required.

1.1.2 Check rail wear on top and sides and report any abnormality.

**1.2.0 GANTRY GIRDERS ON BUILDING & CRANE**

1.2.1 Check the foundation bolts, splices, loose bolts or missing bolts/rivets etc., and for cracked welds and Splices and rectify wherever required.

**1.3.0 END CARRIAGE (END TRUCKS):**

1.3.1 Check the overall condition of end carriage and report any cracks in the welds or abnormal wear of rail and wheels. Rectify wherever required.

1.3.2 Rail sweeps to be checked and fixed properly, if needed.

1.3.3 WHEELS: Check for the non-uniform wear, correct the Wheel axle for proper alignment.

1.3.4 BUMPERS: To be checked and rectified if there is any defect.

1.3.5 End carriages and the bridge girder fasteners are to be checked and properly tightened.

1.3.6 Attachment to end carriages – loose or missing rivets or bolts etc., or broken/cracked welds to be checked and rectified.

**1.4.0 DRIVE SYSTEM (L.T & C.T):**

1.4.1 Check the tightness of the bolts of the motor base, Plummer blocks, and its supports, brake unit Supports, gearbox supports, L.T & C.T. Shaft connecting the wheels etc., and rectify, if required.

1.4.2 Check the coupling condition and tightness of the key.

1.4.3 Check the Plummer block bearing condition.

1.4.4 Check the gearbox for leakage of oil, loose bolts or cracks in the gearbox, observe the noise level and report before rectification.

**1.5.0 HOIST DRIVE SYSTEM MAIN/MICRO/AUXILIARY WHEREVER APPLICABLE:**

1.5.1 Check the free rotation of the hook.

1.5.2 Check the free movement of snatch block.

1.5.3 Check for the wear and free rotation of pulleys.

1.5.4 Check tightness of fasteners at the end fixing of wire rope on rope drum and also rope drum fixing system.

- 1.5.5 Check the freeness of equalizer pulley system.
- 1.5.6 Check the tightness of plummer block assembly.
- 1.5.7 Check all the fasteners for proper fixing of motor, gearboxes, plummer blocks, brake units etc.
- 1.5.8 i) Check the coupling condition.  
ii) Check the tightness of the key.
- 1.5.9 Check the plummer block bearing condition.
- 1.5.10 Check the gearbox for leakage of oil, loose bolts, or cracks in the box, observe the noise level and report before carrying out repair works.

**1.6.0 BRAKE UNITS: (FOR L.T & C.T AND HOIST MOTIONS):**

- 1.6.1 Brake shoe connecting linkages shall be checked and to be adjusted if required.
- 1.6.2 Adjust the spring tension for proper braking condition.
- 1.6.3 Check the condition for brake liner and replace, if require.
- 1.6.4 In electro-magnetic (E.M) type of brakes, ensure that the plunger inside the core shall be at least 1/3 of the core depth for proper operation.
- 1.6.5 Check the brake coil guide assembly (EM Brake) for proper plunger operation (for all motions).
- 1.6.6 In case of thrusters brakes, check for oil condition and level and rectify, if require.
- 1.6.7 Brake currents are to be measured and recorded wherever the brakes are adjusted. (Before and after the adjustments)

**1.7.0 LUBRICATION**

**1.7.1 GEARBOXES (FOR L.T.,C.T.AND HOIST MOTIONS):**

Check the condition of oil and replace if required.

**1.7.2 CENTRALISED LUBRICATIONSYSTEM**

All grease nipple and oil points shall be packed with lubricant.

1.7.3 Lubrication of all mechanical components (viz., hook, pulleys, rope, brake, gears, gearboxes, plummer blocks, wheels and axels, coupling, bushes etc.,) topping up or replacing lubrication oil wherever required. (Galvanised hard core wire ropes should not be lubricated).

1.7.4 If the pipelines of the centralized lubrication system are blocked, it shall be repaired before the application of lubricants.

**1.8.0 LIMIT SWITCHES; (FOR L.T.,C.T. AND HOISTMOTIONS):**

1.8.1 Check all operation of all limit switches for L.T., C.T. and Hoist (upper & lower) and also for gravity limit switch and rotary limit switches.

1.8.2 Check the rotary limit switch cam system.

**1.9.0 ELECTRICAL SYSTEMS**

1.9.1 Check the free movement for guide, guide rail /rollers, push rod, connecting chains, clamping of all trailing cable units, bus bar and rectify the defects, if any.

**1.9.2.0 INSPECTION OF INCOMING PANEL AND CONTROL PANELS;**

- 1.9.2.1 Tighten all terminals inside the panel.
- 1.9.2.2 Check the correct fuse ratings.
- 1.9.2.3 Check the over load relay settings (set over load relay to full load current of the motor)
- 1.9.2.4 Check the chattering and sluggish operation of power contactors and IS R relays.
- 1.9.2.5 Check the earthing of the motors for proper tightness and contact.
- 1.9.2.6 Ensure all panel door bolts are fixed.
- 1.9.2.7 Check and tighten all electrical connections in the motors.
- 1.9.2.8 Clean the terminal blocks of motors, brakes, junction boxes, limit switches etc.,
- 1.9.2.9 Check the limit switches functioning for all motions.
- 1.9.2.10 Check the brake coil operation for non-humming condition and proper closing.
- 1.9.2.11 Check the brake coil resistance.
- 1.9.2.12 Roller actuation of the limit switches shall be checked manually.
- 1.9.2.13 Check all electrical connections of the pendant.
- 1.9.2.14 Check all push button's actuation.
- 1.9.2.15 Check for proper operation for all motions of pendant pushbuttons.

**1.10.0 CLEANING**

- 1.10.1** After all the works are completed, remove tools, tackles, wastes, oil can, grease etc.
- 1.10.2** Secure all covers after maintenance.
- 1.10.3** Clean the crane, L.T., Girder, walkways etc thoroughly.

**2.0 ANNUAL SERVICING AND LOAD TESTING ONCE IN A YEAR**

In addition to the work mentioned under periodical preventive maintenance (from point 1.0 to 1.10.3), the following works are also to be carried out for Annual Servicing and Load testing for each crane.

**2.1.0 L.T. & C.T. DRIVE SYSTEMS**

- 2.1.1** All couplings are to be removed, checked and refitted.
- 2.1.2** All plummer blocks are to be opened and inspected thoroughly, oil seals / gaskets etc., shall be changed, if require.
- 2.1.3** All gearboxes have to be opened and inspected thoroughly, Oil seals/gaskets etc., shall be changed, if required.
- 2.1.4** Alignment of all drive chains shall be checked and corrected, if required.

**2.2.0 HOIST DRIVE SYSTEMS (AUX. AND MAIN):**

- 2.2.1** All couplings are to be removed, checked and refitted.
- 2.2.2** All Plummer block covers are to be removed, bearings are to be checked and refitted.
- 2.2.3** All gearboxes have to be opened and inspected thoroughly. Oil seals/gaskets etc.,

shall be changed if required.

**2.2.4** Alignment of all drive chains including rope drum shall be checked and corrected, if required.

### **2.3.0 INSPECTION OF WIRE ROPES**

**2.3.1** Check the hoist rope reeving, rope wear, twist, kink, break, interference with any other member etc., while in operation. New rope is to be laid, if the old wire rope is required to be replaced.

**2.3.2** Check the condition of hoist drum (rope drum) bolts tightness, bearing condition, grooves and ridges. Replace with new ones, if required.

**2.3.3** Check the general condition of bull gear and connecting gear train. Replace with new ones, if required.

### **2.4.0 BRIDGE RAILS (L.T. &C.T.)**

**2.4.1** Check and align the rails, if required.

**2.4.2** Check the end stoppers and rectify, if required.

### **2.5.0 BRIDGE GIRDERS**

**2.5.1** Check the welding condition, rivet or bolted joints throughout the length of the girder and rectify, if required.

**2.5.2** Check the splice joints for any abnormality and rectify, if required.

**2.5.3** Check walkway plates and hand rails and rectifies, if found defective.

### **2.6.0 ELECTRICAL SYSTEMS:**

**2.6.1** Inspection of Incoming panel and Control Panels:

**2.6.2** Clean power contractors in the incoming panels and replace the contractors if required.

**2.6.3** Clean the ISR relays and power contractors, magnetic core etc.,

**2.6.4** Measure the insulation resistance of all power and control cable connected to motors and motor windings.

**2.6.5** Measure the winding resistance of motors.

**2.6.6** Check the electrical motor bearing condition and replace if required.

**2.6.7** Check the condition of fan blades of motors and tighten all the fasteners.

**2.6.8** Measure insulation resistance value of all cables including pendant cables.

**2.6.9** Check the condition of electrical trailing cables, bus bar, L.T, C.T., down shop leads etc., and rectify, if required.

**2.6.10** Check the cable glands for proper condition and replace, if necessary.

**2.6.11** Check loose connection inside the limit switches and tighten them, if necessary.

### **2.7 LOAD TESTING**

**2.7.1** After carrying out the annual servicing and maintenance of the crane and satisfactory completion of the written report, each crane shall be load tested to SWL in the presence of the concern user facility Engineer-in-charge and Divisional

Safety Focal point following the checklist. The department is the responsibility on supply/arrange the dead weights required for the load testing and for transporting dead weights from facility to facility, yard to facility.

**2.7.2** The minimum tools and accessories required to carry out the load test as given in the following list have to be brought by the contractor for each work centre.

- a. Measuring tape
- b. Plumb-bob
- c. Piano wire
- d. Steel rule, 1meter
- e. Stop watch - 01no.
- f. Try Square
- g. Multimeter
- h. Tong tester for current measurements
- i. Meggar etc.,

**Note:** all the instruments used should have been calibrated before use and the certificate to this effect should be shown to the Engineer-in-charge, if demanded. If the Engineer-in-charge demands re-calibration of any item, it has to be carried out immediately.

**2.7.3** The contractor shall follow the procedure laid down by the Engineer-in-charge to carry out the load test.

**2.7.4** The currents of all the motors and brakes as well as the speeds of LT, CT and Hoist motions are to be measured and recorded in the prescribed format.

**2.7.5** The deflection measurements shall also be carried out and recorded.

## DETAILS OF LIST OF CRANES FOR AMC (for 2 years)

Sl.No	VSSC Sl.No	Crane Type	Capacity (Tonnes)
1.	VSSC-CR-001	EOT	5
2.	VSSC-CR-002	EOT	15
3.	VSSC-CR-004	Elec.Hoist	2
4.	VSSC-CR-005	JIB CRANE	0.5
5.	VSSC-CR-006	HOT	1
6.	VSSC-CR-007	HOT	2
7.	VSSC-CR-010	HOT	1
8.	VSSC-CR-012	EOT	10
9.	VSSC-CR-013	EOT	1
10.	VSSC-CR-014	HOT	5
11.	VSSC-CR-015	HOT	5
12.	VSSC-CR-016	EOT	30
13.	VSSC-CR-017	EOT	20
14.	VSSC-CR-018	EOT	1
15.	VSSC-CR-020	EOT	10
16.	VSSC-CR-021	EOT	2
17.	VSSC-CR-022	EOT	2
18.	VSSC-CR-023	EOT	1
19.	VSSC-CR-024	EOT	3
20.	VSSC-CR-025	Manual	2

Sl.No	VSSC Sl.No	Crane Type	Capacity (Tonnes)
21.	VSSC-CR-026	Manual	3
22.	VSSC-CR-027	EOT	3
23.	VSSC-CR-028	EOT	5
24.	VSSC-CR-029	EOT	5
25.	VSSC-CR-030	Manual	2
26.	VSSC-CR-032	MONO RAIL	3
27.	VSSC-CR-033	EOT	1
28.	VSSC-CR-034	HOT	2
29.	VSSC-CR-035	HOT	5
30.	VSSC-CR-037	CPB	0.5
31.	VSSC-CR-038	CPB	0.5
32.	VSSC-CR-039	CPB	0.5
33.	VSSC-CR-042	EOT	15
34.	VSSC-CR-043	EOT	3
35.	VSSC-CR-046	EOT	15
36.	VSSC-CR-047	PNEUMATIC	2
37.	VSSC-CR-049	PNEUMATIC	5
38.	VSSC-CR-053	PNEUMATIC	1
39.	VSSC-CR-054	EOT	10
40.	VSSC-CR-055	EOT	10
41.	VSSC-CR-056	EOT	5
42.	VSSC-CR-058	EOT	15

Sl.No	VSSC Sl.No	Crane Type	Capacity (Tonnes)
43.	VSSC-CR-059	EOT	50
44.	VSSC-CR-060	EOT	5
45.	VSSC-CR-061	EOT	5
46.	VSSC-CR-062	EOT	5
47.	VSSC-CR-063	EOT	5
48.	VSSC-CR-064	EOT	10
49.	VSSC-CR-065	EOT	5
50.	VSSC-CR-066	EOT	10
51.	VSSC-CR-067	EOT	5
52.	VSSC-CR-068	EOT	5
53.	VSSC-CR-070	EOT	5
54.	VSSC-CR-072	EOT	3
55.	VSSC-CR-074	JIB CRANE	1
56.	VSSC-CR-076	EOT	3
57.	VSSC-CR-077	Manual	1
58.	VSSC-CR-078	HOT	2
59.	VSSC-CR-079	HOT	1
60.	VSSC-CR-080	HOT	1
61.	VSSC-CR-081	HOT	1
62.	VSSC-CR-082	HOT	0.3
63.	VSSC-CR-084	CPB	1
64.	VSSC-CR-085	HOT	2

Sl.No	VSSC Sl.No	Crane Type	Capacity (Tonnes)
65.	VSSC-CR-2069	EOT	10
66.	VSSC-CR-086	EOT	5
67.	VSSC-CR-087	EOT	3
68.	VSSC-CR-094	HOT	2
69.	VSSC-CR-095	HOT	2
70.	VSSC-CR-099	MONO RAIL	2
71.	VSSC-CR-100	CPB	0.5
72.	VSSC-CR-101	CPB	2
73.	VSSC-CR-102	CPB	1
74.	VSSC-CR-103	HOT	2
75.	VSSC-CR-104	SEMI EOT	5
76.	VSSC-CR-105	EOT	2
77.	VSSC-CR-110	HOT	2
78.	VSSC-CR-111	SEMI EOT	1
79.	VSSC-CR-114	HOT	2
80.	VSSC-CR-115	HOT	2
81.	VSSC-CR-116	EOT	2
82.	VSSC-CR-117	EOT	2
83.	VSSC-CR-118	EOT	5
84.	VSSC-CR-120	HOT	2
85.	VSSC-CR-121	HOT	1
86.	VSSC-CR-122	CPB	1

Sl.No	VSSC SI .No	Crane Type	Capacity (Tonnes)
87.	VSSC-CR-123	HOT	3
88.	VSSC-CR-124	HOT	3
89.	VSSC-CR-128	HOT	1
90.	VSSC-CR-129	CPB	2
91.	VSSC-CR-130	CPB	2
92.	VSSC-CR-131	CPB	2
93.	VSSC-CR-132	CPB	2
94.	VSSC-CR-137	CPB(Ele)	1
95.	VSSC-CR-140	EOT	10
96.	VSSC-CR-140a	EOT	10
97.	VSSC-CR-141a	EOT	5
98.	VSSC-CR-142	EOT	10
99.	VSSC-CR-144	EOT	6.5
100.	VSSC-CR-145a	EOT	10
101.	VSSC-CR-146a	HOT	2.00
102.	VSSC-CR-147	EOT	5
103.	VSSC-CR-148	EOT	5.00
104.	VSSC-CR-149	EOT	3.0
105.	VSSC-CR-151	PNEUMATIC	1
106.	VSSC-CR-152	HOT	2
107.	VSSC-CR-153	EOT	2.0
108.	VSSC-CR-155	EOT	15

Sl.No	VSSC Sl.No	Crane Type	Capacity (Tonnes)
109.	VSSC-CR-156	CPB	0.5
110.	VSSC-CR-157	CPB	0.5
111.	VSSC-CR-158	EOT	5
112.	VSSC-CR-159	EOT	10
113.	VSSC-CR-160	EOT	5
114.	VSSC-CR-161	EOT	5
115.	VSSC-CR-162	EOT	5
116.	VSSC-CR-163	Overhead crane	5
117.	VSSC-CR-166	CPB	0.5
118.	VSSC-CR-168	CPB	0.1
119.	VSSC-CR-170	JIB CRANE	0.25
120.	VSSC-CR-172	Semi EOT Crane (Flame Proof)	5
121.	VSSC-CR-173	EOT ( Flame Proof)	5
122.	VSSC-CR-174	MONORAIL Electrically Operated cross travel & hoist driver.	0.5
123.	VSSC-CR-175	EOT	2
124.	VSSC-CR-176	CPB	0.5
125.	VSSC-CR-177	EOT	10
126.	VSSC-CR-178	Electric Hoist-Wire Rope	1
127.	VSSC-CR-179	Electric Hoist-Wire Rope	1
128.	VSSC-CR-180	Chain Block Air Wench Trolley	1
129.	VSSC-CR-181	EOT	2

Sl.No	VSSC SI.No	Crane Type	Capacity (Tonnes)
130.	VSSC-CR-183	EOT	3
131.	VSSC-CR-184	EOT	3
132.	VSSC-CR-185	EOT	5
133.	VSSC-CR-186	EOT	15.00 (Main)
134.	VSSC-CR-186A	EOT	5.00 (Aux.)
135.	VSSC-CR-187	EOT	10.00 (Main)
136.	VSSC-CR-187A	EOT	5.00 (Aux.)
137.	VSSC/CR/188	EOT	7
138.	VSSC-CR-189	EOT	10
139.	VSSC-CR-190	EOT	5
140.	VSSC-CR-191	EOT	15
141.	VSSC-CR-192	EOT	7.5
142.	VSSC-CR-194	Portable	1
143.	VSSC-CR-195	Portable	1
144.	VSSC-CR-196	Portable	1
145.	VSSC-CR-197	Portable	1
146.	VSSC-CR-198	Portable	1
147.	VSSC-CR-199	EOT	1
148.	VSSC-CR-200	EOT	10
149.	VSSC-CR-201	EOT	10
150.	VSSC-CR-202	EOT	5
151.	VSSC-CR-203	EOT	15

Sl.No	VSSC Sl .No	Crane Type	Capacity (Tonnes)
152.	VSSC-CR-204	EOT	5
153.	VSSC-CR-205	CPB	0.3
154.	VSSC-CR-206	EOT	3
155.	VSSC-CR-207	EOT	20
156.	VSSC-CR-208	EOT	3
157.	VSSC-CR-209	EOT	15
158.	VSSC-CR-210	EOT	5
159.	VSSC-CR-211	EOT	2
160.	VSSC-CR-212	EOT	3
161.	VSSC-CR-213	Articulated Hydraulic Mobile Crane	6
162.	VSSC-CR-214	EOT	10 T(Main)
163.	VSSC-CR-214A	EOT	5 T (Auxiliary)
164.	VSSC-CR-215	Bay model electrical chain hoist	1
165.	VSSC-CR-218	EOT	5
166.	VSSC-CR-219	EOT	5
167.	VSSC-CR-220	Mobile pillar mounted Jib crane	0.315
168.	VSSC-CR-221	HOT	3
169.	VSSC-CR-222	EOT	7 T
170.	VSSC-CR-223	EOT	5 T
171.	VSSC-CR-224	HOT	2
172.	VSSC-CR-225	EOT	3
173.	VSSC-CR-226	EOT	2

Sl.No	VSSC Sl.No	Crane Type	Capacity (Tonnes)
174.	VSSC-CR-227	EOT	20
175.	VSSC-CR-228	EOT	10
176.	VSSC-CR-229	EOT	5
177.	VSSC-CR-230	HYDRAULIC	1
178.	VSSC-CR-231	Cantilever-Hand operated	1
179.	VSSC-CR-232	EOT	12
180.	VSSC-CR-233	EOT	5
181.	VSSC-CR-234	EOT	15
182.	VSSC-CR-235	EOT	5
183.	VSSC-CR-236	EOT	5
184.	VSSC-CR-237	EOT	5
185.	VSSC-CR-238	JIB CRANE	1
186.	VSSC-CR-239	HOT	2
187.	VSSC-CR-240	CPB	1
188.	VSSC-CR-241	EOT	5
189.	VSSC-CR-242	EOT	5
190.	VSSC-CR-243	EOT	5
191.	VSSC-CR-244	HOT	3
192.	VSSC-CR-245	EOT	5
193.	VSSC-CR-246	HOT	2
194.	VSSC-CR-247	HOT	2
195.	VSSC-CR-248	EOT	2

Sl.No	VSSC Sl.No	Crane Type	Capacity (Tonnes)
196.	VSSC-CR-249	EOT	5
197.	VSSC-CR-250	EOT	3
198.	VSSC-CR-251	EOT	3
199.	VSSC-CR-252	EOT	3
200.	VSSC-CR-253	Mono Rail- Power Operated	2
201.	VSSC-CR-254	Electric Hoist	2
202.	VSSC-CR-255	Mono Rail	1
203.	VSSC-CR-256	EOT	1
204.	VSSC-CR-257	EOT (FLP)	1
205.	VSSC-CR-258	EOT	10
206.	VSSC-CR-259	EOT	10
207.	VSSC-CR-260	EOT	5
208.	VSSC-CR-261	EOT	15
209.	VSSC-CR-262	EOT	20
210.	VSSC-CR-263	EOT	10
211.	VSSC-CR-264	EOT	10
212.	VSSC-CR-265	EOT	10
213.	VSSC-CR-266	EOT	10
214.	VSSC-CR-267	EOT	5
215.	VSSC-CR-269	EOT	1
216.	VSSC-CR-270	MONORAIL	2
217.	VSSC-CR-271	EOT	15

Sl.No	VSSC SI.No	Crane Type	Capacity (Tonnes)
218.	VSSC-CR-272	EOT	5
219.	VSSC-CR-273	EOT	3
220.	VSSC-CR-274	EOT	2
221.	VSSC-CR-275	EOT	12
222.	VSSC-CR-276	EOT	3
223.	VSSC-CR-277	EOT	5
224.	VSSC-CR-278	EOT	10
225.	VSSC-CR-279	EOT	3
226.	VSSC-CR-280	Jib Crane	2
227.	VSSC-CR-281	EOT	5
228.	VSSC-CR-282	EOT	5
229.	VSSC-CR-283	HOT	2
230.	VSSC-CR-284	EOT	5
231.	VSSC-CR-285	EOT	10
232.	VSSC-CR-285A	EOT	5
233.	VSSC-CR-286	EOT	5
234.	VSSC-CR-287	EOT	5
235.	VSSC-CR-288	EOT	10
236.	VSSC-CR-289	EOT	10
237.	VSSC-CR-290	EOT	15
238.	VSSC-CR-290A	EOT	5
239.	VSSC-CR-291	EOT	15

Sl.No	VSSC Sl.No	Crane Type	Capacity (Tonnes)
240.	VSSC-CR-291A	EOT	5
241.	VSSC-CR-292	EOT	5
242.	VSSC-CR-293	EOT	5
243.	VSSC-CR-294	EOT	5
244.	VSSC-CR-295	EOT	2
245.	VSSC-CR-296	EOT	10T (Main)
246.	VSSC-CR-296A	EOT	5T (Auxiliary)
247.	VSSC-CR-297	EOT	5
248.	VSSC-CR-298	EOT	2
249.	VSSC-CR-299	EOT	10
250.	VSSC-CR-300	EOT	3
251.	VSSC-CR-301	EOT	5
252.	VSSC-CR-302	EOT	5
253.	VSSC-CR-303	EOT	5
254.	VSSC-CR-303A	EOT	5
255.	VSSC-CR-304	EOT	10
256.	VSSC-CR-305	EOT	5
257.	VSSC-CR-306	EOT	5
258.	VSSC-CR-307	EOT	5
259.	VSSC-CR-308	EOT	10
260.	VSSC-CR-309	EOT	5
261.	VSSC-CR-310	EOT	5

Sl.No	VSSC Sl.No	Crane Type	Capacity (Tonnes)
262.	VSSC-CR-311	EOT	5
263.	VSSC-CR-312	EOT	15T (Main)
264.	VSSC-CR-312A	EOT	5T (Auxiliary)
265.	VSSC-CR-313	EOT	5
266.	VSSC-CR-314	EOT	5
267.	VSSC-CR-315	Mono Rail- Power Operated	3
268.	VSSC-CR-316	EOT	3
269.	VSSC-CR-317	HOT	2
270.	VSSC-CR-318	EOT	10
271.	VSSC-CR-319	EOT	5
272.	VSSC-CR-320	EOT	5
273.	VSSC-CR-321	EOT	5
274.	VSSC-CR-322	EOT	15
275.	VSSC-CR-323	EOT	1

**PART-II**  
**PRICE BID**

1. **Annexure-A:** Charges for Preventive and Annual maintenance including load testing of EOT Cranes.
2. **Annexure-B:** Charges for Major Breakdown.
3. **Annexure-C.1:** Essential Spare List for Maintenance of Cranes.
4. **Annexure-C.2:** Cost Break-up for painting.

**ANNEXURE-A****Charges for Preventive and Annual maintenance including load testing of EOT Cranes for 2 years:**

Sl.No	Crane Type	Capacity	No. of Cranes (A)	Preventive Maintenance Charges per crane (B)	Annual Maintenance with Load Test Charges per crane (C)	Total [A x (B+C)]
1	EOT	upto1T	9			
		above1Tto5T	111			
		above5Tto10T	38			
		above10Tto25T	22			
		above25Tto50T	2			
2	CPB	upto1T	15			
		above1Tto5T	5			
3	JIB	upto1T	4			
		above1Tto5T	1			
4	HOT	upto1T	8			
		above1Tto5T	26			
5	Electric Hoist	upto1T	2			
		above1Tto5T	2			
6	Monorail	upto1T	2			
		above1Tto5T	5			
7	Hydraulic	upto1T	1			
		above5Tto10T	1			
8	Hydraulic Mobile	upto1T	1			
		above5Tto10T	1			
9	Manual	upto1T	1			

Sl.No	Crane Type	Capacity	No. of Cranes (A)	Preventive Maintenance Charges per crane (B)	Annual Maintenance with Load Test Charges per crane (C)	Total [A x (B+C)]
		above1Tto5T	3			
10	Semi EOT	upto1T	1			
		above1Tto5T	2			
11	Pneumatic Chain Hoist	upto1T	1			
12	Cantilever	upto1T	1			
13	Portable	upto1T	5			
14	Gantry Grider	upto1T	0			
15	Mobile Pillar Mounted JIB	upto1T	1			
16	Pneumatic	upto1T	2			
		above1Tto5T	2			
17	Bay Model Electric chain hoist	upto1T	1			
18	Overhead Crane	above1Tto5T	1			
TOTAL			275			
Total Amount (Exclusive of GST)						

**NOTE:**

- a. PPM once in six months followed by AM along with load testing once in a year.
- b. Charges quoted above shall be exclusive of GST and GST % shall be mentioned separately in the quote.

**ANNEXURE-B**

**CHARGES FOR MAJOR BREAKDOWN \* (for 2 years)**

<b>Sl. No</b>	<b>Breakdown activity</b>	<b>Unit Charges in Rs.</b>
1.	Gear Box Overhauling.	
2.	Opening and rectification of gears.	
a.	Up to 1 T	
b.	Above 1 T & up to 5 T	
c.	Above 5T & up to 10T	
d.	Above 10T & up to 25T	
e.	Above 25T & up to 50T	
3.	Load testing charges after major breakdown maintenance/brake adjustment.	
a.	Up to 1 T	
b.	Above 1 T & up to 5 T	
c.	Above 5T & up to 10T	
d.	Above 10T & up to 25T	
e.	Above 25T & up to 50T	
4.	Servicing, replacing and restoring the condition of entire <b>crane power lines</b> including subsystem and accessories and ensuring healthiness after alignment checks etc., of each crane.	

\* The Contractor shall also quote for other major breakdown activities not included in the above list as envisaged.

Charges quoted above shall be exclusive of GST and GST % shall be mentioned separately in the quote.

**NOTE:**

- a. Removing and bringing down any defective equipment/components such as motors, gear box, brakes, shafts, wheels, couplings etc., from crane for further repair is the responsibility of the contractor. The contractor shall also re-assemble the parts immediately after the repair.
- b. The entire major breakdown activities shall be carried out with the prior clearance from concerned user division engineer in-charge and its Division Head only and AMC focal point, safety division.

**ANNEXURE-C.1****1. ESSENTIAL SPARE LIST FOR THE MAINTENANCE OF CRANES\*(for2years)**

<b>Sl No</b>	<b>Description</b>	<b>Unit Price (in Rs.)</b>
1.	Oil seal for LT, CT & MH Gear boxes, specification as per site.	
2.	Limit switch - Gravity Type, Rotary type for hoist specification as per site.	
3.	Limit switch- lever type for LT/CT.	
4.	Brake liner with rivets and entire subcomponents/accessories, specification as per site. For various capacity of cranes as listed.	
4.a	Up to 1 T	
4.b	Above 1T & up to 5 T	
4.c	Above 5T & up to 10T	
4.d	Above 10T & up to 25T	
4.e	Above 25T & up to 50 T	
5.	Plummer block with bearings for CT/LT specification as per site. For various capacity of cranes as listed.	
6.a	Up to 1 T	
6.b	Above 1T & up to 5 T	
6.c	Above 5T & up to 10T	
6.d	Above 10T & up to 25T	
6.e	Above 25T & up to 50 T	
6.	EM brake with entire subcomponents/accessories, specification as per site. For various capacity of cranes as listed.	
6.a	Up to 1 T	
6.b	Above 1T & up to 5 T	
6.c	Above 5T & up to 10T	
6.d	Above 10T & up to 25T	
6.e	Above 25T & up to 50 T	
7.	Hydraulic thrusters brake with entire subcomponents/accessories, specification as per site. For various capacity of cranes as listed.	
7.a	Up to 1 T	
7.b	Above 1T & up to 5 T	
7.c	Above 5T & up to 10T	
7.d	Above 10T & up to 25T	
7.e	Above 25T & up to 50 T	
8.	Hot dip galvanised IWRC wire rope, range 5mm to 40mm (only indicative) including compound (Make: USHA MARTIN). The contractor shall quote the rate for different size of rope.	
9.	Gear box shaft (EN-9) with entire subcomponents/accessories as per site. For various capacity of cranes as listed below.	
9.a	Up to 1 T	

<b>Sl No</b>	<b>Description</b>	<b>Unit Price (in Rs.)</b>
9.b	Above 1T & up to 5 T	
9.c	Above 5T & up to 10T	
9.d	Above 10T & up to 25T	
10.	Idler puller for main hoist (MH) with entire subcomponents / accessories, as per crane manufacturer and site requirement.	
11.	Spring for brake tension with entire subcomponents/accessories.	
12.	Brake shoe connecting linkage (as per crane manufacturer) with entire subcomponents/accessories, and site requirement.	
13.	Rubber buffer STD, as per crane manufacturer and site requirement.	
14.	Brake oil (Transformer oil and as per crane manufacturer)	
15.	Gear box oil (140 Grade oil and as per crane manufacturer)	
16.	PVC sheathed, flexible cables with multi strand copper conductors cable 4Cx6 Sq.mm along with subsystem and accessories and chain, as per crane manufacturer.	
17.	PVC sheathed, flexible cables with multi strand copper conductors cable 4Cx4 Sq.mm along with subsystem and accessories and chain, as per crane manufacturer.	
18.	PVC sheathed, flexible cables with multi strand copper conductors cable 4Cx2.5 Sq.mm along with subsystem and accessories and chain, as per crane manufacturer.	
19.	PVC sheathed, flexible cables with multi core & multi strand copper conductors cable of 24Cx1.5 Sq.mm along with subsystem and accessories and chain, as per crane manufacturer.	
20.	Push button with conductors, as per crane manufacturer and site requirement.	
21.	Mushroom type button with lockable key, as per crane manufacturer and site requirement.	
22.	Indication lamp (24V)	
23.	Indication lamp (110V)	
24.	Indication lamp (230V)	
25.	Power conductors along with HRC fuses (16A)	
26.	Power conductors along with HRC fuses (32A)	
27.	Power conductors along with HRC fuses (40A)	
28.	Emergency stop push button with conductors	
29.	Relay for control - 6V	
30.	Power convertor - 24V AC TO 24V DC	
31.	Power convertor - 230V AC TO 7.5V DC	
32.	Resistor for Hoist - 500 Ohms	
33.	Hooter - 110V AC	
34.	Hooter - 230V AC	
35.	Hooter - 24V AC	
36.	Hooter - 7.5C DC	

<b>Sl No</b>	<b>Description</b>	<b>Unit Price (in Rs.)</b>
37.	Rewinding of power transformer (including all spares like coil, bearings, O-ring, gaskets etc., certified with a warranty period for 12 months from the date of rewinding work) along with entire subcomponents/ accessories, as per crane manufacturer and site requirement.	
37.a	Rewinding of 400V to 7.5V	
37.b	Rewinding of 400V to 24V	
37.c	Rewinding of 400V to 110V	
37.d	Rewinding of 400V to 230V	
38.	Motor rewinding (including all spares like coil, bearings, O-ring, gaskets etc., certified with a warranty for 12 months from the date of rewinding) along with entire subcomponents and accessories.	
38.a	Capacity 1HP to 5HP	
38.b	Capacity 5.1HP to 10HP	
38.c	Capacity 10.1HP to 15HP	
38.d	Capacity 15.1HP to 20HP	
39.	EHT brake alignment, rewinding, re-conditioning (including all spares like coil, bearings, brake lining, O-ring, gaskets etc., certified with a warranty for 12 months from the date of re-conditioning) along with entire subcomponents/accessories as per crane manufacturer and site requirement.	
40.	EM brake alignment, rewinding, re-conditioning (including all spares like coil, bearing, brake lining, O-ring, gaskets etc., certified with a warranty of 12 months from the date of re-conditioning) along with entire subcomponents/accessories as per crane manufacturer and site requirement.	
41.	Gear box Over hauling (including all spares like gear oil of suitable grade, gears, shaft housing, O-ring, gaskets etc. duly certified with a warranty of 12 months from the date of re-conditioning) along with entire subcomponents/accessories as per crane manufacturer and site requirement.	
42.	Crane history board/custodian board (1.5ft x 2ft metallic board). FORMAT WILL BE SHARED AFTER AWARDDING CONTRACT.	
43.	Short link Chain (Metal & acid resistance, etc.) specification as per site. For various capacity of cranes.	
44.	Festooning trolley (Metal & Plastic & acid resistance, etc.) specification as per site. For various capacity of cranes.	
45.	Current collector 3 Phase, specification as per site. For various capacity of cranes.	
46.	Safety Latch for crane hook including accessories and as per site.	
47.	Crane Pendant box (Non-flameproof and Flame proof) - total unit along with sub system and accessories as per crane manufacturer and site requirement.	

Sl No	Description	Unit Price (in Rs.)
48.	Radio frequency with remote controller - total unit along with subsystem and accessories as per crane manufacturer and site requirement.	

**NOTE:**

- a. The contractor shall also quote for other spares not included in the above list as envisaged for smooth operation of cranes. The list given above is only bare essential and only indicative, the payment will be made only against actual supply.
- b. Parties have to quote from Sl.no 1 to 48 clearly and to bifurcate the spares (Different size/types/make )separately where ever required.
- c. Price quoted above shall be exclusive of GST and GST % shall be mentioned separately in the quote.
- d. All the spares should comply with relevant standards along with test certificates wherever applicable.
- e. All the spares mentioned shall be replaced without any extra service cost.
- f. All the spares mentioned to be replaced only as per manufacturer specification, site requirement and approval of department authorities.
- g. All spares supplied and utilised should cover the standard warranty/guarantee period.
- h. The party shall mention the make/ brand of the spares wherever applicable.

**ANNEXURE-C.2**

**3. COST BREAK-UP FOR**

<b>Sl No</b>	<b>Category</b>		<b>Unit Charges in Rs./Sq.foot</b>
<b>1.</b>	Charges for painting		
		<b>Height</b>	<b>Charge</b>
<b>2.</b>	Charges for scaffolding	Up to 8 Metre	
		Above 8 metre to 12 Metre	
		Above 12 metre to 16 metre	
		Above 16 metre to 20 metre	
		Above 20 metre	

Charges quoted above shall be exclusive of GST and GST % shall be mentioned separately in the quote.

**CONFIRMATION/COMPLIANCE STATEMENT**

**ANNEXURE-D**

Sl. No	Description of terms and conditions	Compliance		Reasons for deviation
		Yes	No	If NO, explain the reason (if space is not sufficient separate sheet may be closed).
1.	<b>CONTRACTOR SCOPE OF WORK</b> The period of contract shall be of <b>Two years</b> as per point 1.0 of tender document and entire indent specification along with annexures.			
2.	List of cranes and terms offered for maintenance as per annexure-2 of tender document.			
3.	Conducting PPM, AM, Load test and Brake down maintenance etc., as per the section 1.1 to 1.11 of tender document.			
4.	Acceptance of consumables supply as per section-1.7 of tender document.			
5.	Acceptance of qualification criteria and terms as per section-2 of tender document.			
7.	Acceptance of Technical specification as per section-3 of tender document.			
8.	Acceptance of VSSC obligations & Arbitration and terms as per section-4&5 of tender document.			
9.	Acceptance of Workforce & Response time and terms as per section-6			
9.	Acceptance of general conditions as per section-7 of tender document.			
10.	Acceptance of entry passes and terms as per section-8 of tender document.			
11.	Acceptance of Compliance of Safety Regulation and terms as per section-9 of tender document.			
12.	Acceptance of Taxes & Duties and terms as per section-10of tender document.			
13.	Acceptance of Rejection of Tender & Other Conditions and terms as per section-11 of tender document.			
14.	Acceptance of Security Deposit and terms as per section-12 of tender document.			
15.	Acceptance of Down-Time Compensation and terms as per section-13 of tender document.			
16.	Acceptance of Payment Terms as per section-14 of tender document.			
18.	Acceptance of Cancellation of Annual Maintenance Contract and terms as per section-15 of tender document.			
19.	Acceptance of Replaced Components/ Spares & Quantity Variation and terms as per section-16 of tender document.			
20.	Acceptance of Schedule of Work and terms as per section-17 of tender document.			

21.	Acceptance of Sub-Contract and terms as per section-18 of tender document.			
22.	Acceptance of Compliance of statutory requirements and terms as per section-19 of tender document.			
23.	Acceptance of Fall Clause and terms as per section-20 of tender document.			
24.	Acceptance of Information to Bidders and terms as per section-21 of tender document.			
25.	Acceptance for Nature of Servicing and Maintenance and terms as per annexure -1 of tender document.			
26.	Acceptance for List of Cranes for AMC and terms as per annexure-2 of tender document.			
27.	Acceptance for Spares of EOT crane and terms as per annexure-C.1 of tender document.			
29.	Contractor has to quote for annexure – A, B, C.1, C.2 of tender document.			
30.	<b>Confirmation of submission of the experience in the maintenance of higher capacity cranes, Number of cranes maintained in a year and list of clients &amp; work orders / Purchase orders furnished along with techno-commercial part bid as per section-2 &amp; 21 of tender document.</b>			
31.	Confirmation/compliance statement (Annexure-D has duly filled and submitted along with techno-commercial part bid as per section-21 of tender document.			

2. E-Tenders are invited for **Automation of inventory in bonded stores using RFID technology**. The Bids are to be prepared and submitted in specified Templates online, by logging into the portal <https://eproc.vssc.gov.in>. Submission of Bids involves two stages to be performed by Vendors - Submission of Bids and Open Authorization. The Bids remain encrypted with the bidders's public key, until the Open Authorization stage. All those Bids where Open Authorization is not given, are automatically disqualified. Such Bids will not be openable and will not be considered for further processing. The Vendors are advised to submit the Bids much before the Closing Time to avoid last minute problems.

E-Procurement No. VSSC/PURCHASE UNIT II (AVN)/VS202100023501 Dt. 18.06.2021 and Print Media Advertisement ref. No. VSSC/P/ADVT/309/2021 Dt. 29.06.2021. E-Tenders are invited for **Automation of inventory in bonded stores using RFID technology** through our E-procurement site <https://eproc.vssc.gov.in>. Bids can be submitted **upto 10.08.2021 [11:00 Hrs.]**, **Bid Opening date : 12.08.2021 [11:00 Hrs.]**.

Only online tenders will be accepted. No manual / Postal / e-mail / fax offers will be entertained. No manual tender document will be issued. Parties interested to participate in this e-Tender are required to register themselves as vendors, if not already registered, in our e-procurement portal <https://eproc.vssc.gov.in> by downloading plugins and help demos listed on the home page of the e-procurement link mentioned above to complete the vendor registration process. They can seek help from help desk 080 6780 7786 also as provided in the home page of e-procurement portal in case of any problem for registration and subsequent process. Vendors may please note that without registering in our e-procurement portal, they will not be able to quote for this e-tender.

Important Notice : Tender shall be opened on the first day of the schedule [**ie. 12.08.2021 [11:00 Hrs.]**]. If the tender could not be opened on the first day due to any technical snag, it will be opened on the subsequent day as per the schedule. Bidders who are desirous of attending the tender opening may make arrangements for attending the tender opening at their cost.

This is a two part tender, Technical & Commercial part (Part I) and Price Part (Part II) shall be submitted separately. The tenderers should not attach any documents containing Price information along with Technical & Commercial Bid (Part I). We do not open PART II (Price Bid), if PART-I (Technical & Commercial offer) does not meet with our technical specification requirements. Cost split up, other price details etc. shall be uploaded as a separate document under COMMERCIAL DOCUMENTS FROM VENDOR tab.

**THE TECHNICAL DOCUMENTS NEED TO BE ATTACHED ONLINE AS A SINGLE PDF FILE WITHOUT ANY PRICE INFORMATION, TECHNICAL BID CONTAINING PRICE DETAILS WILL BE TREATED AS REJECTED.**

3. E-Tenders are invited for **Photoplotting of PCB layouts**. The Bids are to be prepared and submitted in specified Templates online, by logging into the portal <https://eproc.vssc.gov.in>. Submission of Bids involves two stages to be performed by Vendors - Submission of Bids and Open Authorization. The Bids remain encrypted with the bidders's public key, until the Open Authorization stage. All those Bids where Open Authorization is not given, are automatically disqualified. Such Bids will not be openable and will not be considered for further processing. The Vendors are advised to submit the Bids much before the Closing Time to avoid last minute problems.

E-Procurement No. VSSC/PURCHASE UNIT II (AVN)/VS202100078301 Dt. 25.06.2021 and Print Media Advertisement ref. No. VSSC/P/ADVT/309/2021 Dt. 29.06.2021. E-Tenders are invited for **Photoplotting of PCB layouts** through our E-procurement site <https://eproc.vssc.gov.in>. Bids can be submitted **upto 19.08.2021 [14:00 Hrs.]**, **Bid Opening date : 19.08.2021 [14:00 Hrs.]**.

Only online tenders will be accepted. No manual / Postal / e-mail / fax offers will be entertained. No manual tender document will be issued. Parties interested to participate in this e-Tender are required to register themselves as vendors, if not already registered, in our e-procurement portal <https://eproc.vssc.gov.in> by downloading plugins and help demos listed on the home page of the e-procurement link mentioned above to complete the vendor registration process. They can seek help from help desk 080 6780 7786 also as provided in the home page of e-procurement portal in case of any problem for registration and subsequent process. Vendors may please note that without registering in our e-procurement portal, they will not be able to quote for this e-tender.

Important Notice : Tender shall be opened on the first day of the schedule [**ie. 19.08.2021 [14:00 Hrs.]**]. If the tender could not be opened on the first day due to any technical snag, it will be opened on the subsequent day as per the schedule. Bidders who are desirous of attending the tender opening may make arrangements for attending the tender opening at their cost.

4. E-Tenders are invited for **Single girder 2T underslung EOT proof crane**. The Bids are to be prepared and submitted in specified Templates online, by logging into the portal <https://eproc.vssc.gov.in>. Submission of Bids involves two stages to be performed by Vendors - Submission of Bids and Open Authorization. The Bids remain encrypted with the bidders's public key, until the Open Authorization stage. All those Bids where Open Authorization is not given, are automatically disqualified. Such Bids will not be openable and will not be considered for further processing. The Vendors are advised to submit the Bids much before the Closing Time to avoid last minute problems.

E-Procurement No. VSSC/PURCHASE UNIT III (SPRE)/VS202100079201 Dt. 22.06.2021 and Print Media Advertisement ref. No. VSSC/P/ADVT/309/2021 Dt. 29.06.2021. E-Tenders are invited for **Single girder 2T underslung EOT proof crane** through our E-procurement site <https://eproc.vssc.gov.in>. Bids can be submitted **upto 29.07.2021 [14:01 Hrs.]**, **Bid Opening date : 29.07.2021 [14:01 Hrs.]**.

Only online tenders will be accepted. No manual / Postal / e-mail / fax offers will be entertained. No manual tender document will be issued. Parties interested to participate in this e-Tender are required to register themselves as vendors, if not already registered, in our e-procurement portal <https://eproc.vssc.gov.in> by downloading plugins and help demos listed on the home page of the e-procurement link mentioned above to complete the vendor registration process. They can seek help from help desk 080 6780 7786 also as provided in the home page of e-procurement portal in case of any problem for registration and subsequent process. Vendors may please note that without registering in our e-procurement portal, they will not be able to quote for this e-tender.

Important Notice : Tender shall be opened on the first day of the schedule [**ie. 29.07.2021 [14:01 Hrs.]**]. If the tender could not be opened on the first day due to any technical snag, it will be opened on the subsequent day as per the schedule. Bidders who are desirous of attending the tender opening may make arrangements for attending the tender opening at their cost.

This is a two part tender, Technical & Commercial part (Part I) and Price Part (Part II) shall be submitted separately. The tenderers should not attach any documents containing Price information along with Technical & Commercial Bid (Part I). We do not open PART II (Price Bid), if PART-I (Technical & Commercial offer) does not meet with our technical specification requirements. Cost split up, other price details etc. shall be uploaded as a separate document under COMMERCIAL DOCUMENTS FROM VENDOR tab.

**THE TECHNICAL DOCUMENTS NEED TO BE ATTACHED ONLINE AS A SINGLE PDF FILE WITHOUT ANY PRICE INFORMATION, TECHNICAL BID CONTAINING PRICE DETAILS WILL BE TREATED AS REJECTED.**

5. E-Tenders are invited for **Supply, Installation and Commissioning of Dehumidifier facility**. The Bids are to be prepared and submitted in specified Templates online, by logging into the portal <https://eproc.vssc.gov.in>. Submission of Bids involves two stages to be performed by Vendors - Submission of Bids and Open Authorization. The Bids remain encrypted with the bidders's public key, until the Open Authorization stage. All those Bids where Open Authorization is not given, are automatically disqualified. Such Bids will not be openable and will not be considered for further processing. The Vendors are advised to submit the Bids much before the Closing Time to avoid last minute problems.

E-Procurement No. VSSC/PURCHASE UNIT III (SPRE)/VS202100092601 Dt. 09.06.2021 and Print Media Advertisement ref. No. VSSC/P/ADVT/309/2021 Dt. 29.06.2021. E-Tenders are invited for **Supply, Installation and Commissioning of Dehumidifier facility** through our E-procurement site <https://eproc.vssc.gov.in>. Bids can be submitted **upto 22.07.2021 [14:00 Hrs.]**, **Bid Opening date : 22.07.2021 [14:01 Hrs.]**.

Only online tenders will be accepted. No manual / Postal / e-mail / fax offers will be entertained. No manual tender document will be issued. Parties interested to participate in this e-Tender are required to register themselves as vendors, if not already registered, in our e-procurement portal <https://eproc.vssc.gov.in> by downloading plugins and help demos listed on the home page of the e-procurement link mentioned above to complete the vendor registration process. They can seek help from help desk 080 6780 7786 also as provided in the home page of e-procurement portal in case of any problem for registration and subsequent process. Vendors may please note that without registering in our e-procurement portal, they will not be able to quote for this e-tender.

Important Notice : Tender shall be opened on the first day of the schedule [**ie. 22.07.2021 [14:01 Hrs.]**]. If the tender could not be opened on the first day due to any technical snag, it will be opened on the subsequent day as per the schedule. Bidders who are desirous of attending the tender opening may make arrangements for attending the tender opening at their cost.

This is a two part tender, Technical & Commercial part (Part I) and Price Part (Part II) shall be submitted separately. The tenderers should not attach any documents containing Price information along with Technical & Commercial Bid (Part I). We do not open PART II (Price Bid), if PART-I (Technical & Commercial offer) does not meet with our technical specification requirements. Cost split up, other price details etc. shall be uploaded as a separate document under COMMERCIAL DOCUMENTS FROM VENDOR tab.

**THE TECHNICAL DOCUMENTS NEED TO BE ATTACHED ONLINE AS A SINGLE PDF FILE WITHOUT ANY PRICE INFORMATION, TECHNICAL BID CONTAINING PRICE DETAILS WILL BE TREATED AS REJECTED.**

6. E-Tenders are invited for **Electrochemical workstation with accessories**. The Bids are to be prepared and submitted in specified Templates online, by logging into the portal <https://eproc.vssc.gov.in>. Submission of Bids involves two stages to be performed by Vendors - Submission of Bids and Open Authorization. The Bids remain encrypted with the bidders's public key, until the Open Authorization stage. All those Bids where Open Authorization is not given, are automatically disqualified. Such Bids will not be openable and will not be considered for further processing. The Vendors are advised to submit the Bids much before the Closing Time to avoid last minute problems.

E-Procurement No. VSSC/PURCHASE UNIT III (SPRE)/VS202100109001 Dt. 16.06.2021 and Print Media Advertisement ref. No. VSSC/P/ADVT/309/2021 Dt. 29.06.2021. E-Tenders are invited for **Electrochemical workstation with accessories** through our E-procurement site <https://eproc.vssc.gov.in>. Bids can be submitted **upto 30.07.2021 [14:00 Hrs.]**, **Bid Opening date : 30.07.2021 [14:05 Hrs.]**.

Only online tenders will be accepted. No manual / Postal / e-mail / fax offers will be entertained. No manual tender document will be issued. Parties interested to participate in this e-Tender are required to register themselves as vendors, if not already registered, in our e-procurement portal <https://eproc.vssc.gov.in> by downloading plugins and help demos listed on the home page of the e-procurement link mentioned above to complete the vendor registration process. They can seek help from help desk 080 6780 7786 also as provided in the home page of e-procurement portal in case of any problem for registration and subsequent process. Vendors may please note that without registering in our e-procurement portal, they will not be able to quote for this e-tender.

Important Notice : Tender shall be opened on the first day of the schedule [**ie. 30.07.2021 [14:05 Hrs.]**]. If the tender could not be opened on the first day due to any technical snag, it will be opened on the subsequent day as per the schedule. Bidders who are desirous of attending the tender opening may make arrangements for attending the tender opening at their cost.

This is a two part tender, Technical & Commercial part (Part I) and Price Part (Part II) shall be submitted separately. The tenderers should not attach any documents containing Price information along with Technical & Commercial Bid (Part I). We do not open PART II (Price Bid), if PART-I (Technical & Commercial offer) does not meet with our technical specification requirements. Cost split up, other price details etc. shall be uploaded as a separate document under COMMERCIAL DOCUMENTS FROM VENDOR tab.

**THE TECHNICAL DOCUMENTS NEED TO BE ATTACHED ONLINE AS A SINGLE PDF FILE WITHOUT ANY PRICE INFORMATION, TECHNICAL BID CONTAINING PRICE DETAILS WILL BE TREATED AS REJECTED.**

7. E-Tenders are invited for **Design, fabrication, Supply, Assembly and Commissioning of Heavy duty storage racks.** The Bids are to be prepared and submitted in specified Templates online, by logging into the portal <https://eproc.vssc.gov.in>. Submission of Bids involves two stages to be performed by Vendors - Submission of Bids and Open Authorization. The Bids remain encrypted with the bidders's public key, until the Open Authorization stage. All those Bids where Open Authorization is not given, are automatically disqualified. Such Bids will not be openable and will not be considered for further processing. The Vendors are advised to submit the Bids much before the Closing Time to avoid last minute problems.

E-Procurement No. VSSC/PURCHASE UNIT III (SPRE)/VS202100104501 Dt. 09.06.2021 and Print Media Advertisement ref. No. VSSC/P/ADVT/309/2021 Dt. 29.06.2021. E-Tenders are invited for **Design, fabrication, Supply, Assembly and Commissioning of Heavy duty storage racks** through our E-procurement site <https://eproc.vssc.gov.in>. Bids can be submitted **upto 13.07.2021 [14:00 Hrs.], Bid Opening date : 13.07.2021 [14:01 Hrs.]**.

Only online tenders will be accepted. No manual / Postal / e-mail / fax offers will be entertained. No manual tender document will be issued. Parties interested to participate in this e-Tender are required to register themselves as vendors, if not already registered, in our e-procurement portal <https://eproc.vssc.gov.in> by downloading plugins and help demos listed on the home page of the e-procurement link mentioned above to complete the vendor registration process. They can seek help from help desk 080 6780 7786 also as provided in the home page of e-procurement portal in case of any problem for registration and subsequent process. Vendors may please note that without registering in our e-procurement portal, they will not be able to quote for this e-tender.

Important Notice : Tender shall be opened on the first day of the schedule [ie. **13.07.2021 [14:01 Hrs.]**]. If the tender could not be opened on the first day due to any technical snag, it will be opened on the subsequent day as per the schedule. Bidders who are desirous of attending the tender opening may make arrangements for attending the tender opening at their cost.

This is a two part tender, Technical & Commercial part (Part I) and Price Part (Part II) shall be submitted separately. The tenderers should not attach any documents containing Price information along with Technical & Commercial Bid (Part I). We do not open PART II (Price Bid), if PART-I (Technical & Commercial offer) does not meet with our technical specification requirements. Cost split up, other price details etc. shall be uploaded as a separate document under COMMERCIAL DOCUMENTS FROM VENDOR tab.

**THE TECHNICAL DOCUMENTS NEED TO BE ATTACHED ONLINE AS A SINGLE PDF FILE WITHOUT ANY PRICE INFORMATION, TECHNICAL BID CONTAINING PRICE DETAILS WILL BE TREATED AS REJECTED.**

8. E-Tenders are invited for **Development of Titanium alloy forgings through press route**. The Bids are to be prepared and submitted in specified Templates online, by logging into the portal <https://eproc.vssc.gov.in>. Submission of Bids involves two stages to be performed by Vendors - Submission of Bids and Open Authorization. The Bids remain encrypted with the bidders's public key, until the Open Authorization stage. All those Bids where Open Authorization is not given, are automatically disqualified. Such Bids will not be openable and will not be considered for further processing. The Vendors are advised to submit the Bids much before the Closing Time to avoid last minute problems.

E-Procurement No. VSSC/PURCHASE UNIT V (MME PURCHASE)/VS202100199201 Dt. 25.06.2021 and Print Media Advertisement ref. No. VSSC/P/ADVT/309/2021 Dt. 29.06.2021. E-Tenders are invited for **Development of Titanium alloy forgings through press route** through our E-procurement site <https://eproc.vssc.gov.in>. Bids can be submitted **upto 27.07.2021 [14:00 Hrs.]**, **Bid Opening date : 27.07.2021 [14:01 Hrs.]**.

Only online tenders will be accepted. No manual / Postal / e-mail / fax offers will be entertained. No manual tender document will be issued. Parties interested to participate in this e-Tender are required to register themselves as vendors, if not already registered, in our e-procurement portal <https://eproc.vssc.gov.in> by downloading plugins and help demos listed on the home page of the e-procurement link mentioned above to complete the vendor registration process. They can seek help from help desk 080 6780 7786 also as provided in the home page of e-procurement portal in case of any problem for registration and subsequent process. Vendors may please note that without registering in our e-procurement portal, they will not be able to quote for this e-tender.

Important Notice : Tender shall be opened on the first day of the schedule [**ie. 27.07.2021 [14:01 Hrs.]**]. If the tender could not be opened on the first day due to any technical snag, it will be opened on the subsequent day as per the schedule. Bidders who are desirous of attending the tender opening may make arrangements for attending the tender opening at their cost.

This is a two part tender, Technical & Commercial part (Part I) and Price Part (Part II) shall be submitted separately. The tenderers should not attach any documents containing Price information along with Technical & Commercial Bid (Part I). We do not open PART II (Price Bid), if PART-I (Technical & Commercial offer) does not meet with our technical specification requirements. Cost split up, other price details etc. shall be uploaded as a separate document under COMMERCIAL DOCUMENTS FROM VENDOR tab.

**THE TECHNICAL DOCUMENTS NEED TO BE ATTACHED ONLINE AS A SINGLE PDF FILE WITHOUT ANY PRICE INFORMATION, TECHNICAL BID CONTAINING PRICE DETAILS WILL BE TREATED AS REJECTED.**

9. E-Tenders are invited for **Processing & Supply of SSLV core thermal boot & L40 Thermal boot**. The Bids are to be prepared and submitted in specified Templates online, by logging into the portal <https://eproc.vssc.gov.in>. Submission of Bids involves two stages to be performed by Vendors - Submission of Bids and Open Authorization. The Bids remain encrypted with the bidders's public key, until the Open Authorization stage. All those Bids where Open Authorization is not given, are automatically disqualified. Such Bids will not be openable and will not be considered for further processing. The Vendors are advised to submit the Bids much before the Closing Time to avoid last minute problems.

E-Procurement No. VSSC/PURCHASE UNIT VI (CMSE PURCHASE)/VS202100131201 Dt. 15.06.2021 and Print Media Advertisement ref. No. VSSC/P/ADVT/309/2021 Dt. 29.06.2021. E-Tenders are invited for **Processing & Supply of SSLV core thermal boot & L40 Thermal boot** through our E-procurement site <https://eproc.vssc.gov.in>. Bids can be submitted **upto 02.08.2021 [14:00 Hrs.]**, **Bid Opening date : 02.08.2021 [15:00 Hrs.]**.

Only online tenders will be accepted. No manual / Postal / e-mail / fax offers will be entertained. No manual tender document will be issued. Parties interested to participate in this e-Tender are required to register themselves as vendors, if not already registered, in our e-procurement portal <https://eproc.vssc.gov.in> by downloading plugins and help demos listed on the home page of the e-procurement link mentioned above to complete the vendor registration process. They can seek help from help desk 080 6780 7786 also as provided in the home page of e-procurement portal in case of any problem for registration and subsequent process. Vendors may please note that without registering in our e-procurement portal, they will not be able to quote for this e-tender.

Important Notice : Tender shall be opened on the first day of the schedule [ie. **02.08.2021 [15:00 Hrs.]**]. If the tender could not be opened on the first day due to any technical snag, it will be opened on the subsequent day as per the schedule. Bidders who are desirous of attending the tender opening may make arrangements for attending the tender opening at their cost.

This is a two part tender, Technical & Commercial part (Part I) and Price Part (Part II) shall be submitted separately. The tenderers should not attach any documents containing Price information along with Technical & Commercial Bid (Part I). We do not open PART II (Price Bid), if PART-I (Technical & Commercial offer) does not meet with our technical specification requirements. Cost split up, other price details etc. shall be uploaded as a separate document under COMMERCIAL DOCUMENTS FROM VENDOR tab.

**THE TECHNICAL DOCUMENTS NEED TO BE ATTACHED ONLINE AS A SINGLE PDF FILE WITHOUT ANY PRICE INFORMATION, TECHNICAL BID CONTAINING PRICE DETAILS WILL BE TREATED AS REJECTED.**

10. E-Tenders are invited for **Transportation Container for Deployable Reflectors for IDRSS**. The Bids are to be prepared and submitted in specified Templates online, by logging into the portal <https://eproc.vssc.gov.in>. Submission of Bids involves two stages to be performed by Vendors - Submission of Bids and Open Authorization. The Bids remain encrypted with the bidders's public key, until the Open Authorization stage. All those Bids where Open Authorization is not given, are automatically disqualified. Such Bids will not be openable and will not be considered for further processing. The Vendors are advised to submit the Bids much before the Closing Time to avoid last minute problems.

E-Procurement No. VSSC/PURCHASE UNIT VI (CMSE PURCHASE)/VS202100148401 Dt. 29.06.2021 and Print Media Advertisement ref. No. VSSC/P/ADVT/309/2021 Dt. 29.06.2021. E-Tenders are invited for **Transportation Container for Deployable Reflectors for IDRSS** through our E-procurement site <https://eproc.vssc.gov.in>. Bids can be submitted **upto 12.08.2021 [14:00 Hrs.]**, Bid Opening date : **12.08.2021 [14:01 Hrs.]**.

Only online tenders will be accepted. No manual / Postal / e-mail / fax offers will be entertained. No manual tender document will be issued. Parties interested to participate in this e-Tender are required to register themselves as vendors, if not already registered, in our e-procurement portal <https://eproc.vssc.gov.in> by downloading plugins and help demos listed on the home page of the e-procurement link mentioned above to complete the vendor registration process. They can seek help from help desk 080 6780 7786 also as provided in the home page of e-procurement portal in case of any problem for registration and subsequent process. Vendors may please note that without registering in our e-procurement portal, they will not be able to quote for this e-tender.

Important Notice : Tender shall be opened on the first day of the schedule [**ie. 12.08.2021 [14:01 Hrs.]**]. If the tender could not be opened on the first day due to any technical snag, it will be opened on the subsequent day as per the schedule. Bidders who are desirous of attending the tender opening may make arrangements for attending the tender opening at their cost.

भारत सरकार/GOVERNMENT OF INDIA  
अंतरिक्ष विभाग/DEPARTMENT OF SPACE  
विक्रम साराभाई अंतरिक्ष केंद्र/VIKRAM SARABHAI SPACE CENTRE  
तिरुवनंतपुरम/THIRUVANANTHAPURAM – 695 022

संदर्भ / Ref: 6089-2020-3864-01

तिथि/Date : 29/06/2021

**अभिरुचि की अभिव्यक्ति / EXPRESSION OF INTEREST (EOI)**

Vikram Sarabhai Space Centre [VSSC], Govt. of India invites Expression of Interest from interested Indian Industries for Supply of Aerospace Quality Castings

Detailed Technical Specification and Terms & Conditions are available in our website [www.isro.gov.in](http://www.isro.gov.in) and [www.vssc.gov.in](http://www.vssc.gov.in)

Interested prospective Indian Industries can furnish their Expression of Interest quoting our reference No. **6089 2020 00 3864 01 on or before 30.07.2021; time : 4 pm** to the following address.

वरि. क्रय एवं भंडार अधिकारी / Sr. Purchase & Stores Officer,  
क्रय यूनिट V, एमएमई/Purchase Unit- V, MME  
आरएफएफ क्षेत्र, इसरो पीओ/ RFF Area, ISRO. PO,  
तिरुवनंतपुरम/Thiruvananthapuram- 695022.  
फोन/Ph: 0471-256 2831 / फैक्स/Fax: 0471 256 2021

हस्ताक्षरित/Sd/-

वरि. प्रधान, क्रय एवं भंडार / Sr. Head, Purchase & Stores

**Document for**  
**Invitation for Expression of Interest (Eol) from Indian**  
**Industries for Supply of Aerospace Quality Casting**

**MATERIALS AND MECHANICAL ENTITY  
VIKRAM SARABHAI SPACE CENTRE  
THIRUVANANTHAPURAM**

October 2020

**Invitation for Expression of Interest (Eol) from Indian Industries for  
Supply of Aerospace Quality Castings**

**A: Attention to bidders:**

1. The Eol document shall be carefully read and all points shall be duly addressed.
2. Eol responses with incomplete / insufficient supporting data shall not be considered further. No further correspondence shall be entertained with respect to this.
3. Bidders can contact/visit VSSC/ISRO with prior appointment from Sr. Purchase & Stores Officer, Purchase Unit-5, MME purchase, Thumba P.O., Thiruvananthapuram - 695022 for any clarifications/discussions. Contact Phone No: 0471-2562831. Email id: spso\_mme@vssc.gov.in

**1. Introduction**

Vikram Sarabhai Space Centre (VSSC) is the lead Centre of Indian Space Research Organisation (ISRO). The Centre is actively pursuing research and development for ongoing and future space transportation systems of ISRO. To meet various programmes of ISRO, VSSC is interested in establishing a vendor base for supply of "Aerospace Quality Investment castings". These castings are made up of various alloys such as aluminum alloys, stainless steels, Titanium alloys and Superalloys. Total 38 types of castings are proposed to be procured and their details are provided in Table 1 of this document. The total requirement of castings is 150-200 numbers per year.

This expression of interest is invited from vendors with previous experience in the field of castings (preferably investment) and technically competent, financially stable having necessary infrastructure / willingness to establish necessary facilities to realise and supply these castings of specific quality.

**2. Scope of Work**

Scope of the work involves development, qualification and supply of investment castings to VSSC meeting the following conditions:

- Party can select to supply against any one or more group from the Table 1. There are 6 groups A to F in Table 1.
- Party can express interest to supply against all groups in the Table 1.
- Party should be willing to supply all items in the selected group(s). Any individual item in the selected group cannot be left out.
- Casting drawing and 3D Models of the casting can be provided by VSSC.
- The selection of the casting will be on mutual agreement basis.
- Vendor qualification will be based on successful realisation and supply meeting all quality requirements of 10 nos. each of 2 types of castings from each group mutually agreed.

### 3. Product /Process description

Realization and supply of investment castings of aerospace quality involves alloy making (melting) & pouring to ceramic shells prepared as per the drawings of castings either through Rapid Prototype (RP) pattern or through die. After fettling the casting undergoes inspection for assessment of quality through dye penetrant and x-ray radiography. Repair of the unacceptable defects are carried out through dressing /TIG welding process. Finally, sound casting is subjected to heat treatment and dimensional inspection. Identified castings undergo Hot Isostatic Pressing (HIP) process prior to heat treatment as per details provided in the Table 1. Identified castings (as per the Details in Table 1) are pressure tested (PT) after heat treatment and dimensionally inspected.

All types of castings to be realized through investment casting process. Only aluminium alloy casting can be realised either through investment casting or gravity die casting route. The mass of the casting varies from 200 gms to 70 Kgs. Most of the dimensions (as specified in the drawings) in these castings are unmachined and hence good surface finish & dimensional tolerances are to be ensured through process control.

#### 3.1 Types of castings and their Materials of construction:

List of castings required to be realized, details of materials etc. are given in Table 1. Photograph of the some of the complex castings are presented in Fig. 1.

**Table 1: Name of Castings, its material, size, weight and other requirements**

Sl. No.	Name of the Casting	Material of the casting	Overall size (mm)	Mass approx. (Kgs)	Pressure test / Hipping
<b>Stainless Steel: Group A</b>					
1	Stop-105C	SS 08X14H7MЛ	111x89x86	1	
2	Stop-105-01C	SS 08X14H7MЛ	111x89x86	1	
3	Cross bar-128C	SS 08X14H7MЛ	106x80x38	1	

4	Cross bar-128-01C	SS 08X14H7MЛ	106x80x38	1	
5	Support casting	SS 08X14H7MЛ	317x144x98	2	
6	V2 Housing	SS 08X14H7MЛ	104x100x52	2	
7	V5 Housing	SS 08X14H7MЛ	99x92x74	2	
8	V4Housing	SS 08X14H7MЛ	152x113x88	4	
9	LPFT straightening device	SS 08X14H7MЛ	Ø235x75	7	
10	LPFT inlet branch	SS 08X14H7MЛ	Ø296x118	16	PT
11	IC-3 (Core)	SS 14X18H4r4	Ø74x53	1	
12	IC-6 (Second Stage Inlet)	SS 14X18H4r4	Ø100x52	1	
13	IC-7 (Turbine Housing)	SS 14X18H4r4	Ø125x53	2	
14	IC-1 (Body)	SS 14X18H4r4	Ø83x102	2	
15	IC-2 (Oxidizer Volute)	SS 14X18H4r4	Ø98x107	3	
16	IC-8 (Scroll Casing)	SS 14X18H4r4	Ø132x123	4	
17	IC-4 (Insert)	SS 14X18H4r4	Ø170x55	5	
18	IC-5 (Pump Casing)	SS 14X18H4r4	Ø225x202	15	
19	LH2 Interstage Housing Body casting	SS 14X18H4r4	Ø250x70	15	
20	LH2 Second Stage Volute Body Casting	SS 14X18H4r4	269x268x180	18	
21	MFP impeller	SS 04X13H5M5K9Л	Ø300x114	16	HIP
<b>Stainless Steel: Group B</b>					
22	LPOT inlet branch	SS 08X14H7MЛ	Ø378x148	22	PT + HIP
23	V3- small	SS 08X14H7MЛ	Ø280x114	24	
24	MFP inlet branch	SS 08X14H7MЛ	365x297x290	36	PT + HIP
25	LPFT outlet branch	SS 08X14H7MЛ	426x395x263	38	PT + HIP
26	LPOT straightening device	SS 08X14H7MЛ	Ø393x223	47	
27	MOP inlet branch	SS 08X14H7MЛ	368x312x306	65	PT + HIP
28	V3-bigger	SS 08X14H7MЛ	392x291x276	70	
<b>Superalloy: Group C</b>					
29	Exhaust Unit Casting	SuperalloyXH43	Ø200x91	5	HIP
30	LH2 Turbine Exhaust Casing Casting	SuperalloyXH43	Ø275x117	8	PT + HIP
31	LOX Turbine Exhaust Casing Casting	SuperalloyXH43	Ø318x135	10	PT + HIP
32	MOP impeller	Superalloy IN718	Ø275x100	19	HIP
<b>Superalloy: Group D</b>					
33	Spider	SuperalloyXH67	Ø355x167	38	HIP

Titanium: Group E					
34	THRR Body -2	Ti6Al4V	Ø233x190	10	HIP
35	THRR Body -1	Ti6Al4V	Ø240x212	14	HIP
Aluminium: Group F					
36	Clamp casting	Al AlloyAL185B	92x38x38	0.2	
37	Bracket	Al AlloyAL185B	83x65x42	0.2	
38	PBP impeller	Al Alloy AL4	Ø170x87	1.5	HIP
All Aluminum alloy castings (36-38) may be realized either with investment casting or Die route.					

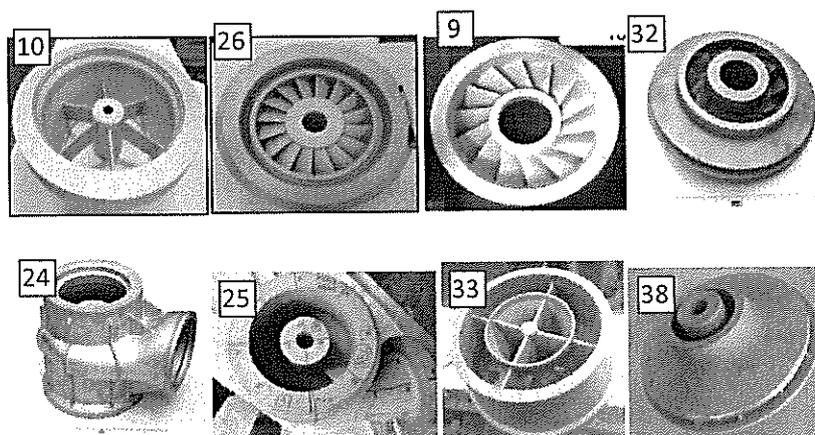


Fig. 1: Photograph showing some of the complex turbo pump castings (Number shown in box corresponds to Table 1)

### 3.2 Material Specification & process requirements

Composition of each material and melting facility required is mentioned below:

#### Stainless Steel ICSS-1418-201C(14X18H4r4) – Air Induction Melting (AIM) / Vacuum Induction Melting (VIM)

Elements	C	Si	Mn	Ni	Cr	S	P	Fe
Wt %	0.14 max.	0.2 - 1.0	4.0 - 5.0	4.0 - 5.0	16.0 - 20.0	0.020 max	0.020 max	Bal.

#### Stainless Steel ICSS-0814-CA6NMC(08X14H7MJ) - AIM / VIM

Elements	C	Si	Mn	Ni	Cr	Mo	S	P	Cu	Fe
Wt %	0.08 max.	0.2- 0.75	0.3- 0.9	6- 8.5	13- 15	0.5- 1.0	0.02 max.	0.02 max	0.3 max	Bal.

**Stainless Steel ICSS - 413 (04X13H5M5K9Л) - AIM / VIM**

Elements	C	Si	Mn	Ni	Cr	Mo	Co	Cu	S,	P	Al	Fe
Wt %	0.04 Max.	0.50 Max	0.7 Max	4.5- 6.0	12.5- 13.5	4.0- 5.0	8.0- 10.0	0.3 Max	0.02 Max	0.02 Max	0.10 Max	Bal.

**ICNi-4314-706C (XH43) - VIM**

Element s	C	Cr	Ni	Nb	Mo	Ti	Al	V
Wt. %	0.03- 0.07	13.0- 15.0	42.0- 45.0	2.3- 2.8	1.0 - 2.0	1.5- 2.0	0.2- 1.0	0.1- 0.5
Element s	Si	Mn	S	P	Ca	Ce	Fe	
Wt. % (Max)	0.5	0.6	0.01	0.01	0.02	0.02	Bal	

**XH67MBTЮЛ - VIM**

Elements	C Max	Si, Max	Mn Max	Cr	Ni	Ti	Al	W	Mo
Wt. %	0.08	0.60	0.50	17 - 20	Bal.	2.2 – 2.8	0.9 – 1.5	4.0 – 5.0	4.0 – 5.0
Elements	Fe Max	S max	P max	B max	Cem ax	V max	Cu max	Ca max	
Wt. %	4	0.010	0.015	0.01	0.02	0.2	0.07	0.1	

**Inconel 718 (IN718) - VIM**

Element	C Max	Cr	Ni	Nb	Mo	Ti	Al	Ti+ Al max
Wt %	0.08 Max.	17-21	50-55	4.75- 5.50	2.80- 3.30	0.65- 1.15	0.4- 0.8	1.75
	Co Max	Cu Max	B Max	Si max	Mn Max	S Max	P Max	Fe
	1	0.03	0.006	0.35	0.35	0.015	0.015	Bal

Ti6Al4V - VSM											
Elements	Al	V	Fe	O	C	N	H	Y	Residual Elements		Ti
									Each	total	
Wt%	5.50 - 6.75	3.50 - 4.50	0.30 max	0.20 max	0.10 max	0.05 max	0.015 max	0.005 max	0.10 max	0.40 max	Rem

#### Aluminum alloy Al185B - Electrical Resistance Melting

Elements	Si	Cu	Mg	Cd	Bi	Ti	Mn	Fe	Al
Wt %	7.0-8.5	2.5-3.5	5-0.3 5-0.3	0.1 0.1	0.2-0.4	0.0 5-0.2	<0.1	<0.2 5	Bal

#### Aluminum alloy AL4 Alloy - Electrical Resistance Melting

Element	Wt%	Element	Wt%
Al	Bal.	Cu	0.3 max
Si	8.0-10.5	Zn	0.3 max
Mn	0.2-0.5	Zr + Ti	0.15 max
Mg	0.17-0.30	Sn	0.01 max
Fe	0.6 max	Pb	0.05 max
		Be	0.10 max
		Ni	0.10 max
		Sum of above accountable impurities	1.01 max

### 3.3 Manufacturing Process

Following manufacturing process stages are recommended for realization of castings by investment casting route:

S.No	Processing Steps
1	Wax pattern Die design and fabrication (In case of use of RP process starts from step 3)
2	Wax pattern injection
3	Wax assembly / RP assembly

4	Shell making
5	Dewaxing / Burnout
6	Shell firing
7	Melting and pouring
8	Shell knockout and fettling
9	Pre machining
10	Visual / DP
11	Radiography (X-ray/Gamma ray)
12	Weld repair of unacceptable defects
13	Radiography and DP of weld zone
14	HIP (if specified, as per Table 1)
15	Radiography, as per requirement on mutual agreement
16	DP
17	Heat treatment
18	Inspection/Tests
19	Pressure test (if specified, as per Table 1)
20	Passivation (SS castings only)
21	Supply

The vendor shall prepare a detailed manufacturing and Quality assurance plan and submit for review and approval by VSSC. Manufacturing shall start only after approval of the same.

### 3.4 Pressure Test Requirements

Sl. No.	Casting	Pressure level	Holding time
10	LPFT inlet branch	12.7 bar	5mins
22	LPOT inlet branch	32 bar	5mins
24	MFP inlet branch	25 bar	5mins
25	LPFT outlet branch	12.7 bar	5mins
27	MOP inlet branch	70 bar	5mins
30	LH2 Turbine Exhaust Casing Casting	11.5 bar	5mins
31	LOX Turbine Exhaust Casing Casting	6 bar	5mins

### 4. Infrastructure Requirements

The vendors shall have necessary facilities or express willingness to establish the required facilities. A list of facilities required for typical investment casting process is shown below:

Sl. No	Name	Features	Purpose	Remarks
1.	Melting and Casting Furnace	➤ Vacuum Induction melting (Capacity 100Kgsmin.)	Alloy making	Essential for Super alloys
		➤ Air Induction/VIM melting (Capacity 150Kgs min.)		Essential for Stainless Steel
		➤ Vacuum Skull melting (Capacity 100Kgsmin.)		Essential for Titanium alloys
		➤ Electrical Resistance Melting (Capacity 30 Kgsmin.)		Essential for Aluminum alloys
2.	Wax injection press	<ul style="list-style-type: none"> <li>➤ Wax blending (preparation of wax)</li> <li>➤ Standard equipment</li> </ul>	For Wax pattern (Size and weight according to casting)	Essential
3.	Shell preparation system	<ul style="list-style-type: none"> <li>➤ Manual shell making facility for small casting</li> <li>➤ Robotic shell making facility for large castings</li> <li>➤ Autoclave for de-waxing</li> <li>➤ Electrical furnace for burn-out/shell firing</li> </ul>	Shell making using ceramic slurry	Essential
4.	NDT	<ul style="list-style-type: none"> <li>➤ X-ray Radiography (250 KeV)</li> <li>➤ Gamma ray radiography</li> <li>➤ Dye Pentretant test setup</li> <li>➤ RT film processing facility</li> <li>➤ Illuminator of optical density 2-4 with allied facilities for interpretation of radiographs</li> </ul>	For NDT	Essential
5.	Hot Isotatic Press	Upto temperature of 1200°C and pressure of 1500 bar	Hipping for superalloy and impeller castings	Optional
6.	Dimension Inspection	<ul style="list-style-type: none"> <li>➤ CMM (Size according to casting size selected) and white/blue light scanner, other</li> </ul>	For dimensional inspection of castings	Essential

		Standard equipment for dimensional inspection ➤ UT thickness measurement for thicknesses		
7.	Facility for cutting, dressing, finishing, grinding	Standard tools	For fettling	Essential
8.	Passivation system / facilities	➤ Grit blasting system ➤ Tanks and relevant system	For final passivation treatment	Essential
9.	Pressure testing equipments	Pressure test (5 to 100 bar).	For pressure testing of some of the castings as per Table 1	Essential for PT items only
10.	Heat treatment furnace	➤ Vacuum furnace (for HT temp. from 700 - 1250 <sup>0</sup> C), ➤ Air furnace (for HT temp. from RT -700 <sup>0</sup> C), ➤ subzero (-70 <sup>0</sup> C) for 08X14H Stainless steel	For heat treatment	Optional
11.	Mechanical testing	➤ Specimen fabrication ➤ Tensile testing at room temperature ➤ Impact at room and 77K	For testing	Essential
		➤ Tensile testing at Cryo Temperature (77K) ➤ Creep/Stress rupture testing ➤ High temperatures (upto 750 <sup>0</sup> C)		Optional
12.	Chemical Composition	Spectrometer and other instruments as per ASTM/AMS standards	For chemical composition	Essential
13.	Optical Microscope	Standard microscope	For microstructure	Essential
14.	Machining facility	VTL, CNC and other facilities	Premachining for interface dimension for pressure test and sample fabrication	Essential
15.	GTAW welding	Standard equipment for GTAW welding of all the alloys mentioned above	For weld repair	Essential

It is desirable that all the essential facilities listed in the table above are within the premises of the contractor/ vendor. However, Optional supporting activities like

Hipping and heat treatment can be outsourced to vendors with prior approval of VSSC. The party/ vendor shall submit a list of facilities presently available at the time of responding to EOI including the detailed specifications. Party shall mention the plan and time line by which all the essential facilities can be established within their premises.

## **5. Inspection Requirement**

All the inspection and testing are to be performed as per the approved Quality Assurance plan by qualified and approved person only. Main inspection requirements to be carried out by the vendor are mentioned below:

1. Chemical analysis of melt and the product.
2. Mechanical properties on the test bars and samples drawn from one of the cut castings.
3. Creep /Cryo test on samples, wherever applicable.
4. Pre-machining of castings and dimensional inspection as per approved plan.
5. X-ray/γ-ray radiography and DP test for leak check and surface defects of castings.
6. Pressure testing of castings.

### **5.1 Inspection/process/test Documents**

The following documents have to be generated and submitted for each individual casting.

1. Chemical analysis of melt and the product.
2. X-ray/γ-ray radiography and DP test for leak check and surface defects of castings.
3. Weld repair documents
4. Heat treatment reports
5. HIP reports (if any)
6. Dimensional inspection
7. Mechanical properties on the test bars and samples drawn from one of the cut castings.
8. Creep /Cryo test on samples, wherever applicable.
9. Pressure testing of castings (if specified).

5.2 Party shall log all the process details, test reports and calibration reports of process and testing equipment's and should provide for verification by VSSC

5.3 VSSC shall have the right to witness process/inspection test at any stage of processing of the castings.

## **6. Schedule**

Entire development and qualification activities shall be completed within 12 months from the date of placement of purchase order.

## **7. Other Terms and Conditions**

### **7.1 Confidentiality**

7.1.1 All documents, information and any items related to product that are received from VSSC shall be kept confidential and shall not be altered with or disclosed to third parties without explicit written permission from VSSC/ISRO.

### **7.2 Criteria for scrutiny of EOI proposals**

7.2.1 **Party shall submit the EOI with all technical details duly filled in the Compliance Matrix attached with the EOI.** Incomplete/insufficient data in the Compliance Matrix shall be considered as a disqualification. In addition, if the technical details provided were found incorrect at a later stage, the party shall get disqualified.

7.2.2 Prior experience in development and supply of investment castings or similar castings shall be considered as a desirable criterion. A brief description has to be submitted by the vendor stating the length of experience in this domain including experience in CAD and methoding.

7.2.3 Parties having 100% facilities in-house mentioned as essential in Table under section 4 shall be given 10 marks. Parties shall be given proportional marks out of 10 based on percentage availability of essential facilities (in-house) while screening. Bidders with in-house R&D facilities and man power shall get added advantage. Details shall be provided in the EOI.

7.2.4 Bidders who do not have a specific facility in-house, but have authorization / confirmatory letter from any Department approved source, also shall be given due weightage in the relative assessment.

7.2.5 Bidders who are willing to invest and establish any facility shall indicate so with appropriate commitment statement, and such case shall also be considered for Technical evaluation.

7.2.6 If essential, unique and exclusive facilities like HIP available at Department can be spared to the bidder which shall be indicated specifically in the EOI. Usage cost for each facility shall be believed as per the existing norms.

7.2.7 If any mandatory infrastructure is not available currently, party can indicate the procurement plan in the EOI which shall be duly considered. However, this shall not affect the development schedule (12 months).

7.2.8 In the case of desirable facilities which are not available in-house, party shall clearly indicate the plan for 3<sup>rd</sup> party tie up and proposed parties with address.

7.2.9 For parties who have executed VSSC contracts/ other government contracts previously, necessary documentary evidences shall be attached with the EOI. This shall have due weightage.

- 7.2.10 The party should be financially stable to undertake the proposed project and shall provide supporting documents. Experience of having successfully completed similar works during last 3 years ending last day of month previous to the one in which applications are invited should be either of the following: -
- a. Three similar completed work costing not less than the amount equal to 2.5 crore each.
  - or
  - b. Two similar completed works costing not less than the amount equal to 3.75 crore each.
  - or
  - c. One similar completed work costing not less than the amount equal to 7.5 crore.

7.2.11 EOI shall also contain the following details

- Copy of valid manufacturing license.
- copy of last 3 years filed tax returns
- Details of Registration no., PAN card, GST, TIN, NSIC, MSME registration, etc
- The address/es registered site works / workshop etc.

**7.2.12 Party shall provide a comprehensive presentation to VSSC Thiruvananthapuram covering all the above points.**

- 8 Technical competence will be evaluated by a committee constituted by VSSC which will short list the qualified bidders based on the inputs (Annexure -1: Compliance Matrix) submitted by the party and the presentation provided to VSSC team. If required a visit to the facility may be conducted by VSSC team for assessment and evaluation.
- 9 Short listed bidders from the Eoi shall be allowed to participate in further tendering procedures through Request For Proposal (RFP) wherein technically suitable, lowest offer will be considered for development and supply of investment castings.
- 10 The decision of VSSC shall be final and binding, based on inputs furnished by parties backed up with documentary evidence, assessment based on facility visits (if required) and discussions at VSSC.

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## Pre-qualification criteria

1. The bidder shall provide
  - (a) A brief description of the background and organization of your firm/entity.
  - (b) The turnover of the company on the basis of the audited accounts of the previous three years.
  - (c) Copy of the last three years Income Tax returns shall be provided.
2. The bidders shall provide valid authorization certificate from the manufacturer that they are the authorized dealer / distributor /agent for the items in our locality.
3. Your previous experience:  
Copies of Purchase Orders awarded to you by Government/PSU shall also be attached.
4. Only Class I and Class II Local suppliers as per Make in India Policy are eligible to participate in the bid.
5. Foreign vendors are not permitted to quote
6. The percentage of Local content should be specifically mentioned in the offer, without which it will be summarily rejected.
7. Preference will be given to Class I Local Supplier and in their absence, Class II Local Suppliers will be considered.