

Request for Expression of Interest through E-Procurement

EOI Ref no: -PE-EOI-2023/01

Dtd.26.05.2023

Subject: - Request for Expression of Interest (EOI) for shortlisting of eligible bidders for detailed Engineering & Service support for Double Girder EOT crane as per attached specification No. PE-TS-A-01-EOT/EOI dated 22.05.2023

1. Invitation

BHEL is the largest engineering and manufacturing enterprise in India in the energy-related/infrastructure sector, today. BHEL was established more than 50 years ago, ushering in the indigenous Heavy Electrical Equipment industry in India - a dream that has been more than realized with a well-recognized track record of performance.

Project Engineering Management (PEM) Division is BHEL's power plant System Integrator, a nodal agency providing total engineering solutions for conventional thermal, hydro, gas-based and nuclear power projects, enabling BHEL to offer complete Engineering, Procurement and Construction (EPC) services for power projects.

PEM requires an OEM of EOT who can meet the end client's (Power Plant Owner) technical qualification requirement. The qualifying crane designer or manufacturer to do the detailed engineering of crane (based on basic engineering inputs provided by PEM) and provide all drawings/ documents including but not limited to machining, fabrication and assembly drawings as required for complete manufacturing of the crane to PEM & to provide supervision services during manufacturing at BHEL works (Trichy).

Through this Expression of Interest (EOI), PEM seeks responses from interested OEMs of crane designer or manufacturers above 100T capacity to shortlist interested parties for further processing through a Request for Proposal (RFP) addressed exclusively to shortlisted parties.

2. Instructions for EOI

2.1 Governing Language and Law

2.1.1 The Bid shall be in English language. All correspondence and documents relating to the bid exchanged between the bidder and the purchaser shall also be in ENGLISH language. However, any technical document/ literature etc. printed in a language other than English shall be accompanied by its true English translation duly signed for its correctness. Any document submitted with the bid but not in English language shall not be treated as part of the bid document. The responsibility for the correctness of the translations if any solely rests on the bidder and purchaser shall not be responsible for any loss/likely loss arising out of error in translation whatsoever. In such cases, for the purpose of interpretation of the bid, the English translation shall prevail.

2.1.2 The REOI process shall be subject to the laws of the Union of India and the exclusive jurisdiction of courts subject to the exclusive jurisdiction of the Indian courts at Delhi-NCR

3. Interested bidders are requested to submit their technical and financial credentials along with other relevant information in the form of documents listed in attached specification No. PE-TS-A-01-EOT/EOI dated 22.05.2023 through e-procurement portal of BHEL (<https://eprocurebhel.co.in/nicgep/app>) on or before **16.06.2023, 14.00hrs (IST)**. EOIs must be uploaded on the eProcurement Portal only until the submission deadline. No manual EOIs shall neither be made available nor accepted for submission. EOI submitted through modalities other than those stipulated shall be liable to be rejected as nonresponsive.

The EOI bids shall be opened i.e 16.06.2023, 15:00 Hrs (IST)

4. In case of any inquiries or require further information, please contact the undersigned at the contact details provided below.

Mr. Pankaj Kapsimay, Sr Manager/MAUX. E-MAIL: pankajkapsimay@bhel.in Ph. No. 0120- 4368914, 9971422660	Mr. LALIT JINDAL, Sr Manager/Maux. E-MAIL: lalitjindal@bhel.in Ph. No. 0120- 4368918, 9810054236
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5. Validity of EOI shall be 180 days from the date of opening of EOI bid

Thanking You
Yours faithfully

For & on behalf of BHEL
Akash Verma
Dy. Manager/ CMM
9718575780
BHEL PS-PEM, Noida

EXPRESSION OF INTEREST (EOI)
FOR
**Detailed Engineering & Service support for
Double Girder EOT crane**



REF. NO: PE-TS-A-01-EOT/EOI
Rev. 0 Dated 22-05-2023

BHARAT HEAVY ELECTRICALS LIMITED
POWER SECTOR - PROJECT ENGINEERING MANAGEMENT
NOIDA, UTTAR PRADESH, INDIA

BHARAT HEAVY ELECTRICALS LIMITED
POWER SECTOR - PROJECT ENGINEERING MANAGEMENT

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DISCLAIMER

The information contained in this Expression of Interest (EOI) document provided to the prospective bidders, by or on behalf of Bharat Heavy Electricals Limited (BHEL) or any of its employees or advisors, on the terms and conditions set out in this EOI document and all other terms and conditions subject to which such information is provided.

1. The purpose of this EOI document is to provide the prospective bidders with information to assist the formulation of their proposal. This EOI document does not mean to contain all the information each prospective bidders may require. This EOI document may not be appropriate for all persons and it is not possible for BHEL, its employees or advisors to consider the business / investment objectives, financial situation and particular needs of each prospective bidders who reads or uses this EOI document. Each prospective bidder should conduct his own investigations and analysis and should check the accuracy, reliability and completeness of the information in this EOI document and wherever necessary obtain independent advice from appropriate sources.
2. BHEL, its employees and advisors make no representation or warranty and shall incur no liability under any law, statute, rules or regulations as to the accuracy, reliability or completeness of the EOI document.
3. BHEL may, in its absolute discretion, but without being under any obligation to do so, modify, amend or supplement the information in this EOI document.
4. The issue of this EOI does not imply that BHEL is bound to select and shortlist any bidder(s). Even after selection of suitable prospective bidders, BHEL is not bound to proceed ahead with the prospective bidders and in no case be responsible or liable for any commercial and consequential liabilities in any manner whatsoever.
5. The prospective bidders shall bear all costs associated with the preparation, technical discussion / presentation and submission of response against this EOI. BHEL shall in no case be responsible or liable for these costs regardless of the conduct or outcome of the EOI process.
6. Canvassing in any form by the prospective bidders or by any other agency on their behalf shall lead to disqualification of their EOI.

1. INTRODUCTION

BHEL is the largest engineering and manufacturing enterprise in India in the energy-related/infrastructure sector, today. BHEL was established more than 50 years ago, ushering in the indigenous Heavy Electrical Equipment industry in India - a dream that has been more than realized with a well-recognized track record of performance.

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PEM requires an OEM of EOT who can meet the end client's (Power Plant Owner) technical qualification requirement. The qualifying crane designer or manufacturer to do the detailed engineering of crane (based on basic engineering inputs provided by PEM) and provide all drawings/ documents including but not limited to machining, fabrication and assembly drawings as required for complete manufacturing of the crane to PEM & to provide supervision services during manufacturing at BHEL works (Trichy).

Through this Expression of Interest (EOI), PEM seeks responses from interested OEMs of crane designer or manufacturers above 100T capacity to shortlist interested parties for further processing through a Request for Proposal (RFP) addressed exclusively to shortlisted parties.

2. INSTRUCTION TO INTERESTED PARTIES

- 2.1 Scope of response and suggestions of Interested Party shall be limited to this EOI only.
- 2.2 Scope of work, Deliverables, Timelines, Terms and Conditions, Eligibility / Qualification Criteria, NDA defined in this EOI may get modified / improved at the time of RFP. However, in response to EOI, Interested Party may suggest improvement wherever necessary.
- 2.3 The details submitted by the Interested Party shall be complete in all respects and BHEL may seek clarifications/additional information as considered necessary. Such clarifications/ additional information must be provided within 3 days of BHEL request.
- 2.4 The Interested Parties may be called for interaction and presenting their proposal, if required.
- 2.5 Any request for further information or clarification on the EOI document may be submitted within 15 days from publication of this EOI.
- 2.6 Duly authorized representative(s) of the Interested Party shall send document over e-procurement site to above mentioned recipient. Response to EOI should be prepared in such a way so as to provide a straight forward, detailed proposal for scope of work and concise description on Interested Party's organization and manpower capabilities.

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2.7 The EOI process shall be governed by, and construed in accordance with, the laws of India and the Courts at New Delhi shall have exclusive jurisdiction over all disputes arising under, pursuant to and/ or in connection with the EOI process.

2.8 Interested Parties should provide following details:

2.8.1 Detail concept note and approach paper to address scope of work.

2.8.2 Details as per format for Expression of Interest in Annexure -I.

2.9 Any contradiction found in this EOI document may please be brought to the notice of BHEL immediately for suitable clarifications.

3. EOI OBJECTIVE

BHEL intends do in-house basic engineering and manufacturing of EOT cranes at BHEL-unit (Trichy) to meet supply requirement only in power plant turbine hall requirement. BHEL therefore is intending to limited tie up with interested OEM for meeting the end client's qualification requirement for EOT crane for Turbine hall structure.

Detailed scope of work is identified in Annexure-II.

4. SCOPE OF EOI

Interested parties have to provide following documents as part of the scope of EOI:

- Details as per **Annexure-I**.
- Observation / Confirmation on proposed division of scope between BHEL & interested party in **Annexure-II**.
- Mandatory acceptance to Non-disclosure agreement (NDA) as mentioned in **Annexure-III** (to be submitted during RFP).
- List of cranes with major parameters is attached in **Annexure-IV** for reference. Bidder will provide detail engineering of cranes for these projects.

Further, interested parties may provide additional information / documents with respect to the above documents of BHEL / any other information regarding Terms & Conditions, Taxes & Duties, Payment Terms etc.

5. RIGHT TO ACCEPT OR REJECT EOI

1) Notwithstanding anything contained in this EOI, BHEL reserves the right to accept or reject any Application and to annul the EOI Process and reject all Applications, at any time without any liability or any obligation for such acceptance, rejection or annulment and without assigning any reasons thereof.

In the event that BHEL rejects or annuls all the Applications, it may, at its discretion, invite all eligible Prospective bidder(s) to submit fresh Applications.

2) BHEL reserves the right to verify all statements, information and documents submitted by the Applicant in response to the EOI. Any such verification or lack of such verification by BHEL shall not relieve the Applicant of his obligations or liabilities hereunder nor will it affect any rights of BHEL.

6. EOI EVALUATION METHODOLOGY

BHEL will evaluate the interested OEM offers based on the input furnished as per format furnished in annexure –I and not limited to the following

The ranking in terms of

- qualification to meet end client requirement,
- willingness to transfer technical knowhow
- quality of documents reference shared as proof of meeting the QR
- reference project list (successful) with client take over certificate
- financial condition of the OEM to execute the EOI
- capability to guide through procurement of Bol, manufacture, assembly and testing process to enable BHEL to develop design and manufacture EOT crane.

7. VERIFICATION OF ORIGINAL DOCUMENTS AT RFP PROCESS

PEM reserves its right to call for verification, originals of all self-certified copies of uploaded documents from the parties during the following RFP Process. If the shortlisted party fails at that stage to provide such originals or, in case of substantive discrepancies in such documents, it shall be construed as a breach of the integrity. Such RFP proposals shall be liable to be rejected as nonresponsive.

8. DECLARATION OF SHORTLISTED PARTIES

- 1- EOIs of parties that succeed in the above evaluation shall be shortlisted. Provisionally shortlisted parties will be informed of the condition(s) that must be met before submitting their Proposal in the RFP process. Such shortlisting shall remain valid for period specified (six months from the date of declaration, if not so specified).
- 2- The name and address of the shortlisted parties shall be published in the portal and notice board/ bulletin/website of PEM/portal. All Parties shall be advised about shortlisting of their EOIs or otherwise without disclosing the comparative position of their EOIs with that of others. Shortlisted parties must not advertise or publish the same in any form without the prior written consent of PEM.
- 3- Shortlisting a party is an administrative process and does not confer any legal or contractual rights on him. Since original documents/ certificates are not being called for and examined at this stage, all shortlisted shall be conditional upon final verification of such documents/ certificates during the RFP Process.

9. PUBLICATION OF RFP FOLLOWING THIS EOI

PEM shall publish a Request for Proposal (RFP) addressed exclusively to shortlisted parties for the following procurement process through the eProcurement portal. PEM/ the Portal may issue notifications/ alerts to such Parties but without any liability. Such Parties shall be responsible for being on the lookout for the RFP on the portal. While publishing the RFP, PEM reserves its right to elaborate further on the brief overview of the scope of work, qualification Criteria and other terms & conditions without vitiating the shortlisting process. Shortlisted parties shall have no claim in this regard.

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Annexure-I
Format for Expression of Interest

1 Organization Details

Name of the organization	
Type of Organization (Pvt/ Public /Partnership/ LLP etc.)	
Date of Incorporation	
Address of Corporate / Head / Registered Office	
Phone Number of Registered Office	
Website	

2 Contact Person for the Applicant

Name:		Designation:	
Address:		Email:	
Telephone	Office:	Mobile No.:	

3 Bidder Work Experience & Eligibility Criteria:

S. No.	Eligibility Criteria	Document(s) to be provided as a proof
1	Pre-Qualification Requirement: Bidder should have capabilities for design/ manufacturing of Double Girder EOT crane with minimum 100T capacity with span of 24m or more. Copy of minimum one performance certificate from end user along with related Purchase Order specifying that the crane is running successfully for one year from the date of commissioning. This is minimum requirement. However, project specific Pre-Qualification Requirement shall be informed by BHEL at the time of RFP.	Documentary proof to be submitted
2	The Bidder should have PAN No. and GST Registration No.	Documentary proof to be submitted
3	The Bidder should not be currently black listed / banned for business dealings by any Govt. authority / department / agency or by any BHEL Unit / Region / Division / Office.	Undertaking on Company Letterhead

4 Proposed Philosophy

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Particulars	(Provide Responses)
Brief approach for implementation along with milestones and timeline for successful execution of proposed partnership between BHEL and interested party.	
Complete list of basic engineering data required by interested party from BHEL for detailed engineering.	
Complete list of Raw Materials and Bought-Out-Items to be procured by BHEL for manufacturing of crane.	
Observation/ acceptance on Scope Matrix (Annexure-II) for execution of proposed modality of design, manufacturing and testing of crane.	
Exhaustive list of crane manufacturing and testing facilities required at BHEL unit.	
Broad sequence/schedule of all activities listed in Scope Matrix along with basic timeline of each activity.	
Terms & Conditions (if any)	
Payment Terms	1 Submission of GA of EOT (10%) 2 Submission of Detailed Mechanical Drawings (10%) 3 Submission of Electrical Drawings (5%) 4 BoI Specifications (5%) 5 Approval of Customer (20%) 6 Supervision of Manufacturing (20%) 7 Acceptance at Site (20%) 8 Final Payment (10%)
Suggestion regarding Taxes & Duties (if any)	

I hereby declare that the details furnished in response to this EOI are true and correct to the best of my knowledge and belief. In case any of the above information is found to be false, I am aware that I may be held liable for it.

Place:

Name & Signature:

Date:

Designation:

Company Seal

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Annexure-II

PROPOSED DIVISION OF SCOPE BETWEEN BHEL & INTERESTED PARTY

S. No.	Description	DETAILED SCOPE
1	Basic engineering	<p>BHEL SCOPE: Preparation & customer approval of design basis report including crane clearance diagram, sizing calculation (motors, brakes, wheels, buffers etc.) and manufacturing quality plan.</p> <p>BIDDER SCOPE: Bidder to provide - Governing Design Standards, Applicable safety standards, Statutory requirements for the design and manufacturing of EOT cranes.</p>
2	Detailed engineering	<p>BHEL SCOPE: NIL</p> <p>BIDDER SCOPE: COMPLETE DETAIL ENGINEERING AS DETAILED BELOW</p> <p>* Detailed engineering drawings/documents: structural calculation, GA of crane, design & engineering of Lifting beam, hook assembly, crab and CT wheel assembly, rail fixing, LT machinery and LT wheel assembly, cabin layout, crane lubrication arrangement, detail BOM/BOQ</p> <p>Electrical - Sizing and selection of Motors, Motor Starter drives, Rating of electrical accessories, Design of Control Schematics for Crane Operation, Safety interlocks, Alarms & Warnings, electrical protection circuits, Power supply and distribution, Sizing and selection of Cables & accessories, design of down shaft lead, Design of Earthing system, Master panel, Control panels) schematic circuit diagram, earthing write-up, control write-up, panel GA, pendent GA, DSL voltage drop</p> <p>* Component level: machining and assembly drawings</p> <p>* Crane fabrication drawings</p> <p>* Crane assembly drawings</p> <ul style="list-style-type: none"> ➤ All detail engineering drawings shall be suitable for directly taking up of manufacture of components, sub-assemblies and total assembly of the crane. ➤ The drawing shall contain all essential details such as dimensions with tolerances wherever applicable, Part list identification, detailed Bill of materials correlated with Part list, Material specification, Quantity of items, Unit weight
3	PROCUREMENT OF RAW MATERIAL & BOIs (Bought out items)	<p>BHEL SCOPE: PROCUREMENT OF RAW MATERIALS & BOUGHT OUT ITEMS</p> <p>BIDDER SCOPE: INPUTS TO PROCURE AS DETAILED BELOW</p> <p>Bidder to furnish the details of Raw materials to be procured along with Specification, and Quantum.</p>

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		<p>Bidder to provide list of BOI Items (including Casting & Forgings) – Mechanical & Electrical - with Technical Specification, applicable drawings & Datasheet.</p> <p>Bidder to furnish potential vendor list for each Bought out item and for special Raw materials, if any.</p>
4	Manufacturing	<p>BHEL SCOPE: COMPLETE MANUFACTURING</p> <p>BIDDER SCOPE: SUPPORT TO MANUFACTURE AS DETAILED BELOW</p> <p>Bidder to provide Manufacturing Supervision including supply of:</p> <ul style="list-style-type: none"> • Manufacturing quality plan • List of special Processes like welding etc. • NDT procedures • Inspection stage Check list
5	Testing & Supply	<p>BHEL SCOPE: TESTING OF CRANES & SUPPLY</p> <p>BIDDER SCOPE: SUPPORT TO TEST AS DETAILED BELOW</p> <p>Testing of crane at BHEL works. Bidder to provide:</p> <ul style="list-style-type: none"> • List of Tests to be done with list of testing facilities required • Design & establishment of testing facilities • Testing Instruments required • Test procedure • Final list of test checkpoints for the crane before supply
6	Erection & commissioning	<p>BHEL SCOPE: Erection and Commissioning responsibility</p> <p>BIDDER SCOPE: SUPPORT FOR E&C AS DETAILED BELOW</p> <p>Supervision during E&C and load testing by bidder.</p> <ul style="list-style-type: none"> • On-Site Testing Protocol by bidder • Erection and Commissioning manual by Bidder
<p>NOTE: Detailed engineering of crane shall include the necessary technical know-how and know-why to design, engineer, manufacture, assemble, quality control, test, supply, install, erect, commission of double girder EOT crane, shall be transmitted to BHEL engineers during execution of contract. All detailed engineering documents shall be prepared and vetted by bidder for end customer’s approval.</p>		

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Annexure-III

Format for Non-Disclosure Agreement to be submitted “during RFP process”:

MUTUAL NON-DISCLOSURE AGREEMENT

This Agreement is made and entered into as of the last date signed below (the “Effective Date”) by and between **Bharat Heavy Electricals Ltd.(BHEL)**, a Public Sector Organization having its principal place of business at BHEL House, Siri Fort, New Delhi - 110049 and _____, a _____ corporation, hereinafter called “The Bidder”, whose principal mailing address is _____.

WHEREAS in order to pursue the mutual business purpose of this particular project as specified in Bid document for **Detailed Engineering & Service support of Double Girder EOT crane**, BHEL and the Bidder have an interest in participating in discussions wherein either Party might share information with the other that the disclosing Party considers to be proprietary and confidential to itself (“Confidential Information”); and WHEREAS the Parties agree that Confidential Information of a Party might include, but not be limited to that Party’s:

1. business plans, methods, and practices;
2. personnel, customers, and suppliers;
3. inventions, processes, methods, products, patent applications, and other proprietary rights; or
4. specifications, drawings, sketches, models, samples, tools, computer programs, technical information, or other related information;

NOW, THEREFORE, the Parties agree as follows:

1. Either Party may disclose Confidential Information to the other Party in confidence provided that the disclosing Party identifies such information as proprietary and confidential either by marking it, in the case of written materials, or, in the case of information that is disclosed orally or written materials that are not marked, by notifying the other Party of the proprietary and confidential nature of the information, such notification to be done orally, by e-mail or written correspondence, or via other means of communication as might be appropriate.

2. When informed of the proprietary and confidential nature of Confidential Information that has been disclosed by the other Party, the receiving Party (“Recipient”) shall, for a period of three (3) years from the date of disclosure, refrain from disclosing such Confidential Information to any contractor or other third party without prior, written approval from the disclosing Party and shall protect such Confidential Information from inadvertent disclosure to a third party using the same care and diligence that the Recipient uses to protect its own proprietary and confidential information, but in no case less than reasonable care. The Recipient shall ensure that each of its employees, officers, directors, or agents who has access to Confidential Information disclosed under this Agreement is informed of its proprietary and confidential nature and is required to abide by the terms of this Agreement. The Recipient of Confidential Information disclosed under this Agreement shall promptly notify the disclosing Party of any disclosure of such Confidential Information in violation of this Agreement or of any subpoena or other legal process requiring production or disclosure of said Confidential Information.

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3. All Confidential Information disclosed under this Agreement shall be and remain the property of the disclosing Party and nothing contained in this Agreement shall be construed as granting or conferring any rights to such Confidential Information on the other Party. The Recipient shall honour any request from the disclosing Party to promptly return or destroy all copies of Confidential Information disclosed under this Agreement and all notes related to such Confidential Information. The Parties agree that the disclosing Party will suffer irreparable injury if its Confidential Information is made public, released to a third party, or otherwise disclosed in breach of this Agreement and that the disclosing Party shall be entitled to obtain injunctive relief against a threatened breach or continuation of any such breach and, in the event of such breach, an award of actual and exemplary damages from any court of competent jurisdiction.

4. The terms of this Agreement shall not be construed to limit either Party's right to develop independently or acquire products without use of the other Party's Confidential Information. The disclosing party acknowledges that the Recipient may currently or in the future be developing information internally, or receiving information from other parties, that is similar to the Confidential Information. Nothing in this Agreement will prohibit the Recipient from developing or having developed for it products, concepts, systems or techniques that are similar to or compete with the products, concepts, systems or techniques contemplated by or embodied in the Confidential Information provided that the Recipient does not violate any of its obligations under this Agreement in connection with such development.

5. Notwithstanding the above, the Parties agree that information shall not be deemed Confidential Information and the Recipient shall have no obligation to hold in confidence such information, where such information:

5.1. Is already known to the Recipient, having been disclosed to the Recipient by a third party without such third party having an obligation of confidentiality to the disclosing Party; or

5.2. Is or becomes publicly known through no wrongful act of the Recipient, its employees, officers, directors, or agents; or

5.3. Is independently developed by the Recipient without reference to any Confidential Information disclosed hereunder; or

5.4. Is approved for release (and only to the extent so approved) by the disclosing Party; or

5.5. Is disclosed pursuant to the lawful requirement of a court or governmental agency or where required by operation of law.

6. Nothing in this Agreement shall be construed to constitute an agency, partnership, joint venture, or other similar relationship between the Parties.

7. Neither Party will, without prior approval of the other Party, make any public announcement of or otherwise disclose the existence or the terms of this Agreement.

8. This Agreement contains the entire agreement between the Parties and in no way creates an obligation for either Party to disclose information to the other Party or to enter into any other agreement.

9. This Agreement shall remain in effect for a period of one year from the Effective Date unless otherwise terminated by either Party giving notice to the other of its desire to terminate this Agreement. The requirement to protect Confidential Information disclosed under this Agreement shall survive termination of this Agreement.

**BHARAT HEAVY ELECTRICALS LIMITED
POWER SECTOR - PROJECT ENGINEERING MANAGEMENT**

IN WITNESS WHEREOF:

FOR AND ON BEHALF OF

**FOR AND ON BEHALF OF
BHARAT HEAVY ELECTRICALS LTD.**

Signature: _____

Name: _____

Designation: _____

Date: _____

Signature: _____

Name: _____

Designation: _____

Date: _____

Witness

1.

2.

Witness

1.

2.

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Annexure-IV

List of cranes is as follows for reference. Bidder will provide detailed engineering of these cranes.

Sl. No.	Project/Sector	Capacity	Quantity
1	Nuclear project	125 T	1 no.
2	Thermal project	265T	1 no.
3	Hydro project	300T	1 no.
4	Thermal project	200T	1 no.
5	Thermal project	150T	1 no.
6	Hydro project	360 T	1 no.
7	Hydro project	150T	1 no.
8	Hydro project	225T	1 no.
9	Thermal project	200 T	1 no.

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Annexure-V

STANDARD DATASHEET FOR POWER HOUSE CRANES

(PROJECT-SPECIFIC CONTENT MAY VARY)

Sr. No.	DESCRIPTION	TECHNICAL PARTICULARS	
1	Design, fabrication and testing of the crane confirm to standard / code number	Mechanical and Electrical as per IS: 3177-2020 & Structure design in accordance to IS 807:2006 / IS 800:1984.	
2	Crane classification	M5 (Mechanical and Electrical) as per IS: 807-2006 and 13834 (part-5)-1993	
3	Capacity and lift	Project-specific 125-360 T, 30-35 M	
	Main hoist		
	a. Rated SWC – tonnes	Project-specific	
	b. Test load SWC – tonnes	Rated SWC and over load test: 125% of SWC	
	Aux. hoists		
	a. Rated SWC – tonnes	Project-specific 25-50 T	
	b. Test load SWC – tonnes	Rated SWC and over load test: 125% of SWC	
4	Span	Project-specific (28 m typical)	
5	Operation from	Cabin + Pendent Push Button+ Radio remote control	
6	CRANE PERFORMANCE		
	Crane speed with full load	Full speed M/Min	Creep speed M/Min
	a. Main hoist	1.6	0.16 (10% of main speed thru' VVVF drives)
	b. Aux. hoist	7.5	0.75 (10% of main speed thru' VVVF drives)
	c. Trolley travel (CT)	15.0	1.5 (10% of main speed thru' VVVF drives)
	d. Longitudinal bridge travel (LT)	30.0	3.0 (10% of main speed thru' VVVF drives)
7	COMPONENT DETAILS		
7.1	Trolley	The trolley frame shall be built up from heavy steel plates, angles and channels adequately braced to resist vertical, lateral and torsional strains, welded to form a rigid one piece frame. Alternatively, it may be of cast steel construction and should be covered by flooring as far as possible.	
	a. Type	Fabricated	
	b. Method of fabrication	Fusion welded	
	c. Material	Mild Steel (Fe410) Gr-B IS: 2062 100% killed, normalized & Ultrasonically tested	
7.2	Rope drums	Main Hoist	Aux. Hoist
	a. Material (Indicate IS)	Seamless pipe ASTM -106 Gr. B or fabricated rolled section to IS: 2062 Gr. B & stress relieved	
7.3	Rope details		
	a. Construction	Extra flexible plough steel, 6 x 36 or 6x37 construction	
	b. Standard conforming to	IS: 2266 (latest edition)	

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7.4		Sheaves details	Main Hoist		Aux. Hoist	
	a.	Material	Fe 410 WA IS: 2062 Gr. B / CS Gr. 280-520 IS: 1030 Design as per IS: 3177- 1999			
7.5		Gear box details				
		Hoist Motions	MH	MH Micro	AH	AH micro
	a.	Type of mounting of gear box	Horizontal / Vertical			
	b.	Classification	Suitable for M5 duty			
	c.	Type of gears	Helical / Spur		Helical / Spur	
	d.	Standard conforming to	IS: 4460 / AGMA			
		Travel Motions	CT	CT micro	LT	LT micro
	a.	Type of mounting gear box	Vertical/ Horizontal	NA	Vertical/ Horizontal	NA
	b.	Classification	M5 duty			
	c.	Type of lubrication (grease / splash / pump lubrication)	Splash Lubrication			
	d.	Standard conforming to	IS: 4460 / AGMA			
7.6		Wheels details	Cross travel		Long travel	
	a.	Material	Grade C55Mn75 of IS 1570 (Part 1 and Part 2/Sec 2) or 42CrMo4 or equivalent as per IS 3177-2020. UTS required for selection of P _L value as indicated in Table 6 of IS 3177			
7.7		Lifting hooks	MH		AH	
	a.	Type	Ramshorn shank with safety latch swiveling type as per latest edition of IS-5749		Plain with safety latch swiveling type as per latest edition of IS: 15560	
	b.	Material	<ul style="list-style-type: none"> ✓ As per IS-5749 ✓ Class 3 for hook of grades L & M respectively as per IS 1875:1992 for hooks conforming to IS : 15560 			
7.8		Drive system for hoisting				
	a.	Arrangement of drive from motor to rope drum (main)	Through geared coupling and gear box			
7.9		Bridge girder				
	a.	Type & Quantity	Box type – 2 nos. Material: Mild steel, grade 'B' of IS 2062 in 100% killed, normalised and ultrasonically tested quality or high strength steel of IS 8500 as appropriate.			
	b.	Vertical Deflection	Span / 900			
7.10		Rails				
	a.	Type / section	Rails sections as per IS: 3443 Grade 50 C 12. Joint to be butt-welded by thermit welding or fusion welding/ CR-100 with 45 degrees angle.			
	b.	Standard conforming to	IS: 3443			
7.11		End carriage span (wheel base)	As per IS 807 (latest edition)			
7.12		Motors				
		Hoist Motions	MH	MH micro	AH	AH micro

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	a.	Type	Three phase Squirrel Cage Induction motors to be operated from VFD system	Through VVVF drive	Three phase Squirrel Cage Induction motors to be operated from VFD system	Thru VVVF drive
	b.	Enclosure	TEFC	NA	TEFC	NA
	c.	Class of protection	IP – 55			
	d.	Duration factor/duty	40 % CDF / S-4			
	e.	Class of insulation	Class 'F' for sq. cage motors with temp rise limited to 70 C			
	f.	Number of starts/ hour	Starts / hr as per IS 3177-2020			
		Travel Motions	CT	CT micro	LT	LT micro
	a.	Type	Three phase Squirrel Cage Induction motors to be operated from VFD system	Through VVVF drive	Three phase Squirrel Cage Induction motors to be operated from VFD system	Through VVVF drives
	b.	Enclosure	TEFC	NA	TEFC	NA
	c.	Class of protection	IP – 55			
	d.	Duration factor/duty	40 % CDF / S-4			
	e.	Class of insulation	Class 'F' for sq. cage motors with temp rise limited to 70C			
	if	Number of starts/ hour	Starts / hr as per IS 3177-2020.			
7.13		Panels				
	a.	Material	Sheet steel 2 mm size			
	b.	Numbers and location	One number Protective Panel located in cabin and One number Control Panel each for MH, AH, CT and LT located on bridge platform with space heaters			
	c.	DOP	IP 54			