

Bid Document/ बिड दस्तावेज़

Bid Details/बिड विवरण	
Bid End Date/Time/बिड बंद होने की तारीख/समय	08-03-2024 16:00:00
Bid Opening Date/Time/बिड खुलने की तारीख/समय	08-03-2024 16:30:00
Bid Offer Validity (From End Date)/बिड पेशकश वैधता (बंद होने की तारीख से)	180 (Days)
Ministry/State Name/मंत्रालय/राज्य का नाम	Ministry Of Heavy Industries And Public Enterprises
Department Name/विभाग का नाम	Department Of Heavy Industry
Organisation Name/संगठन का नाम	Bharat Heavy Electricals Limited (bhel)
Office Name/कार्यालय का नाम	Da Bhel
Total Quantity/कुल मात्रा	1
Item Category/मद केटेगरी	Double Girder EOT Crane above 100T for 2X800 MW Lara STPP (Q3)
MSE Exemption for Years of Experience and Turnover/ अनुभव के वर्षों से एमएसई छूट	No
Startup Exemption for Years of Experience and Turnover/ अनुभव के वर्षों से स्टार्टअप छूट	No
Document required from seller/विक्रेता से मांगे गए दस्तावेज़	Experience Criteria,Certificate (Requested in ATC),Additional Doc 1 (Requested in ATC),Additional Doc 2 (Requested in ATC),Additional Doc 3 (Requested in ATC),Additional Doc 4 (Requested in ATC),Compliance of BoQ specification and supporting document *In case any bidder is seeking exemption from Experience / Turnover Criteria, the supporting documents to prove his eligibility for exemption must be uploaded for evaluation by the buyer
Bid to RA enabled/बिड से रिवर्स नीलामी सक्रिय किया	Yes
RA Qualification Rule	H1-Highest Priced Bid Elimination
Type of Bid/बिड का प्रकार	Two Packet Bid
Time allowed for Technical Clarifications during technical evaluation/तकनीकी मूल्यांकन के दौरान तकनीकी स्पष्टीकरण हेतु अनुमत समय	2 Days
Inspection Required (By Empanelled Inspection Authority / Agencies pre-registered with GeM)	No

Bid Details/बिड विवरण	
Payment Timelines	Payments shall be made to the Seller within 90 days of issue of consignee receipt-cum-acceptance certificate (CRAC) and on-line submission of bills (This is in supersession of 10 days time as provided in clause 12 of GeM GTC)
Evaluation Method/मूल्यांकन पद्धति	Total value wise evaluation
Financial Document Required/वित्तीय दस्तावेज की आवश्यकता है।	Yes

EMD Detail/ईएमडी विवरण

Advisory Bank/एडवाइजरी बैंक	State Bank of India
EMD Amount/ईएमडी राशि	4000000

ePBG Detail/ईपीबीजी विवरण

Advisory Bank/एडवाइजरी बैंक	State Bank of India
ePBG Percentage(%) / ईपीबीजी प्रतिशत (%)	5.00
Duration of ePBG required (Months) / ईपीबीजी की अपेक्षित अवधि (महीने).	34

(a). EMD EXEMPTION: The bidder seeking EMD exemption, must submit the valid supporting document for the relevant category as per GeM GTC with the bid. Under MSE category, only manufacturers for goods and Service Providers for Services are eligible for exemption from EMD. Traders are excluded from the purview of this Policy./जेम की शर्तों के अनुसार ईएमडी छूट के इच्छुक बिडर को संबंधित केटेगरी के लिए बिड के साथ वैध समर्थित दस्तावेज प्रस्तुत करने हैं। एमएसई केटेगरी के अंतर्गत केवल वस्तुओं के लिए विनिर्माता तथा सेवाओं के लिए सेवा प्रदाता ईएमडी से छूट के पात्र हैं। व्यापारियों को इस नीति के दायरे से बाहर रखा गया है।

(b). EMD & Performance security should be in favour of Beneficiary, wherever it is applicable./ईएमडी और संपादन जमानत राशि, जहां यह लागू होती है, लाभार्थी के पक्ष में होनी चाहिए।

Beneficiary/लाभार्थी :

BHEL PSWR
5th and 6th floor Shri Mohini Complex Kingsway Nagpur.
(Bhel Pswr)

Splitting/विभाजन

Bid splitting not applied/बोली विभाजन लागू नहीं किया गया.

MSE Purchase Preference/एमएसई खरीद वरीयता

MSE Purchase Preference/एमएसई खरीद वरीयता	No
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Details of the Competent Authority for MSE

Name of Competent Authority	Harish Kumar
Designation of Competent Authority	GM
Office / Department / Division of Competent Authority	BHEL/PEM/BOP
CA Approval Number	MOP
Competent Authority Approval Date	21-02-2024
Brief Description of the Approval Granted by Competent Authority	Package is non divisible package hence no purchase preference would be applicable to MSEs bidders over Non-MSEs bidders.

Competent Authority Approval for not opting Micro and Small Enterprises Preference : [View Document](#)

Reserved for Make In India products

Reserved for Make In India products	Yes
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1. Bid reserved for Make In India products: : Procurement under this bid is reserved for purchase from Class 1 local supplier as defined in public procurement (Preference to Make in India), Order 2017 as amended from time to time and its subsequent Orders/Notifications issued by concerned Nodal Ministry for specific Goods/Products. However, eligible micro and small enterprises will be allowed to participate. The minimum local content to qualify as a class 1 local supplier is denoted in the bid document. All bidders must upload a certificate from the OEM regarding the percentage of the local content and the details of locations at which the local value addition is made along with their bid, failing which the bid is liable to be rejected. In case the bid value is more than Rs 10 Crore, the declaration relating to percentage of local content shall be certified by the statutory auditor or cost auditor, if the OEM is a company and by a practicing cost accountant or a chartered accountant for OEMs other than companies as per the Public Procurement (preference to Make-in -India) order 2017 dated 04.06.2020 . In case Buyer has selected Purchase preference to Micro and Small Enterprises clause in the bid, the same will get precedence over this clause.

2. Reverse Auction would be conducted amongst all the technically qualified bidders except the Highest quoting bidder. The technically qualified Highest Quoting bidder will not be allowed to participate in RA. However, H-1 will also be allowed to participate in RA in following cases:

- If number of technically qualified bidders are only 2 or 3.
- If Buyer has chosen to split the bid amongst N sellers, and H1 bid is coming within N.
- In case Primary product of only one OEM is left in contention for participation in RA on elimination of H-1.
- If L-1 is non-MSE and H-1 is eligible MSE and H-1 price is coming within price band of 15% of Non-MSE L-1
- If L-1 is non-MII and H-1 is eligible MII and H-1 price is coming within price band of 20% of Non-MII L-1

Excel Upload Required/एक्सेल में अपलोड किए जाने की आवश्यकता :

Price Break up to be submitted by bidder - [1709024185.xlsx](#)

Double Girder EOT Crane Above 100T For 2X800 MW Lara STPP (1 set)

(Minimum 60% Local Content required for qualifying as Class 1 Local Supplier)

Whether Price variation applicable?	Price Variation Clause/मूल्य परिवर्तन खंड(पीवीसी)	Price variation clause document
Yes	Refer Annexure for PVC applicability	73d89c54649b393de079689faafd04e1.pdf

Technical Specifications/तकनीकी विशिष्टियाँ

Buyer Specification Document/क्रेता विशिष्टि दस्तावेज़	Download
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Additional Specification Documents/अतिरिक्त विशिष्टि दस्तावेज़

DrawingDocument1	View
DrawingDocument2	View
DrawingDocument3	View

Consignees/Reporting Officer/परेषिती/रिपोर्टिंग अधिकारी and/ तथा Quantity/मात्रा

S.No./क्र. सं.	Consignee Reporting/Officer/ परेषिती/रिपोर्टिंग अधिकारी	Address/पता	Quantity/मात्रा	Delivery Days/डिलीवरी के दिन
1	Pratish Gee Varghese	496440,BHEL SITE OFFICE 2X800 MW NTPC, STPP, LARA VILL.-LARA, THE-PUSSORE, PO- CHHAPORA, DISTT.-RAIGARH (C.G.), INDIA	1	999

Buyer Consignee Mapping

S.No./क्र.सं.	Ministry	Organization	Department	Designation	Buyer Name	Consignee Name
1	Ministry of Heavy Industries and Public Enterprises	Bharat Heavy Electricals Limited (BHEL)	Department of Heavy Industry	MGR6043461	Naresh	Pratish Gee Varghese

Buyer Added Bid Specific Terms and Conditions/क्रेता द्वारा जोड़ी गई बिड की विशेष शर्तें**1. Generic**

OPTION CLAUSE: The Purchaser reserves the right to increase or decrease the quantity to be ordered up to 25 percent of bid quantity at the time of placement of contract. The purchaser also reserves the right to increase the ordered quantity by up to 25% of the contracted quantity during the currency of the contract at the contracted rates. Bidders are bound to accept the orders accordingly.

2. Generic

Bidders are advised to check applicable GST on their own before quoting. Buyer will not take any responsibility in this regards. GST reimbursement will be as per actuals or as per applicable rates (whichever is lower), subject to the maximum of quoted GST %.

3. Generic

Buyer Organization specific Integrity Pact shall have to be complied by all bidders. Bidders shall have to upload scanned copy of signed integrity pact as per Buyer organizations policy along with bid. [Click here to view the file](#)

4. Buyer Added Bid Specific ATC

Buyer uploaded ATC document [Click here to view the file](#).

Disclaimer/अस्वीकरण

The additional terms and conditions have been incorporated by the Buyer after approval of the Competent Authority in Buyer Organization, whereby Buyer organization is solely responsible for the impact of these clauses on the bidding process, its outcome, and consequences thereof including any eccentricity / restriction arising in the bidding process due to these ATCs and due to modification of technical specifications and / or terms and conditions governing the bid. Any clause(s) incorporated by the Buyer regarding following shall be treated as null and void and would not be considered as part of bid:-

1. Definition of Class I and Class II suppliers in the bid not in line with the extant Order / Office Memorandum issued by DPIIT in this regard.
2. Seeking EMD submission from bidder(s), including via Additional Terms & Conditions, in contravention to exemption provided to such sellers under GeM GTC.
3. Publishing Custom / BOQ bids for items for which regular GeM categories are available without any Category item bunched with it.
4. Creating BoQ bid for single item.
5. Mentioning specific Brand or Make or Model or Manufacturer or Dealer name.
6. Mandating submission of documents in physical form as a pre-requisite to qualify bidders.
7. Floating / creation of work contracts as Custom Bids in Services.
8. Seeking sample with bid or approval of samples during bid evaluation process.
9. Mandating foreign / international certifications even in case of existence of Indian Standards without specifying equivalent Indian Certification / standards.
10. Seeking experience from specific organization / department / institute only or from foreign / export experience.
11. Creating bid for items from irrelevant categories.
12. Incorporating any clause against the MSME policy and Preference to Make in India Policy.
13. Reference of conditions published on any external site or reference to external documents/clauses.
14. Asking for any Tender fee / Bid Participation fee / Auction fee in case of Bids / Forward Auction, as the case may be.

Further, if any seller has any objection/grievance against these additional clauses or otherwise on any aspect of this bid, they can raise their representation against the same by using the Representation window provided in the bid details field in Seller dashboard after logging in as a seller within 4 days of bid publication on GeM. Buyer is duty bound to reply to all such representations and would not be allowed to open bids if he fails to reply to such representations.

[This Bid is also governed by the General Terms and Conditions/ यह बिड सामान्य शर्तों के अंतर्गत भी शासित है](#)

In terms of GeM GTC clause 26 regarding Restrictions on procurement from a bidder of a country which shares a land border with India, any bidder from a country which shares a land border with India will be eligible to bid in this tender only if the bidder is registered with the Competent Authority. While participating in bid, Bidder has to undertake compliance of this and any false declaration and non-compliance of this would be a ground for immediate termination of the contract and further legal action in accordance with the laws./जेम की सामान्य शर्तों के खंड 26 के संदर्भ में भारत के साथ भूमि सीमा साझा करने वाले देश के बिडर से खरीद

पर प्रतिबंध के संबंध में भारत के साथ भूमि सीमा साझा करने वाले देश का कोई भी बिडर इस निविदा में बिड देने के लिए तभी पात्र होगा जब वह बिड देने वाला सक्षम प्राधिकारी के पास पंजीकृत हो। बिड में भाग लेते समय बिडर को इसका अनुपालन करना होगा और कोई भी गलत घोषणा किए जाने व इसका अनुपालन न करने पर अनुबंध को तत्काल समाप्त करने और कानून के अनुसार आगे की कानूनी कार्रवाई का आधार होगा।

---Thank You/धन्यवाद---

2X800 MW LARA TPP STAGE II

TECHNICAL SPECIFICATION FOR DOUBLE GIRDER EOT CRANES FOR TG HALL 265/25T

SPECIFICATION No. **PE-TS-508-501-A501**

REV NO. 0



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



**TECHNICAL SPECIFICATION
2X800 MW LARA TPP STAGE II
DOUBLE GIRDER EOT CRANES
FOR TG HALL 265/25T**

PE-TS-508-501-A501

Rev. No. 00

Date : FEB 2024

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THIS IS PART OF TECHNICAL SPECIFICATION PE-TS-508-501-A501 REV 0

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		Rev. No. 00
		Date : FEB 2024

PROJECT INFORMATION

SL.NO	DESCRIPTION	DETAILS
1	CUSTOMER	NTPC Ltd.
2	CUSTOMER CONSULTANT	N.A.
3	LOCATION	The project is located in Raigarh district of Chhattisgarh State.
4	DATA	
4.1	THE BASIC WIND SPEED "Vb" AT TEN METERS ABOVE THE MEAN GROUND LEVEL.	44 METERS PER SECOND
4.2	THE RISK COEFFICIENT "K1"	1.07
4.3	CATEGORY OF TERRAIN	CATEGORY 2
4.4	OTHER FACTORS	IN LINE WITH IS 875
4.5	SEISMIC ZONE	ZONE-III AS PER IS:1893
4.6	DESIGN AMBIENT TEMPERATURE	50 DEG. CELCIUS
5	ELECTRICAL DATA	
5.1	RATED VOLTAGE	415 V
5.2	FREQUENCY	50 Hz
5.3	PERMISSIBLE VARIATIONS FOR	
a.	VOLTAGE	+/-10 %
b.	FREQUENCY	(-)5 to (+)3 %
c.	COMBINED VOLTAGE & FREQUENCY	10 %
5.4	SYSTEM FAULT LEVEL AT RATED VOLTAGE FOR 1 SEC	50 kA
5.5	SHORT TIME RATING FOR TERMINAL BOXES FOR 0.25 SEC	50 kA

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SCOPE
SCOPE OF THIS PACKAGE COVERS THE FOLLOWING:

SL.NO	PARAMETERS	REQUIREMENT
1	Supply Including Design, Engineering, Manufacturing Of	
a)	Main Supply	YES
b)	Commissioning Spares	YES
2	Painting	YES
3	Inspection & Testing	YES
4	Packing	YES
5	Transportation & Delivery To Site	YES
6	Erection & Commissioning	NO
7	Supervision of Erection & Commissioning	YES
8	Performance Guarantee (PG) Test	YES
9	Mandatory Spares	YES
10	O & M Service	NO
11	O & M Spares	YES
12	Storage	NO

	EXCLUSIONS
1	Supply feeder and cable from feeder / MCC to isolating switch.
2	Gantry girder
3	Dead load for load/ overload testing at site
4	Storage facility
5	Cradle for load & overload testing, however slings shall be bidder's scope

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GENERAL TECHNICAL REQUIREMENT		
1.0	It is not the intent to specify herein all the details of design and manufacturing. Bidder shall ensure that the offered equipment confirms in all respects to high standards of design, engineering and	
2.0	The equipment shall comply with all applicable safety codes and statutory regulations of India as well as of the locality where the equipment is to be installed.	
3.0	In the event of any conflict between the codes and standards referred to in the above clauses and the requirement of this specification, the requirement of Technical Specification shall govern.	
4.0	The equipment shall conform in all respects to high standards of design, engineering and workmanship and shall be capable of performing the required duties in a manner acceptable to purchaser who will interpret the meaning of drawings and specifications and shall be entitled to reject any work or material which in his judgement is not in full accordance herewith.	
5.0	Drawing/document submission shall be through web based Document Management System. Bidder would be provided access to the DMS for drg/doc approval and training for the same. Bidder to ensure proper internet connectivity at their end.	
6.0	The first revision drawings/ documents submitted by vendor shall be complete in all respects.Any incomplete drawing submitted shall be treated as non- submission with delays attributable to vendor's account. For any clarification/ discussion required to complete the drawings, the bidder shall himself depute his personal to BHEL / Customer's place as per the requirement for across the table discussions/ finalizations/ submissions of drawings.	
7.0	In case of any change in codes, standards & regulations between the date of bid opening (03.03.2023) and the date when vendors proceed with fabrication, the Employer shall have the option to incorporate the changed requirements or to retain the original standard. It shall be the responsibility of the Contractor to bring to the notice of the Employer such changes and advise Employer of the resulting effect.	
8.0	Bidder shall carry out the type tests as listed in the Quality Plan. OR Bidder shall furnish Type Test Certificate of specified Type Test as per quality plan for applicable equipment which has been carried out within last five years from 03.03.2023. These reports should be for the tests conducted on the equipment same (model / type / size / rating) to those proposed to be supplied under this contract and the test(s) should have been either conducted at an independent laboratory or should have been witnessed by a client. In absence of valid Type Test report vendor to conduct the same without any commercial & delivery implication to BHEL.	
9.0	Bidder shall submit stamped QP on compliance route in the event of order. In case, the bidder is supplying the item from outside India, the third party inspection shall be arranged and considered by the bidder in their offer.	
10.0	Sub vendor list is attached. Any additional sub - vendors proposed by bidder during contract stage shall be subject to BHEL/ Customer/Customer's Consultant approval in the event of order.	
11	Document approval by BHEL / Customer shall not absolve the supplier of their contractual obligations of completing the work as per specification requirement without any commercial and	
12	Mandatory Spares	
12.1	One (1) Set is defined as 100% requirement for one crane for the entire cranes of similar size & capacity.	

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12.2	.All essential spares shall be supplied as per the requirement of the specifications. In case any spare indicated in the specification is not applicable for particular equipment then suitable applicable alternate spare have been offered / shall be supplied without any financial implication.	
12.3	In case spares indicated in the list are not applicable to the particular design offered by the bidder, the bidder should offer spares applicable to offered design with quantities generally in line with the approach followed in the above list.	
12.4	Any item which is quoted as “not applicable” in the above list and is found to be “applicable” at a later date shall be supplied by the Bidder without any commercial implications. The Bidder shall note that if there in any change/ variation in equipment/ system during detail engineering which causes any change/ variation in the essential spares quantity, the same shall be supplied without any commercial implications. The price indicated for the mandatory spares shall be considered for	
12.5	Interchangeability and Packings: All spares supplied under this contract shall be strictly interchangeable with parts for which they are intended for replacements. These spares should include all mounted accessories like components, boards, add or items, fitting, connectors etc. and be complete in all respects so that the replacement of the main items by these spares does not require any additional item. The vendors must conform the pair to pair compatibility of each electrical spares modules with the modules should be supplied in the original package. All electronic modules should be pre set and/or preprogrammed for ready use at site. Alternatively, suitable instruction sheet indicating the details of required PCB jumper position, BCD which is setting, EPROM/PROM listing etc should be packed along with each module. Also a caution mark sign should be put on all such module which needs pre setting/pre programming before putting them in to service. The spare shall be treated and properly packed for long term storage.	
12.6	Identification: Each spare shall be clearly marked and labeled on the outside of the packing with its description. When more than one spare part is packed in single case, a general description of the contents shall be shown on the outside of such case and a detailed list enclosed. All cases, containers and other packages must be suitably marked and numbered for the purpose of identification.	
13.0	The type of bearings for various parts as per IS:3177 (latest). Bearing life not less than 10,000 working hours.	
14.0	The crane shall be complete with trolley and truck, wheels and axles, Drive mechanisms, Hoisting Drums, Brakes, Creep Speed Arrangement, Lifting tackles, Buffers Electric Motors, Controls, Switch Board and cabling, horns, warning lights, Limit switches etc. Any item not mentioned herein but required to make the system complete for the satisfactory performance of the crane shall also be included.	
15.0	Trolley stops of spring type to be mounted independently on bridge rails to prevent trolley from running off.	
16.0	Buffers to be designed to bring the loaded crane to rest from a speed of 50% of the rated speed.	
17.0	Suitable guard to push forward or off the rail track any object placed across to be provided. Suitable guards to live electrical wirings downshop lead.	
18.0	Necessary access ladders shall be provided for access on to crane bridge platform from the gantry girder level, from crane bridge platform to trolley platform and from operating floor of pump to gantry girder level.	
19.0	The lifting tackle shall consist of a safety type lower pulley block, hook, necessary sheave and flexible steel wire ropes. The lower block sheaves and ropes shall be of adequate design and size to handle the specified loads.	

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20.0	Each crane shall have a permanent inscription of English on each side, readily visible from the ground level, stating the safe working loads in tonnes for both the hooks, year of manufacture, crane serial number and manufacturer's name.	
21	SHOP TEST PROCEDURE FOR GEAR BOX	
21.1	Gear Box Running Test: The gear boxes shall be run under no-load condition at the rated speed for minimum four hours in each direction and the following are to be checked:	
a	All bolts at the joints remain tight.	
b	All gear mesh lines are getting enough lubrication.	
c	All bearings are getting enough lubrication.	
d	Bearing temperatures after running for four hours shall not exceed 50 deg. Centigrade or 15 deg. centigrade above ambient whichever is higher. Temperature shall be checked after every hour.	
e	Vibration : Maximum limit 125 microns (peak to peak)	
f	Sound: The gearbox shall not emit unusual sound as obtained under conditions of hard meshing, high spots etc. Maximum sound level shall be 85 dBA at a distance of 1000mm and 91 dBA at a distance of 300 mm.	
g	There shall be no Oil leakage at parting lines, bearing housings or inspection covers.	
21.2	In addition to the above specific points, the following general points shall be ensured:	
a	Inspection pockets are provided as required.	
b	Gear box casings are provided with at least two fit bolts/dowels at the parting line.	
c	Dip sticks with minimum / maximum level markings are provided.	
d	Drain plugs are provided at convenient locations preferably at vertical wall of the housing.	
e	Breathers are provided.	
f	Lifting lugs or eye bolts are provided as required.	
g	Wherever bearings have splash lubrication, oil retainers are provided.	
h	Gear boxes are painted as per specification outside and inside. Inside surfaces shall be painted with Oil proof paint.	
i	In case of vertical gear boxes having more than two stage reduction, forced lubrication is also provided.	
j	Name plate should provide information eg. Ratio, KW rating, Bearing details and manufacturers name.	
22	STAGE INSPECTION OF EOT CRANES AT WORKS: Stage inspection of various components of crane shall be guided by the MQP attached with this specification. However, following shall be ensured and read in conjunction with relevant clause of MQP w.r.t. stage inspection:	
a	For tensile testing of hooks/ forgings, samples shall be drawn from the full cross section of the shank diameter of hooks/ forgings Samples forged to reduced cross section for testing purposes is not acceptable. Hooks shall be manufactured from Blooms, billets, rounds by forging with forging ratio of at least 3:1. Hooks manufactured from plates are not acceptable.	
b	Radiographs shall be inspected to a sensitivity of 2%.	
c	Gear boxes shall be checked at No load for backlash, tooth contact, noise, temperature rise and vibration.	
d	Acceptance and routine tests (HV and insulation) for all electrical and electro-mechanical components and system as per governing specification.	
23	GENERAL REQUIREMENT FOR SUPERVISION OF ERECTION & COMMISSIONING, SUPERVISION OF PERFORMANCE GUARANTEE TESTS AND VISITS DURING WARRANTY PERIOD FOR HEALTHINESS CHECK.	

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a	Bidder shall be informed at least 10 days in advance for the requirement of visit at site.	
b	Visiting team shall consist of one or two expert of bidder as deemed necessary by them.	
23	Visit during material verification for MRC shall be free of cost by bidder.	
24	During supervision of E&C or Load/ overload testing of crane or during warranty period, if any missing item is noticed which is not supplied (i.e. not part of packing list) and required for safe commissioning or operation of equipment, same shall be supplied by bidder on immediate basis without any cost implication to BHEL.	

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TECHNICAL DATA SHEET A				
Sr. No.		DESCRIPTION	TECHNICAL PARTICULARS	
1.0.0		General		
1.1.0		Basic Details		
	a.	EOT Crane	265/25T Double Girder EOT crane	
	b.	Location	TG Hall Building (Indoor)	
1.2.0	a.	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.	
	b.	Minimum thickness of Structural members	a) Load carrying members: 8 mm b) Tubes with both ends sealed: 4.9 mm (6 SWG) c) Tubes with unsealed ends: 8mm d) Chequered plates: 6 mm O/P e) web thickness - 10mm. f) diaphragm/stiffner thickness - 8mm	
	c.	MAXIMUM SPAN/DEPTH RATIO FOR GIRDER:	Plate girders : 18	
1.3.0		Number of crane	Two (2) nos.	
1.4.0		Crane classification	M5 (Mechanical, Structural and Electrical) as per IS: 3177-2020, IS: 807-2006 and 13834 (part-5)-1993	
1.5.0		Suitable for outdoor or indoor duty	Indoor	
1.6.0		Capacity		
1.6.1		Main hoist		
	a.	Rated SWL – tonnes	265T	
	b.	Test load SWL – tonnes	Rated SWL and over load test : 125% of SWL (Safe Working Load)	
	c.	Lift	30 m	
1.6.2		Aux. hoists		
	a.	Rated SWL – tonnes	25T	
	b.	Test load SWL – tonnes	Rated SWL and over load test : 125% of SWL	
	c.	Lift	36 m	
1.7.0		Span	29 m	
1.8.0		Operation from	Cabin + Pendent Push Button+ Radio remote control	
2.0		CRANE PERFORMANCE		
2.1.0		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	1.5 (10% of main speed thru' VVVF drives)
	d.	Longitudinal bridge travel (LT)	30	3.0 (10% of main speed thru' VVVF drives)
2.2.0		Acceleration values for LT motion (bridge travel) and CT motion (trolley travel)	As per IS: 3177 (2020)	
2.3.0		Hook Approaches from C.L. of rails		
	a.	Main hook (non cabin side)	3250 mm	
	b.	Aux. Hook (non cabin side)	1850 mm	
	c.	Main hook (cabin side)	2450 mm	
	d.	Aux. Hook (cabin side)	3850 mm	
2.4.0		Hand Rail Pipes	32 mm NB Medium class of IS: 1161 having top and bottom rail at height of 1050 mm and 600 mm and vertical post spacing not exceeding 1500 mm with provision of kick plate (100 mm high and 6mm thick)	
3.0.0		COMPONENT DETAILS		

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3.1.0		Bridge girder			
	a.	Type & Quantity	Box type – 2 nos. Material: Mild steel, grade 'Br' of IS 2062 in 100% killed, normalised and ultrasonically tested quality or high strength steel of IS 8500 as appropriate.		
	b.	Stress consideration	Following to be consider as per IS 807: Static load (dead load), loads due to working load multiplied by dynamic coefficiendt, two most unfavourable horizontal effects excluding buffer forces.All these loads must then be multiplied by amplifying coefficient		
	c.	Maximum Limit for Vertical Deflection	Maximum vertical deflection of the girder producedb y the weight of the trolley and the rated load (excluding impact factor)shall not exceed 1/900 of the span of the crane.		
	d.	Type of connection to end carriage	By fitted bolts		
	e.	Nut & bolts	As per IS:1363, IS:1364 and IS:1367. High Tension Friction grip bolts as per IS: 3757. High Tension Friction grip nuts as per IS: 6623.		
3.2.0		Type of platform required on the bridge		Chequered plate platform 6mm thick over plain as per IS : 3502	
	a.	Length	Full span length		
	b.	Walkways	Access walkways of not less than 800 mm (clear) with hand railing of height of 1100 mm along the both side of bridge girder and cross over walkways.		
	c.	Type of access from gantry girder level to crane bridge	Rung ladder at ends from gantry girder level walkway to crane bridges walkway		
	d	Type of access to maintenance cage from crane bridges walkway	Rung ladder		
	e	Type of access to Cabin from crane bridges walkway	By Staircase		
	f	Provided at both ends	Yes		
3.3.0		End carriage span (wheel base)		As per IS 807 (latest edition)	
3.4.0		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.	
			On bottom of trolley frame, on each side a double spring bumper shall be provided to engage stops at each end of the bridge.		
			800 mm (clear) with hand railing of height of 1100 mm along the cross over walkways on trolley.		
	a.	Type	Fabricated		
	b.	Method of fabrication	Fusion welded		
	c.	Material	Mild Steel (Fe410) Gr-Br IS: 2062, 100% killed, normalized & Ultrasonically tested.		
	d.	Other requirements	Upper pulley block shall be approachable for maintenance.		
	e.	Whether jacking pads for lifting trolley provided or not	Yes		
3.5.0		Rope drums		Main hoist	Aux hoist
	a.	Material (Indicate IS)	Seamless pipe ASTM A -106 Gr. B or fabricated rolled section to IS: 2062 Gr. Br & stress relieved		
	b.	Flange / flangeless	Flanged		
	c.	Numbers provided	One for each hoist		
	d.	Type of grooves	Identical Right hand and Left hand & other details shall be as per IS 3177:2020		
3.6.0		Rope details		Main hoist	Aux hoist
	a.	Construction	Extra flexible plough steel , 6 x 36 or 6x37 construction		
	b.	Standard conforming to	IS: 2266 (latest edition)		
	c.	Factor of safety	As per IS-3177 : 2020		
	d.	Type of core	Steel	Steel	

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3.7.0		Sheaves details	Main hoist	Aux hoist
	a.	Material	Fe 410 IS: 2062 Gr. Br / CS Gr. 280-520 IS: 1030 Design as per IS: 3177- 2020	
	b.	Type of guards provided	Fabricated from rolled steel plate	
3.8.0		COUPLINGS & SHAFTING		
3.8.1		Coupling details (between motor and gear box)	(for Main hoist, Aux hoist, Cross Travel and long travel)	
	a.	Type	Flexible shock absorbing coupling	
	b.	Guards and enclosures	Provided	
	c.	Coupling material and hardness	All couplings shall be of cast, wrought or from forged steel, tooth portion to be heat treated to hardness HB241-280	
3.8.2		Coupling details (between gear box and wheels)	Cross Travel (CT)	Long Travel (LT)
	a.	Type	Flexible geared type	
	b.	Guards and enclosures provided	Yes	
3.8.3		Coupling details (between gear box and rope drum)	Main hoist	Aux hoist
	a.	Type	One of the following arrangements will be adopted for connecting the rope drum with the gear- box. 1.Flexible joint, incorporating flexible geared coupling housed within the drum. 2.Fully flexible geared coupling between the drum & gearbox.	
	b.	Guards and enclosures provided	Yes	
3.8.4		Shafting (Output)	Cross Travel	Long Travel
	a.	Factor of Safety	As per IS: 3177-2020	
	b.	Arrangement of lubrication	Grease cups / Nipple	
	c.	Type of lubricant	Grease	
3.9.0		Gear box details		
3.9.1		Hoist Motions	MH and MH Micro	AH and AH Micro
	a.	Type of mounting of gear box	Horizontal / Vertical	
	b.	Classification	Suitable for M5 duty	
	c.	Type of gears	For MH and AH: Helical / Spur For MH Micro and AH Micro: Through VVVF drive	
	d.	Type of lubrication (grease / splash / pump lubrication)	Splash Lubrication	
	e.	Hardness (BHN) – gear	220 BHN (minimum)	
	f.	Hardness (BHN) – pinion	270 BHN (minimum)	
	g.	Difference in Gear and pinion hardness	Min 20 BHN	
	h.	Materials (gear/pinions)	Main Gears En 9/ 55C8/ IS2707 Gr. 1or 2. Pinions En 19/EN 24. Hardness conforming to IS: 3177-2020 Gears to be hardened, tempered & heat treated as per IS 4460	
	i.	Casings	Fabricated Fe 410w IS: 2062 Gr Br & stress relieved	
	j.	Noise level	85 db	
	k.	Standard conforming to	IS: 4460 / AGMA	
3.9.2		Travel Motions	CT and CT Micro	LT and LT Micro
	a.	Type of mounting gear box	Vertical/ Horizontal	
	b.	Classification	M5 duty	
	c.	Type of gears	For CT and LT: Helical / Spur For CT Micro and LT Micro: Through VVVF drive	
	d.	Type of lubrication (grease / splash / pump lubrication)	Splash Lubrication	
	e.	Hardness (BHN) – gear	220 BHN (minimum)	
	f.	Hardness (BHN) – pinion	270 BHN (minimum)	
	g.	Difference in Gear and pinion hardness	Min 20 BHN	
	h.	Materials (gear / pinions)	Main Gears En 9/ 55C8/ IS2707 Gr. 1or 2. Pinions En 19/EN 24. Hardness conforming to IS: 3177-2020 Gears to be hardened, tempered & heat treated as per IS 4460	

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	i.	Casings	Fabricated Fe 410w IS: 2062 Gr Br & stress relieved		
	j.	Noise level	85 db		
	k.	Standard conforming to	IS: 4460 / AGMA		
3.10.0		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 PL value as indicated in Table 6 of IS 3177 shall be witnessed by BHEL.		
	b.	Hardness	300 – 350 BHN		
	c.	Depth of hardness	10 mm (min)		
	d.	Process of hardening	Volume hardening		
	e.	Type	Double flanged		
	f.	Min.Numbers provided	4 nos.	8 nos.	
	g.	Specification conforming to	IS: 3177-2020		
	h.	Arrangement of lubrication	Grease		
3.11.0		Lifting hooks	MH	AH	
	a.	Type	Ramshorn shank with safety latch swiveling type as per latest edition of DIN-15402	Plain with safety latch swiveling type as per latest edition of IS: 15560	
	b.	Safe lifting capacity	SWL is 265 T , however 320T capacity hook model as per DIN-15402 is to be provided	25 T as per IS: 15560	
	c.	Material	-As per DIN-15402	Class 3 for hook of grades L & M respectively as per IS 1875:1992 for hooks conforming to IS : 15560	
	d.	Standard conforming to	DIN-15402	IS: 15560	
	e.	Hook can rotate	Yes		
	f.	Safety latch on hook provided	Yes		
	g.	Locking device on swivelling hook required or not	Provided		
3.12.0		Buffers	Cross travel	Long travel	
	a.	Type	Spring loaded type. To be designed to bring the loaded crane (In calculation crane is considered to be loaded with SWL) to rest from speed of 50% of the rated speed.		
	b.	Numbers provided	4	4	
	c.	Details of end stop	Mild steel, grade 'B' of IS 2062 in 100% killed, normalised and ultrasonically tested quality or high strength steel of IS 8500 as appropriate.		
3.13.0		Brakes			
3.13.1		Hoist Motions	MH	AH	
	a.	Type of brake	AC Electro-Hydraulic Thruster operated		
	b.	Number provided per motor	2	2	
	c.	Braking capacity (% of torque transmitted to the brake drum with full load.)	150%	150%	
	d.	Material			
		· Brake liners	Ferodo liners		
		· Drum	CS IS : 1030 / CL 4 IS : 1875		
		· Springs	As per manufacturers standard		
3.13.2		Travel Motions	CT	LT	
	a.	Type of brake (ac / dc / thruster)	AC Electro-Hydraulic Thruster operated		
	b.	Number provided per motor	2	2	
	c.	Braking capacity (% of motor rated torque before derating)	125%	125%	
	d.	Material			
		· Brake liners	Ferodo liners		
		· Drum	CS IS : 1030 / CL 4 IS : 1875		
		· Springs	As per manufacturers standard		
3.14.0		Motors			

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	a.	Type	Three phase Squirrel Cage Induction motors to be operated from VFD system shall be suitable for speed range and torque without exceeding temperature rise limits as specified elsewhere in this specification. These motors shall be provided with insulated bearing on at least one side for motor frame size above 250 frame. However, contractor's proven practice with respect to use of insulated bearing in VFD driven motor may be accepted subject to Employer's approval.	
	b.	Enclosure	TEFC	
	c.	Numbers furnished	For Main hoist: one no.	
			For aux hoist: one no.	
			For Cross travel: one no.	
			For long travel: 2 nos.	
	d.	Voltage, phase and frequency	415V $\pm$ 10%, 3 Ph., 4 wire, 50 Hz, +3/-5 % Combined voltage & frequency variation = 10% absolute	
	e.	Class of protection for motor including terminal box	IP – 55	
	f.	Rated capacity (KW)	The motor shall be suitable for 40% CDF. Motor nameplate rating at 50 C shall have Motor rating will be calculated keeping margin of at least 10% over the maximum power requirement in the duty condition specified.	
	g.	Duration factor/duty	40 % CDF / S-4	
	h.	Class of insulation	Class 'F' for sq. cage motors with temp rise limited to 70 C	
	i.	Number of starts/ hour	Starts / hr as per IS 3177-2020	
	j.	Overload protection for motors provided	Yes	
	k.	Space heater requirements	For motors of rating 30 KW and above. Separate terminal box for space heaters & RTDs shall be provided.	
	l.	Motor Duty and pull out torque	Duty S4 and pull out torque 275% of full load torque	
	m.	Terminal box of motor	-Motor terminal box shall be detachable type and located in accordance with Indian Standards clearing the motor base- plate/ foundation.	
			-Terminals shall be stud or lead wire type, substantially constructed and thoroughly insulated.	
			- The terminals shall be clearly identified by phase markings, with corresponding direction of rotation marked on the non-driving end of the motor.	
			- Rotation at 90 deg	
	n.	Cable glands and lugs	-Motor terminal box shall be furnished with suitable cable lugs and double compression brass glands to match with cable used.	
			-Gland plates of thickness 3 mm (hot/cold rolled sheet steel) or 4 mm (non magnetic material for single core cables) shall be provided in case of cable boxes.	
	o.	Earthing points suitable for connection	Motor body shall be grounded at two earthing points on opposite sides with two separate and distinct grounding pads complete with tapped holes, GI bolts and washers. LT Motors above 125 KW --- 50 x 6mm GS flat 25 KW to 125 KW --- 25 x 6mm GS flat 1KW to 25 KW --- 25 x 3mm GS flat.	
	p.	Minimum spacing between gland plate & centre of bottom terminal stud	UP to 3 KW As per manufacturer's practice. Above 3 KW - upto 7 KW 85 mm Above 7 KW - upto 13 KW 115 mm Above 13 KW - upto 24 KW 167 mm Above 24 KW - upto 37 KW 196 mm Above 37 KW - upto 55 KW 249 mm Above 55 KW - upto 90 KW 277 mm Above 90 KW - upto 125 KW 331 mm Above 125 KW-upto 200 KW 385/203 (For Single core cables only) mm	

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	q	Minimum inter-phase and phase-earth air clearances with lugs installed	UP to 110 KW 10mm Above 110 KW and upto 150 KW 12.5mm Above 150 KW 19mm	
	r	Other requirement		
	t.1	Squirrel cage Induction motor with VPI insulation shall be provided With VVVF system. Motor shall be energy efficient as per IS:12615, IEC 60034 and shall be Crane duty as per IS:3177. Winding & insulation shall be Electrolytic grade Copper conductor, Non-hygroscopic, oil resistant, flame resistant Insulation. Vibration shall be limited within the limits IS:12075.		
	t.2	For motors with starting time upto 20 secs. at minimum permissible voltage during starting, the locked rotor withstand time under hot condition at highest voltage limit shall be at least 2.5 secs. more than starting time. permissible starting voltage for motor shall be as follows:Up to 85% of rated voltage for ratings below 110 KW.		
	t.3	The ratio of locked rotor KVA at rated voltage to rated KW shall not exceed 11 for motors above 50 KW upto 110 KW.		
3.15.3		Storm brake	2x50% storm brakes, one each at each end of the bridge, shall be provided for each crane. Storm brakes shall be designed for wind velocity and detail given in project data. Storm brakes shall be truck end mounted, hydraulic rail clamp type of adequate capacity (depending on wind pressure) to be provided. The setting shall include automatic engagement of clamps in case of crane is left idle for five minutes (adjustable).	
3.16.0		Drive system for hoisting		
	a.	Arrangement of drive from motor to rope drum (main)	Through geared coupling and gear box	
	b.	Arrangement of drive from pony motor to rope drum (creep speed)	Creep speed through VVVF drive.	
3.17.0		Bearings (for crane hook, Trolley wheels, rope drum, gear box or any other assembly)		
	a.	Type	Antifriction ball / roller bearings	
	b.	Number provided for each	As per assembly requirements	
	c.	Method of lubrication	Centralised grease lubrication with hand operated grease pump for all bearings as per bidder's standard proven practice.	
	d.	Bearing life	not less than 10,000 working hours	
3.18.0		Rails		
	a.	Type / section	Rails sections as per IS: 3443. Joint to be butt-welded by thermit welding or fusion welding/ CR-100 with 45 degrees angle.	
	b.	Standard conforming to	IS: 3443	
3.19.0		Power conductors (DSL) & Cables		
	a.	Design Criteria	Cable from main isolating switch (1.5M above operating floor) to motor terminal shall be so sized that the voltage drop does not exceed 2% of rated voltage at motor terminals.	
	b.	Type	LT: PVC shrouded Cu/Al conductor bus bar. CT: EPR insulated, copper conductor trailing cables, as per IS: 9968, on the bridge/ energy chain trailing system	
	c.	LT POWER CABLES	All LT power cables of sizes more than 120 sq.mm. shall be XLPE insulated, and sizes shall be of 1Cx150, 1Cx300, 1Cx630, 3Cx150, 3Cx185, 3Cx240& 3Cx300 Sq.mm. However for cable sizes upto 120 sq.mm. both XLPE insulated & PVC insulated LT power cables are acceptable.	
	c.1	1.1 KV grade XLPE power cables	1.1 KV grade XLPE power cables shall have multi stranded compacted aluminum conductor (tensile strength of more than 100 N/ sq.mm), XLPE insulated, PVC inner-sheathed (black color as per IS:5831), Armoured (For single core Armoured cables, armoring shall be of aluminum wires H4 grade. For multicore Armoured cables armoring shall be of galvanized steel round wire/strip), PVC FRLS outer-sheathed (black colour) conforming to IS: 7098. (Part-I).	

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	c.2	1.1KV grade PVC power cables	1.1KV grade PVC power cables shall have multi stranded aluminum conductor (compacted type for sizes above 10 sq.mm), PVC Insulated, PVC inner sheathed ((black color as per IS:5831)) Armoured (For single core Armoured cables, armoring shall be of aluminum wires H4 grade. For multicore Armoured cables armoring shall be of galvanized steel round wire/strip), PVC FRLS outer-sheathed (black colour) conforming to IS:1554 (Part-I).	
	c.3	LT Control Cables	LT Control Cables are Cu conductor 1.5 sq mm, PVC insulated, PVC inner sheath, GS wire/strip armoured and FRLS PVC outer sheath confirming to IS 1554 Part-1. Standard control cable sizes shall preferably be 3CX1.5, 5CX1.5, 7CX1.5 & 10CX1.5mm ² , 14CX1.5 mm ² .	
	c.4	1.1 kV grade trailing cables	1.1 kV grade trailing cables shall have tinned copper (class 5) conductor, insulated with heat resistant elastomeric compound based on Ethylene Propylene Rubber (EPR) suitable for withstanding 90 deg.C continuous conductor temperature and 250deg C during short circuit, inner sheathed with heat resistant elastomeric compound, nylon cord reinforced, outer-sheathed with heat resistant, oil resistant and flame retardant heavy duty elastomeric compound conforming to IS 9968.	
	d.	Size	a) Rated current of the equipment b) The voltage drop in the cable, during motor starting condition, shall be limited to 10% and during full load running condition, shall be limited to 3% of the rated voltage. c) Short circuit withstand capability Derating factors for various conditions of installations (variation in ambient temperature, grouping of cables) shall be considered while cable sizing.	
	e.	Length	Suitable for bay length	
	f.	Guard provided for DSL	Yes	
3.20.0		Operators cabin		
	a.	Type of construction	Open type with minimum 6mm toughened glass.	
	b.	Area and minimum clear height	2500x1850 mm with a head room of 2000 mm	
	c.	Operator's seat	Revolving type	
	d.	Warning gong	A foot operated electric warning horn of double bell type suitable for 240 V AC. of noise level 95 dB at 3.5 m. One brass gong suspended outside the Cabin and operated from inside.	
	e.	Alarm	A distinct type alarm with conspicuous warning lights on either side of the crane bridge to indicate overloading of crane.	
	f.	Position of controllers	In front/ side of operator's chair	
	g.	Ventilation	One no non oscillating ventilating electric fan in cabin	
	h.	Additional features	-Emergency Push Button	
			-Switches for lights and bells	
			-Lamps for Power 'ON' indication and emergency corner switch operation	
3.21.0		Limit switches		
	a.	Type	For MH: Rotary gear + Gravity	
			For AH: Rotary gear + Gravity	
			For CT: Lever type (one way/ two way)	
			For LT: Lever type (one way/ two way)	
	b.	Number provided	For MH: 1+1	
			For AH: 1+1	
			For CT: 2/1	
			For LT: 2	
	c.	Material of contacts	Double break Silver Cadmium	
	d.	Control voltage / Enclosure	110 V/ IP 55	
3.22.0		Isolating switch		

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	a.	Main isolating cum changeover switch (01 no.), mushroom type emergency STOP push buttons : At center of bay length(to be decided during detail engineering). Additionally Two nos. isolating switch shall be provided at extreme ends of the bay length, at a distance of approximately 20 mtrs. From the centre line of first & last column for maintenance of the cranes	
	b.	BHEL will provide two number 415 V AC (3 PHASE 4 WIRE) supply feeder only up to isolating cum changeover switch. Any other voltage level (AC/DC) required will be derived by the vendor.	
	c.	Motor starter shall be part of crane control panel.	
3.23.0		Protective Panel	Shall be Provided with isolating switch, power contactor control and indication to switch ON/OFF power to starter panels, control and lighting transformer.
	a.	Material	Cold Rolled Sheet steel 2 mm size,3mm for Gland Plates (CRCA/HR),1.6mm: Doors, covers etc
	b.	Numbers and location	One number located in cabin
	c.	DOP	IP 54
3.24.0		Control panel	
	a.	Material	Cold Rolled 2 mm size,3mm for Gland Plates (CRCA/HR),1.6mm: Doors, covers etc: sheet steel 2mm size
	b.	Numbers and location	One each for MH, AH, CT and LT located on bridge platform with space heaters.
	c.	Degree of protection	IP 54
3.25.0		Master Controllers (Desk Type)	
	a.	Number of steps	For MH: 5
	b.	Voltage & current rating	415 V/10 A
	c.	Type	Heavy duty type having DOP IP54. Release of operators' hand from the controls shall stop motion and set brakes automatically.
	d.	Location	In cabin
3.26.0		Control for Hoists /CT/LT operations	Through Variable Voltage Variable frequency drive
	a.	Speed control	Thru' VVVF with minimum 6 pulse design
	b.	Starting torque of VVVF	Up to 400 % typical with/ without encoder
	c.	Starting current	Less than 150 % of rated torque.
	d.	Temperature	VVVF system shall be capable of withstanding up to 50 o C without derating.
	e.	Other requirements for VFD	Necessary input & output devices to be provided to reduce harmonics, as per IEEE519, at supply side of the drive at the switchgear.
	f.	Other requirements for VFD	The Variable frequency drive (VFD) system shall be of a modern proven design for similar applications in power plants/industry. The system shall be either Current Source Inverter (CSI) or Voltage Source Inverter (VSI) type with minimum Twelve (12) pulse design / 6 pulse with active frontend harmonic filter. For drives less than 100 KW Six (6) pulse can be offered meeting all other requirements.
	g.	Other requirements for VFD	All necessary protections e.g., Input Phase Loss, Earth Fault, Over Voltage, Output Short Circuit, Load Loss, Input Transient Protection, overload etc to be provided.
3.27.0	a.	Contactors	AC 4 duty for reversing application. AC 3 duty for non-reversing application
	b.	Switches	AC 23 for motor application, AC 22 for other application.
	c.	Fuses	HRC
	d.	Overload relay	Temperature compensated bimetallic with single phasing preventor.
3.28.0		Power supply	Owner shall provide Two (2) nos. 415 V, 3 phase, 4 wire supply at operating floor near A row column at centre of bay length shall be provided. Bidder shall provide change over switch in enclosure to receive above power supply.

		TECHNICAL SPECIFICATION 2X800 MW LARA TPP STAGE II DOUBLE GIRDER EOT CRANES FOR TG HALL 265/25T	PE-TS-508-501-A501 Rev. No. 00 Date : FEB 2024
3.29.0		Cable glands	Cable glands shall conform to BS:6121. Cable glands shall be made of heavy duty brass machine finished and nickel chrome plated. Thickness of plating shall not be less than 10 micron. All washers and Hardware shall also be made of brass with nickel chrome plating. Rubber components shall be of neoprene or better synthetic material and of tested quality.
3.30.0		Lugs	Cable lugs/ferrules shall be solderless crimping type suitable for power and control cables as per the DIN 46239. Aluminium solderless crimping lugs/ferrules shall be used for Aluminium cables and Copper lugs/ferrules shall be used for Copper cables. Bimetallic washers or bimetallic type lugs shall be used for bimetallic connections
3.31.0		Transformer	(Dry type, With Insulation Class B or Better)
	a.	Quantity	2 X 100 % for control, 1 no for lighting & 1 no for hand lamp.
	b.	Voltage Rating	Control 415/110V, Lighting 415/240V and hand lamp 415/24V.
	c.	KVA rating	20% over loading to be considered while sizing the rating
3.32.0		Illumination	
	a.	In cabin	40W florescent tube + Bulk head fitting with 60W incandescent lamp – 1 each 2 nos. 24V- 5A-3 pin industrial socket.
	b.	Over Bridge	4 no. 60W Bulk head fittings with Florescent lamp lamps and 4 nos.24V 20A -3 pin Industrial socket
	c.	Under bridge	4 nos. 250 W HPSV lamps
	d.	For inspection of crane components	One (1) portable 40W hand lamp with min. half span length flexible cable for inspection of crane compon-ents.
3.33.0		Fire Extinguisher	
	a.	Type and size	4.5 kg CO2 type
	b.	Location	One in cabin and Three on bridge
3.34.0		Maintenance cage	Suitable inspection cages to accommodate two persons to facilitate inspection
3.35.0		Mechanical overload protection (Load Cell)	To be provided for hoist mode
3.36.0		RRC details	
	a.	RRC should be supplied with transmitter unit, receiver unit, encoder unit, decoder unit, interface panel, coupling system, battery unit and any other control gear if required.	
	b.	The equipment should be based upon the microprocessor based digital technology with almost nil hard wiring.	
	c.	The remote unit should communicate up to the distance of approximately 100 meters.	
	d.	The system has to integrate with the control system of crane, which operates at 110 V AC, Single phase.	
	e.	The remote unit should have transmitter which can be mounted on shoulder by suitable belt. Main controls can be of single joystick movement or double joystick movement type stepped control with spring return. The Micro control should be toggle switch type or push control type.	
	f.	Frequency allotment for radio remote unit from Govt. of India, Dept. of Telecommunication or any other agency shall be the responsibility of supplier.	
	g.	The transmitter and receiver unit should have its own frequency and address code with each system having its own security code so that one particular set becomes unique and there is no interference from any other remote unit device. A microprocessor should check all security codes. The processor should have its own watchdog circuit. The receiver FM band should be sufficiently narrow to allow only passing of desired frequency and valid command. Any error should shut down the system immediately.	
	h.	The remote unit should have safety key to prevent any unauthorized operation. All the crane operations should stop at once the communication breakdown occurs.	
	i.	On local unit (receiver side), the system should be provided with one selector switch so that EOT crane can be operated either from Operator cabin or radio remote unit.	
	j.	In case tandem operation is envisaged, a suitable selector switch shall be provided in the cabin for selection of Tandem/normal operation.	
	k.	The receiver unit along with I/O interface unit should be able to bear the vibrations and shocks encountered in normal usage of EOT crane.	
	l.	The system should have very fast response time.	

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3.37.0		Sweep	Sweep shall be attached to the end carriages and to the trolley to remove foreign materials from the rails.		
3.38.0		Whether tandem operation envisaged	Yes		
3.39.0		Lifting Beam & its capacity	SWL= 450T, Design Capacity= 472.5T, Overload test (Manufacturer works) at 1.25XSWL A suitable indicating device to indicate the difference in the lifts of the two cranes, which shall be limited to 200 mm shall be provided on the lifting beam. The level difference indication shall be visible from ground level. A limit switch shall be provided to give alarm at both the cabins to enable the crane operators to control the level difference within 200mm.		
3.40.0		Anti Collision device	Suitable anti-collision device of two cranes, alongwith stoppers at both the gable ends.		
3.41.0		Lubrication			
	a.	Provisions shall be made for proper lubrication of all parts.			
	b.	Bearings shall be provided with means of pressure lubrication.			
	c	The crane shall be provided with all necessary lubrication fittings.			
	d	Lubricating points shall be located for easy and safe access without the necessity of removing guards or other parts. Lubrication lines shall be securely fastened to the cranes structure and shall be located to provide the maximum protection and so that ordinary repairs can be made without removing the lines.			
	e	The crane shall be provided with a centralized lubrication system of reputed make. This system shall be manually operated, complete with a manual pump, reservoir, supply lines, connectors, valves, and discharge lines to all bearings. System shall be centralized lubrication type with at least, one pump mounted on the trolley and one on each of the crane bridge with supply line for connection to all lubrication points. .			
	f	Metering valves with indicators shall be provided for all points of grease application and shall be mounted at readily visible and accessible locations.			
	g	All piping shall be made of suitable metal tubing with flexible hoses where required.			
3.42.0		DSL phase indicating lamps	to be provided on both side of bay length.		
3.43.0		Consumables	The Bidder's scope includes requirements of consumables such as oils, lubricants including grease, servo fluids, cadmium compounds, gases and essential chemicals etc. First fill of all these consumables shall also be included in the scope of the Bidder.		
3.44.0		E-Learning Package			
	a.	The courses shall be web based and mobile based Application type. It shall run on all possible versions of web browser like Internet Explorer, Google Chrome, Firefox etc. on Laptop/Desktop and shall be Smartphone/Tablet/ Mobile responsive. The Mobile responsive courses shall run on Android, Windows Mobile, Blackberry, iOS etc.			
	b.	The courses shall support liquid/fluid page layout so that the entire screen gets adjusted to PC, Laptop, Smartphone/ Mobile, Tablet and any other display devices.			
	c	Course content text shall be in English language and be associated with a voiceover in English language with Indian accent.			
	d	Courses shall be SCORM (Sharable Content Object Reference Model) compliant, version 1.2 which is compatible with LMS at PMI.			
	e	Each course shall have every physical and functional detail of the equipment / system supplied.			
	f	Each of the e-Learning course shall be based on multiple web pages and mobile pages with multiple modules.			
	g	There shall be option for self-assessment test after every course. In case the user doesn't opt for self-assessment test the user shall be able to go to the next course. There shall be no restriction in no. of times for repeating the assessments. All correct answers along with the answers marked by the users shall be displayed at the end of test/ quiz.			
	h.	If Java and Flash, as applicable are not available in the system to run the package, then there shall be a prompt message for updation of the same.			
	i.	Each course shall have a self-running interactive content with navigation buttons containing forward, backward, pause, bookmark and menu options in the course window.			
	j.	The course shall contain chapter titled 'Introduction/overview' that explains the purpose of the course.			

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	k.	The course content shall contain descriptive text shall be factual, specific, terse, clearly worded, and simply illustrative, so that the user can understand it.	
	l.	The system shall provide the user with the ability to select the information with a Cursor.	
	m	The course menu should contain table of content linked to concerned pages. The user shall be given the capability to access all of the functions available on the system through a menu system. This shall consist of active buttons, which shall control a hierarchy of pull down/pop-up menus. Menu shall appear quickly and exist only while a selection is being made. The user shall be given the capability to position the cursor or pointer on the menu item and use pointer device such as mouse to activate the function.	
	n	Every course shall contain the 3D design/drawing/exploded view/3600 turn around view of the equipment/system, textual description of the equipment/system and its functionality with video (as applicable), animation and audio.	
	o	The users shall be able to control audio sound level associated with the courses.	
	p	Drawings / text in the courses shall be scalable (Zoom In/ Out).	
	q	The user shall have the capability to record a bookmark to mark displayed information for later recall, whenever he accesses the same course next time.	
	r	e-learning Package of an equipment / system shall include e-learning courses for each of erection, commissioning, operation and maintenance of that equipment / system.	
	s	e-learning courses on erection, commissioning, operation and maintenance of an equipment / system shall include e-learning lessons/chapters/modules (as required) for erection, commissioning, operation and maintenance respectively of that equipment / system.	
	t	The vendor shall get the approval of one sample course from EIC before proceeding for further courses.	
3.45.00		Nuts & Bolts	As per IS:1363, IS:1364 and IS:1367.
3.46.00		Electrodes	Radiography quality, covered electrodes with heavy covering as per IS : 814 and relevant requirements of ASME Sec. IX and IIC. Bare Electrodes as per IS:7280 and flux wire combination as per IS : 3613.

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TECHNICAL DATA SHEET B					
(SUCCESSFUL BIDDER TO FILL AFTER PLACEMENT OF ORDER)					
Sr. No.		DESCRIPTION	TECHNICAL PARTICULARS		
1.0.0		COMPONENT DETAILS			
		Bridge girder			
	a.	Size			
	b.	Width			
	c.	Length			
2.0.0		Trolley			
	a.	Centre to centre distance of wheels (on the same rails)			
3.0.0		Rope drums	Main hoist	Aux hoist	
	a.	Dimensions in mm length and diameter (PCD)			
	b.	Number of grooves			
	c.	Diameter on bottom of grooves			
4.0.0		Rope details	Main hoist	Aux hoist	
	a.	Grade			
	b.	Diameter in mm			
	c.	Breaking strength			
	d.	Tensile designation			
	e.	Number of falls			
	f.	Length of rope			
3.4.0		Sheaves details	Main hoist	Aux hoist	
	a.	Diameter of main sheaves in mm on Root			
	b.	Diameter of Equalizing sheaves (in mm) on Root			
3.5.0		COUPLINGS & SHAFTING			
3.5.1		Coupling details (between motor and gear box)	(for Main hoist, Aux hoist, Cross Travel and long travel)		
	a.	Size & Torque rating			
3.5.2		Coupling details (between gear box and wheels)	Cross Travel (CT)	Long Travel (LT)	
	a.	Size & Torque rating			
3.5.3		Coupling details (between gear box and rope drum)	Main hoist	Aux hoist	
	a.	Size			
3.5.4		Shafting (Output)	Cross Travel	Long Travel	
	a.	Diameter in mm			
	b.	Number of support bearings			
	c.	Type of support bearing			
	d.	Max unsupported length of shaft in mm			
3.6.0		Gear box details			
3.6.1		Hoist Motions	MH and MH Micro	AH and AH Micro	
	a.	Total number of reductions			
	b.	Type of gears for MH and AH			
	c.	Reduction ratio			
	d.	Hardness (BHN) – gear			
	e.	Hardness (BHN) – pinion			
	f.	Difference in Gear and pinion hardness			
	g.	Materials (gear/pinions)			
3.6.2		Travel Motions	CT and CT Micro	LT and LT Micro	
	a.	Total number of reduction			

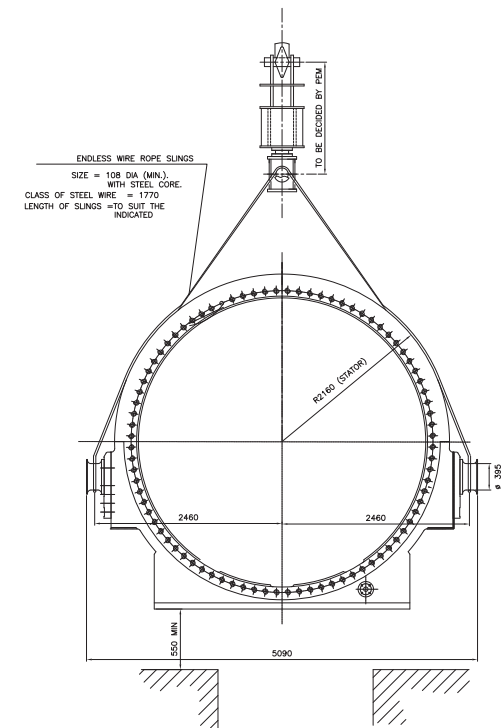
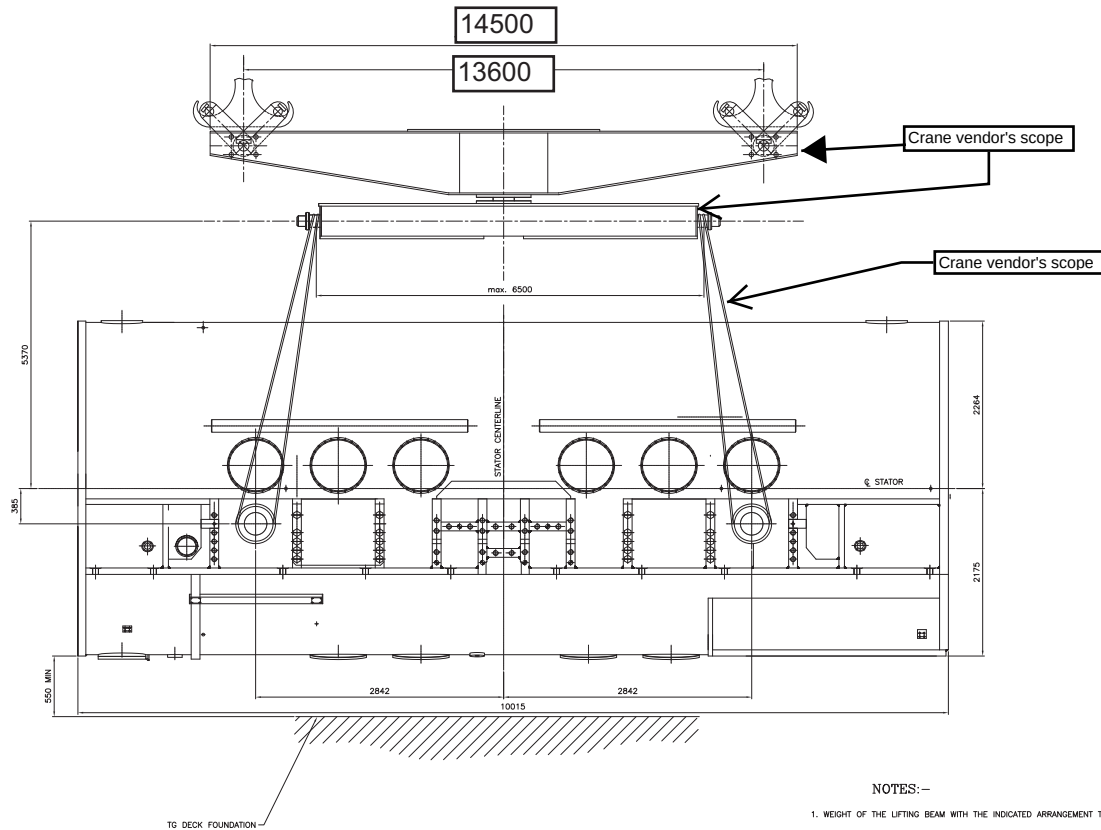
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	b.	Type of gears		
	c.	Reduction ratio		
	d.	Hardness (BHN) – gear		
	e.	Hardness (BHN) – pinion		
	f.	Difference in Gear and pinion hardness		
	g.	Materials (gear / pinions)		
3.7.0		Wheels details	Cross Travel	Long Travel
	a.	Material		
	b.	Hardness		
	c.	Depth of hardness		
	d.	Tread diameter in mm		
	e.	Tread width in mm		
	f.	Numbers provided		
3.8.0		Lifting hooks	MH	AH
	a.	Material		
3.9.0		Brakes		
3.9.1		Hoist Motions	MH	AH
	a.	Diameter of brake in mm		
	b.	Torque rating Kg. M		
	c.	Braking torque actually required		
	d.	Braking distance in mm		
	e.	Thruster material		
3.9.2		Travel Motions	CT	LT
	a	Dia of brake in mm		
	b.	Torque rating KgM		
	c.	Braking torque actually required		
	d.	Thruster material		
	e.	Braking distance in mm		
3.10.0		Rails	CT	LT
	a.	Weight per metre		
	b.	Top width in mm		
	c.	Height in mm		
3.11.0		Motors		
	a.	rating	For Main hoist: For aux hoist: For Cross travel: For long travel:	
	b.	Speed (rpm)		
	c.	Contactors for motor		
	d.	Spacing between gland plate & centre of bottom terminal stud		
	e.	Minimum inter-phase and phase-earth air clearances with lugs installed		
	f.	Space heater requirements details		
	g.	Overload protection details		
3.12.0		Limit switches		
	a.	Rating of contacts		
3.13.0		Protective Panel		
	a.	Dimension		
3.14.0		Control panel for MH, AH, CT and LT		
	a.	Dimension		
3.15.0		Slings, suitable for load & overload test of EOT Crane (to be supplied alongwith load test certificate for joint at 2 X rated capacity)		

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	a	Length			
	b.	Size			

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COMPLIANCE DRAWINGS

DRAWING NO. TGE-2842



NOTES:-

1. WEIGHT OF THE LIFTING BEAM WITH THE INDICATED ARRANGEMENT TO BE USED FOR DECIDING EOT CRANE CAPACITY.
2. WEIGHT OF THE PACKED STATOR WITH TERMINAL BUSHING BOX IS 450 TONNES.
3. DIFFERENCE IN THE LIFTS OF TWO CRANE AT ANY TIME SHOULD NOT EXCEED 200MM.
4. THE ARRANGEMENT SHOWN IN THIS SHEET IS FOR STATOR ALONE BROUGHT TO TG DECK TO BE PLACED ON PEDESTALS.

TECHNICAL REQUIREMENTS

1. THE DETAIL OF LIFTING BEAM WITH SWIVELLING ARRANGEMENT INCLUDING MATERIAL IS TO BE DONE BY THE PEM, FOR A MAXIMUM LIFTING CAPACITY OF 450 TONNES.

GRADE OF UNTOL. DIM:-		SHEET NO.		SHEET DATE		TYPE OF PRODUCT OR NAME OF CUSTOMER/ PROJECT		800MW GENERATOR	
M/CD- V/C/M/P AA 02020208		NAME		SIGN		DATE		NAME	
WELDING-V/B/C/D-A621104		NAME		SIGN		DATE		NAME	
GAS CUTTING-TYAKR1101		NAME		SIGN		DATE		NAME	
REV DATE		ALTERED		CHECKED		REV DATE		ALTERED	
DEPT.		SCALE		WEIGHT(Kg.)		REF. TO ASSY. Dwg.		REV. NO.	
CODE		TITLE		LIFTING ARRANGEMENT FOR STATOR		DRAWING NO.		TGE-2842	
SHEET NO. 1		NO. OF SHEETS		NO. OF SHEETS		NO. OF SHEETS		NO. OF SHEETS	

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PERFORMANCE GUARANTEES TO BE DEMONSTRATED AT SITE

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PERFORMANCE GUARANTEES TO BE DEMONSTRATED AT SITE AS PER IS-3177.	
S.N.	DESCRIPTION OF TESTS TO BE PERFORMED
1	Speed test at rated load for hoisting, CT and LT mechanism.
2	Brakes test
3	Deflection test of bridge girder at rated load. Crane shall rest on centerline of LT wheels.
4	Overload test (running of CT and Hoisting mechanism at 125% of the rated load). Capability of crane to lift the overload from mid-air shall be demonstrated.

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STANDARD MANUFACTURING QUALITY PLAN FOR DOUBLE GIRDER EOT CRANE

MANUFACTURERS NAME & ADDRESS		MANUFACTURING QUALITY ASSURANCE						Project :						
		Item: Double Girder EOT Crane		QAP No. :		Reference Document		Acceptance Norms		Format of Record		Inspection Agency		Remark
				Rev. :										
				Date :										
				Page :										
Sl.No.	Components & operations	Characteristics	Class	Type of check	Quantum of Check		Reference Document	Acceptance Norms	Format of Record	Inspection Agency	Remark			
					M	C/N								
1	2	3	4	5	6	7	8	9	10	11				
A	RAW MATERIAL													
a.	Steels Plates (Box Girder, End Carriage, Trolley, Gear Box Casing & Fab. Rope Drum)	1. Chemical & Physical	Major	Chemical & Physical	1 / Heat	1/Heat	NTPC APPD GA DRG. / CRANE DS / TECH SPEC / IS:2062 - 2011, GR-BR (E-250/350)	NTPC APPD GA DRG. / CRANE DS / TECH SPEC / IS:2062 - 2011, GR-BR (E-250/350)	TC	✓	P	#V / W	V	# In absence of Co-related TC, check testing shall be witnessed on sample selected by Main Contractor.
		2. NDT	Major	UT (25 mm & above thickness)	100%	100%	ASTM A 435/ A 578 Level B	ASTM A 435/ A 578 Level B	IR	✓	P	#V / W	V	# Co-related MII TC inclusive of UT will be reviewed by BHEL/NTPC, in absence of UT conformance in MII TC, Then LIT will be witness by BHEL.
b.	Round Bars (For Pinion, Gears, Axels & Shafts)	1. Chemical & Physical	Major	Chemical & Physical	100%	100%	NTPC appd GA DRG. / CRANE DS / EN-8 (080M40), EN-9 (070M55), EN-19 (709M40), EN-24, BS-970		TC	✓	P	#V / W	V	# In absence of Co-related TC, check testing shall be witnessed on sample selected by Main Contractor.
		2. NDT	Major	UT	100%	100%	ASTM A 388 - 2007	Note A	IR	✓	P	V	V	For Dia / thk more than or equal to 40 mm.
		3. Hardness	Major	Measurement	100%	100%	Mfg. Drg / Crane data sheet / IS: 3177	Mfg. Drg / Crane data sheet / IS: 3177	IR	✓	P	V	V	
c.	Forgings (For Gears, Wheels)	1. Chemical & Physical	Major	Chemical & Physical	100%	100%	NTPC APPD GA DRG. / CRANE DS / EN-9/19 (070M55) - BS - 970 / C55Mn75, IS: 1570 - 1979		TC	✓	P	#V / W	V	# In absence of Co related TC, check testing shall be witnessed on sample selected by Main Contractor.
		2. NDT	Major	Ultrasonic	100%	10%	ASTM A388 -2007	Note A	IR	✓	P	W	W	
		3. Hardness	Major	Measurement	100%	100%	Mfg. Drg / Crane data sheet / IS: 3177	Mfg. Drg / Crane data sheet / IS: 3177	IR	✓	P	V	V	
d.	Casting for gears (To be used, if allowed as per approved drg./ DS)	1. Chemical & Physical	Major	Chemical & Physical	100%	100%	NTPC Apprd Drg. / DS / Cast steel as per IS:2707 GR A/B	NTPC Apprd Drg. / DS / Cast steel as per IS:2707 GR A/B	TC	✓	P	V	V	
		2. NDT	Major	UT	100%	100%	ASME Sec. V, article-23, SA-609	SA-609, Level - II	IR	✓	P	W	W	
LEGEND : * Records Identified With * Tick " (✓) Shall be Essentially Included by Supplier in QA Documentation. * M: Manufacturer / Sub Supplier, C: Main Supplier (BHEL), N : NTPC P: Perform, W: Witness, V: Verification as Appropriate, CHP : NTPC Shall Identified in column "N" AS "W" Note A : When back wall echo (BWE) set to 100% full screen height (FSH) in sound area of the material, a defect: echo > 20% FSH is not acceptable. Also loss of BWE >20% is not acceptable.											FOR CUSTOMER USE DOC NO: _____ REV: 00 CAT: _____ REVIEWED BY: _____ APPROVED BY: _____ APPROVAL SEAL: _____			

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MANUFACTURERS NAME & ADDRESS		MANUFACTURING QUALITY ASSURANCE							Project : :							
FI C V C		Item: Double Girder EOT Crane		CAP No. Rev. : Date : Page : - - - -			Package : DG EOT CRANE ABOVE 100T Contract No. : L Contractor : BHEL - NOIDA									
Sl.No.	Components & operations	Characteristics	Class	Type of check	Quantum of Check		Reference Document	Acceptance NormS	Format of Record		Inspection Agency			Remark		
					M	C/N				D*	M	C	N			
1	2	3	4	5	6		7	8	9	D*	10			11		
		6. NDT before proof load test.	Major	UT	100%	100%	ASTM A 388-2007	Note A	IR	√	P	V	V			
			Major	DPT	100%	100%	ASME Sec. V	ASME Sec. VIII, Div.1, Appendix - 8	IR	√	P	V	V			
		7. Proof Load Test	Major	Proof Load Test	100%	100%	Drawing / IS: 5749/ IS: 15560 / DS	Drawing / IS: 5749/ IS: 15560 / DS	IR	√	P	W	#V / W	#W - For Main Hook		
		8. NDT After Proof Load (UT ONLY SHANK PORTION)	Major	UT & MPI after Proof Load Test	100%	100%	ASTM A 388-2007 / ASTM E 709- 2007	No relevant indication.	IR	√	P	W	#V / W			
		9. Identification punch	Major	Visual	100%	100%	—	—	—	—	P	H	H	H- Hold Point (identification by NTPC & BHEL)		
b.	Wire Rope	Visual and Breaking strength	Major	Type , Grade, breaking strength & visual,Diameter	100%	100%	Approved GA Drawing / IS:2266 - 2006 / DS	Approved GA Drawing / IS:2266 - 2006 / DS	Mill TC	√	P	V	V			
c.	Rails	Chemical & Tensile, Cross Section, Hardness , Dimension	Major	Chemical & Tensile, Hardness , Dimension	100%	100%	GA Drawing / IS:3443 - 1980 / APPD DS	GA Drawing / IS:3443 - 1980 / APPD DS	TC/R	√	P	V	V			
C. ELECTRICAL ITEMS																
a.	Transformer (like control, Light transformer)	Make, rating	Major	Visual	100%	100%	NTPC approved BOI List / SLD / DRG / BOM / ADS		IR		P	V	V			
		Routine test	Major	Doc. Review	100%	100%	Mfg. Catlog / DS	IS: 2C26 & 12021 for control transformer	Mfg.TC		P	V	V			
LEGEND : * Records Identified With " Tick " (√) Shall be Essentially included by Supplier in QA Documentation. * M : Manufacrer / Sub Supplier , C : Main Supplier (BHEL) , N : NTPC P: Perform , W : Witness , V : Verification as Appropriate, CHP : NTPC Shall identified in column "N" AS "W" Note A : When back wall echo (EWE) set to 100% full screen heigh (FSH) in sound area of the material , a defect echo > 20% FSH is not acceptable.Also loss of BWE >20% is not acceptable.								FOR CUSTOMER USE		DOC NO: REV: 00 CAT:						
										REVIEVED BY			APPROVED BY		APPROVAL SEAL	

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MANUFACTURERS NAME & ADDRESS		MANUFACTURING QUALITY ASSURANCE						Project :						
		Item: Double Girder EOT Crane		QAP No. :		Rev. : Date : Page :		Package : DGEOT CRANE ABOVE 100T Contract No. : Contractor : BHEL - NOIDA						
Sl.No.	Components & operation	Characteristics	Class	Type of check	Quantum of Check		Reference Document	Acceptance Norms	Format of Record		Inspection Agency			Remark
					M	C/N					M	C	N	
1	2	3	4	5	6		7	8	9	D*	** 10			11
f.	DSL Guard	Dimensional	Major	Extension	100%		Mfg. Drawing	Mfg. Drawing	IR		P	V	V	
F. FINAL INSPECTION														
a.	CONTROL PANEL WITH VVVF DRIVE	Identification of all elct. Components, cable laying / dressing / ferruling / terminations dimensional functional, HV, IR, Interlocks, protection DOP	Major	Visual dimensional, operational & functional check, HV, IR, Painting	100%	2 100%	IS: 3177 - 1999 / App. Drawing / Data sheet	IS: 3177 - 1999 / App. Drawing / Data sheet	TC	√	P	W	W	HV at 2.5 KV AC for Power CKT & at 2KV for control CKT, DOP by paper insertion (method). BOI as per NTPC approved makes. Will be checked at the time of final inspection. Corelated MTC of VFD shall be reviewed during final inspection.
		Paint shade / thk / adhesion	Major	Visual / DFT	100%	100%	Painting procedure / Approved GA Drawing	Painting procedure / Approved GA Drawing	TC		P	V	V	7 Tank treatment before painting of panels.
b.	EOT crane assembly with control panel, master controller / remote controller pendant station (At vendor's works)	Visual & dimensional	Major	Dimensional, Span, Dagon & Wheel Base Dimension, LT Stopper Dimension	100%	100%	App. GA Drawing / Relevant IS: 3177 / DS	App. GA Drawing / Relevant IS: 3177 / DS	IR	√	P	W	W	Crane should be operable by RRC meant for that crane only
		Operational	Major	1. Speed & current measurement at No load for Hoist & CT / LT motion 2. Speed & current measurement at SWL for Hoist & CT motion (Only for 500 mm) 3. Overload test (125%) of SWL Hoist motion (Only for lifting motions) 4. Detention Test at SWL 5. Operation check of Brake at SWL 6. Interlock & Functional test.	100%	100%	App. GA Drawing / Relevant IS: 3177 / Data sheet / Load test Procedures	App. GA Drawing / Relevant IS: 3177 / Data sheet / Load test Procedures	IR	√	P	W	W	Functional & interlock test as per approved Electrical schematic Drawing
		Paint shade / DFT	Major	Visual / DFT check	100%	100%	Painting scheme/DS/TS/Approved paint schedule	Painting scheme/DS/TS/Approved paint schedule	IR	√	P	V	V	
LEGEND : * Records Identified with "Tick" (√) Shall be Essential C * M : Manufacturer / Sub-Supplier, C : Main Supplier (BHEL), N : NTPC P : Perform, W : Witness, V : Verification as Appropriate, CHP : NTPC Shall be identified in column "N" AS "W" Note A : When back echo (BWE) set to 100% full screen height (FSH) in sound area of the material, a defect echo >=20% FSH is not acceptable Also loss of BWE >20% is not acceptable.									FOR CUSTOMER USE DOC NO: _____ REV:00 CAT: _____ _____ _____ _____ _____ REVIEWED BY: _____ APPROVED BY: _____ APPROVAL SEAL: _____					

MANUFACTURERS NAME & ADDRESS			MANUFACTURING QUALITY ASSURANCE					Project :						
			Item: Double Girder EOT Crane		QAP No. : Rev. : Date : Page :			Package : DG EOT CRANE ABOVE 100T Contract No. : Contractor : BHEL - NOIDA						
Sl.No.	Components & operation	Characteristics	Class	Type of check	Quantum of Check		Reference Document	Acceptance NormS	Format of Record		Inspection Agency			Remark
					M	C/N					M	C	N	
1	2	3	4	5	6		7	8	9	D*	** 10			11
G	PACKING & PRE DISPATCH INSPECTION													
a.	Predispatch inspection	As per pre packing note (PPN)	Major	Visual	100%		As per Pre Packing Note	As per Pre Packing Note	PPN		P	V	—	
Note : 2 - BOUGHT OUT ITEMS SHALL BE OF NTPC AGREED MAKE. PROJECT SPECIFIC LIST OF BOI IS ATTACHED. - ALL MATERIAL SHALL BE AS PER APPROVED DRG./DATA SHEET OF EOT CRANE. IN CASE OF ANY COMPONENT IS NOT INDICATED IN APPROVED DRG./DATA SHEET THE SAME SHALL BE AS PER RELEVANT IS / MANUFACTURING DRG. - FOR MOTORS FOLLOWING MODALITIES SHALL BE ADOPTED. (A) Less than 30 KW. ACCEPTANCE OF MOTORS LESS THAN 30 KW IS BASED ON COC OF THE MANUFACTURER AND THE CONTRACTOR CONFIRMING AS FOLLOWS. * IT IS HEREBY CONFIRMED THAT THE ABOVE MENTIONED MOTOR / MOTORS WAS /WERE MANUFACTURED TAKING CARE OF NTPC SPECIFIC REQUIREMENTS REGARDING AMBIENT TEMPERATURE, VOLTAGE & FREQUENCY VARIATION, HOT STARTS /PULL OUT TORQUE, STARTING KVA/KW, TEMP, RISE, DISTANCE BETWEEN CENTRE OF STUD AND GLAND PLATE AND TESTED IN ACCORDANCE WITH APPROVED DRAWING /DATA SHEETS. (B) 30 KW TO BELOW 50 KW ACCEPTANCE OF MOTOR RATING BETWEEN 30 KW TO 50 KW IS BASED ON NTPC REVIEW OF ROUTING TEST INSPECTION REPORT AS PER IS 325 ALONG WITH COC OF THE MANUFACTURER & THE CONTRACTOR CONFIRMING AS FOLLOWS: * IT IS HEREBY CONFIRMED THAT THE ABOVE MENTIONED MOTOR / MOTORS WAS /WERE MANUFACTURED TAKING CARE OF NTPC SPECIFIC REQUIREMENTS REGARDING AMBIENT TEMPERATURE, VOLTAGE & FREQUENCY VARIATION, HOT STARTS /PULL OUT TORQUE, STARTING KVA/KW, TEMP, RISE, DISTANCE BETWEEN CENTRE OF STUD AND GLAND PLATE SPACE HEATER AND TESTED IN ACCORDANCE WITH APPROVED DRAWING /DATA SHEETS. - IN ADDITION TO ABOVE. IF ANY NEW REQUIREMENT APPERS DURING CONTRACT EXECUTION PHASE, THE SAME HAS TO BE COMPLIED BY VENDOR. - LOAD BELLS SHALL BE ARRANGE AT THE TIME OF TESTING OF CRANES / Lifting beam. 2														
LEGEND : * Records Identified With " Tick " (✓) Shall be Essentially included by Supplier in QA Documentation. * M : Manufacrer / Sub Supplier , C : Main Supplier (BHEL) , N : NTPC P: Perform , W : Wiltness , V : Verification as Appropriate, CHP : NTPC Shall identified in colume "N" AS "W" Note A : When back wall echo (BWE) set to 100% full screen heigth (FSH) in sound area of the material , a defect echo > 20% FSH is not acceptable. Also loss of BWE >20% is not acceptable.					FOR CUSTOMER USE		DOC NO: _____ REV: 00 CAT: _____ _____ _____ _____ REVIEWED BY: _____ APPROVED BY: _____ APPROVAL SEAL: _____							

Note-6
 Material of Structural steel plates/ rolled section: Mild steel, grade 'B' of IS 2062 in 100% killed, normalised and ultrasonically tested quality or high strength steel of IS 8500 as appropriate.
 GIRDERS, END CARRIAGE, CRAB, GEAR BOX AND ROPE DRUM - THE PLATES OF THICKNESS 25MM AND ABOVE SHALL BE ULTRASONICALLY TESTED.

2

Note 7: Bidder has to include scope of inspection of main hook by reputed third party inspector in case of inspection being done at foreign location.

	TECHNICAL SPECIFICATION 2X800 MW LARA TPP STAGE II DOUBLE GIRDER EOT CRANES FOR TG HALL 265/25T	PE-TS-508-501-A501
		Rev. No. 00
		Date : FEB 2024

STANDARD MANUFACTURING QUALITY PLAN FOR LIFTING BEAM

		MANUFACTURER NAME & ADDRESS		MANUFACTURING QUALITY PLAN				TECHNICAL SPECIFICATION: PE-TS-508-501-A501						
				ITEM: LIFTING BEAM ASSEMBLY FOR TG HALL DOUBLE GIRDER EOT CRANES		BHEL DOC. NO. : REV : DATE :		PROJECT : 2X800 MW LARA TPP						
				W.O.NO:										
SR. NO.	COMPONENT & OPERATIONS	CHARACTERISTIC	CLASS	TYPE OF CHECK	QUANTUM OF CHECK	REFERENCE DOCUMENT	ACCEPTANCE NORMS	FORMAT OF RECORD	*	AGENCY			REMARKS	
1	2	3	4	5	6	7	8	9	D	10			11	
1) For Lifting beam (Lower & Upper Lifting Beam)										M	C	N		
i)	Material	Chem. & Phy.	Major	Co-relation with T.C. Check test in absence of	1/heat/batch	Drg. / Tech. Spec. / IS:2062:2006 , GR-BR, (E250) , AMD.1 ,2009	Drg. / Tech. Spec. / IS:2062:2006 , GR-BR, (E250) , AMD.1 ,2009	MTC	✓	P	R	R		
		NDT	Major	U.T	100%	ASTM A 435	ASTM A 435	I.R	✓	P	R	R	UT on 25 mm & above thick plate	
ii)	Weld set up	Dimensional conformity	Major	Measurement	100% for butt weld joint	Component drawing	Component drawing	I.R	-	P	-	-		
iii)	Pins for Slings & Hooks	Chem. & Phy.	Major	Co-relation with T.C. Check test in absence of	100%	Mfg.drg/EN-9(070M55) / BS - 970-1983	Mfg.drg/EN-9(070M55) / BS - 970-1983	I.R	✓	P	R	R		
		NDT	Major	U.T	100%	ASTM A 388	ASTM A 388	I.R	✓	P	R	R	IF DIA >= 50mm UT to be Applicable.	
iv)	Wire rope	Make, construction , breaking strength	Major	Visul corelation with TC	100%	IS:2266 / As Per Drg.	IS:2266 / As Per Drg.	MTC	✓	P	R	R		
2) Welding														
i)	WPS , WPQ & PQR	Welding parameters	Major	Review of earlier appd. WPS/WPQ/ PQR records	100%	ASME SEC IX	ASME SEC IX	WPS/WPQ/ PQR records as per ASME SEC -IX format	✓	P	R	R	WPS already approved by LIOYDS/NTPC/NPCIL shall be valid. In case NTPC/BARC/NPCIL/ IRS/TPL/LIOYDS qualified welders already available & doing the same job regularly, re-qualification is not required. Alternatively welder qualified by above agencies will be utilised.	
ii)	Back chipping	Surface defects	Major	DPT	100%	ASME Sec.V	ASME - Sec. VIII Div 1 Appen.-8	-		P	R	-		
		LEGEND: RECORDS IDENTIFIED WITH 'TICK (✓) SHALL BE ESSENTIALLY INCLUDED BY CONTRACTOR IN QA DOCUMENTATION "M" MANUFACTURER/ SUBCONTRACTOR "C" CONTRACTOR (BHEL) "S" CUSTOMER INDICATE "P" PERFORM, "W" WITNESS AND "V" VERIFICATION AS APPROPRIATE. " CHP" SHALL IDENTIFIED IN COLUMN " N " NOTE: ITEMS NOT COVERED IN MQP, MAY BE CLEARED ON BASIS OF "CERTIFICATE OF CONFIRMANCE"					FOR CUSTOMER USE							
MANUFACTURER		CONTRACTOR (BHEL)												
SIGNATURE									REVIEWED BY		APPROVED BY		APPROVAL SEAL	

		MANUFACTURER NAME & ADDRESS		MANUFACTURING QUALITY PLAN				TECHNICAL SPECIFICATION: PE-TS-508-501-A501					
				ITEM: LIFTING BEAM ASSEMBLY FOR TG HALL DOUBLE GIRDER EOT CRANES		BHEL DOC. NO. : REV : DATE :		PROJECT : 2X800 MW LARA TPP					
				W.O.NO:									
SR. NO.	COMPONENT & OPERATIONS	CHARACTERISTIC	CLASS	TYPE OF CHECK	QUANTUM OF CHECK	REFERENCE DOCUMENT	ACCEPTANCE NORMS	FORMAT OF RECORD	*	AGENCY			REMARKS
1	2	3	4	5	6	7	8	9	D	10			11
										M	C	S	
a)	Butt-Weld	Weld Quality	Critical	RT	100% in tension & 10% in compression	ASME SEC VIII	ASME SEC VIII Clause UW -51	RT report & Film	✓	P	R	R	Review of radiography report
			Major	DPT	100%	ASME Sec.V	ASME SEC VIII Appnd. 8	I.R	✓	P	R	R	
b)	Fillet Weld	Surface defect & size	Major	Visual	100%	Component Drawing	Component Drawing	I.R	✓	P	R		
			Major	DPT	10% at random	ASME Sec.V	ASME Sec. VIII	I.R	✓	P	W	R	W - At the time of final Inspection of Lifting beam
iii)	Inspection of Fabricated Lifting Beam	Visual & dimensional	Major	Dimensional & measurement	100%	Individual component drawing	Individual component drawing	I.R	✓	P	R	R	
3)	Final assembly of Lifting beam	Visual & Dimensional	Major	Visual & Dimensional check	100%	GA Drawing of lifting beam / IS 3177 / Tech-Specification.	GA Drawing of lifting beam / IS 3177 / Tech-Specification.	I.R	✓	P	W	W	CHP (AT WORKS)
4)	Review of QA Documents	-	-	-	-	-	As per approved QAP	-	-	R	R	R	
5)	Load test at Mfg. Works	Visual	Major	Visual	100%	Appd drawing / Load test procedure	Appd drawing / Load test procedure	I.R	✓	P	W	W	Overload test to be performed at @ 1.25 X SWL. Refer Annexure-A for procedure
		Deflection test at SWL	Major	Measurement	100%			I.R	✓	P	W	W	
		Overload test at (1.25 x SWL)	Major	Visual	100%			I.R	✓	P	W	W	
		LEGEND: RECORDS IDENTIFIED WITH 'TICK (✓) SHALL BE ESSENTIALLY INCLUDED BY CONTRACTOR IN QA DOCUMENTATION "M" MANUFACTURER/ SUBCONTRACTOR "C" CONTRACTOR (BHEL) "N" CUSTOMER INDICATE "P" PERFORM, "W" WITNESS AND "V" VERIFICATION AS APPROPRIATE. " CHP" SHALL IDENTIFIED IN COLUMN " N " NOTE: ITEMS NOT COVERED IN MQP, MAY BE CLEARED ON BASIS OF "CERTIFICATE OF CONFIRMANCE"					FOR CUSTOMER USE						
MANUFACTURER	CONTRACTOR (BHEL)												
SIGNATURE													
							REVIEWED BY		APPROVED BY		APPROVAL SEAL		

	TECHNICAL SPECIFICATION 2X800 MW LARA TPP STAGE II DOUBLE GIRDER EOT CRANES FOR TG HALL 265/25T	PE-TS-508-501-A501
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(ANNEXURE-A TO MQP OF LIFTING BEAM)

LOAD TESTING PROCEDURE OF LIFTING BEAM FOR DOUBLE GIRDER TG HALL EOT CRANES AT WORKS

1 SCOPE
This covers the guidelines for load testing of lifting beams of EOT cranes.

2 ACCESSORIES AND FACILITIES NEEDED.
Slings of suitable size and length , proof load tested at 2 X Safe working load (a SWL).
b Jacking system.
c Supporting structure
d Test loads.
e Cradle for accommodating test load (if required).

3 PROCEDURE
3.1 Support the lifting beam on fabricated structure and hydraulic jacks at both ends or as per facility available at works.
3.2 Place the load to be lifted under the lower lifting beam. Total test load shall be 1.25 times the SWL.
3.3 Drop the lifting slings from the lifting beam and safely tie it with the load.
3.4 The sling should be tied with the lifting beam such that the slings should not be slack. This should ensure that the slings are in full tension when the lifting beam is elevated by at least 100mm.
3.5 Fix the necessary measuring instrument in the lifting beam with wire and plumb to measure the initial reading for vertical deflection of both lower and upper lifting beam.
3.6 Now elevate the lifting beam by means of hydraulic jacks , such that the lifting beam is elevated by at least 100mm.
3.7 Ensure that the whole load is lifted clear from the floor.
3.8 Ensure that the elevation is equal at both ends.
3.9 Now the load is lifted by 100 mm and hence the sling is in full tension.
3.10 Keep the load in lifted condition for one minute.
3.11 Measure the deflection of the lifting beam structure.
3.12 Bring down the lifting beam to its original position with the help of jack.
3.13 Make the lifting beam free from testing position and put in safe place.
3.14 Visually check the weldments of lifting beam and carryout DP test in case of doubt.



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SUB VENDOR LIST

SR. NO.	ITEM	SUPPLIERS	REMARKS
1.	STEEL	SAIL	
		TISCO	
		JINDAL	
		RINL	
		ESSAR	
2.	HOOKS	STEEL FORGING & ENGG. CO.,	
		SIMRITI FORGING	
		KARACHIWALA	UP TO 25T CAPACITY
3.	GEAR COUPLINGS	ALLIANCE	
		FLEX-TRANS (formerly known as HICLIFF)	
		SAHARA	
		NUTECH	
		OEM	
4.	WIRE ROPE	USHA MARTIN	
		FORT WILLIAMS	
		B OMBAY WIRE ROPES	
		BHARAT WIRE ROPES	
5.	BEARINGS	SKF	
		FAG	
		TATA	
		NBC	
6.	MOTORS	SIEMENS	
		NGEF (up to 15KW)	
		CROMPTON	
		KIRLOSKAR	
		BHARAT BIJLI	
		MARATHON	
		ABB	
7.	BRAKES	ELECTROMAG	
		SPEED-O- CONTROL	
		BCH	FOR DCEM BRAKES ONLY
		KAKKU	
		PATHE	
8.	CONTACTOR	SIEMENS	
		L&T	
		SCHNEIDER (Earlier TELE MECHANIQUE)	
		ABB	

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		BCH	
9.	OVER LOAD RELAYS	SIEMENS	
		L&T	
		ABB	
		SCHNEIDER (Earlier TELE MACHANIQUE)	
10.	HRC FUSES	SIEMENS	
		L&T	
		ENGLISH ELECTRIC	
		GE POWER	
		EATON (BUSSMANN)	
		ABB	
11.	ISOLATING SWITCH	SIEMENS	
		L&T	
		CONTROL & SWITCH GEAR	
		ABB	
12.	SWITCH FUSE UNITS	SIEMENS	
		L&T	
		SCHNEIDER	
		CONTROL & SWITCH GEAR	
		ABB	
13.	TIME DELAY RELAYS	SIEMENS	
		L&T	
		ABB	
		BCH	
		SCHNEIDER (Earlier TELE MACHANIQUE)	
14.	TRANSFORMER S	INDCOIL	
		LOGICSTAT	
		KAPPA	
		AUTOMATIC ELECTRIC	
		PRECISE ELECTRICALS	
		SILKAAN ELECTRIC MFG. CO. LTD.	
		SOUTHERN ELECTRIC	
		NEC	
15.	BULB & FLOURESCENT TUBES/FITTINGS	PHILIPS	
		PHILIPS	
		CROMPTON	
16.	CABLE LUGS (HEAVY DUTY)	DOWELLS	
		UML ENGINEERS	
		CHETNA	
		BILLET	
		BRACO	

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Date : FEB 2024

		JAINSON	
17.	HOOTERS	BEACON	
		OSC	
		TARGET	
		KHERAJ	
18.	LIGHTING SWITCHES	ANCHOR	
		ELLORA	
		GE	
		CROPMTON	
		BAJAJ	
		PHILIPS	
19.	PVC POWER CABLES	APAR INDUSTRIES LTD.	
		CORDS CABLE INDUSTRIES LTD.	
		DIAMOND POWER INFRASTRUCTURE LTD	
		GOYOLENE FIBRES (INDIA) PVT.LTD	
		GOVIND CABLE INDUSTRIES	
		GUPTA POWER INFRASTRUCTURE LIMITED	
		HAVELLS INDIA LIMITED	
		KEI INDUSTRIES LTD.	
		KRISHNA ELECTRICAL INDUSTRIES LTD	
		KEC INTERNATIONAL LIMITED	
		MANSFIELD CABLES COMPANY LTD.	
		NICCO CORPORATION LTD.	
		PARAMOUNT COMMUNICATIONS LTD.	
		POLYCAB WIRES PVT. LTD.	
		RADIANT CORPORATION PRIVATE LIMITED	
		RAVIN CABLES LIMITED	
		SUYOG ELECTRICALS LTD.	
		SRIRAM CABLES PVT. LTD.	
		SCOT INNOVATION WIRES AND CABLES PVT. LTD.	
		SAM CABLES & CONDUCTORS (P) LTD	
		THERMO CABLES LTD	
		ADVANCE CABLE TECHNOLOGIES (P) LTD	
		APAR INDUSTRIES LTD., CMI LTD	
		CMI LIMITED	
		CORDS CABLE INDUSTRIES LTD	
		CRYSTAL CABLE INDUSTRIES LTD	
		DELTON CABLES LTD	
		DIAMOND POWER INFRASTRUCTURE LTD	
		ELKAY TELELINKS LTD	
		GEMSCAB INDUSTRIES LTD	
		GOVIND CABLE INDUSTRIES	
		GUPTA POWER INFRASTRUCTURE LIMITED	

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20.	PVC CONTROL CABLES	HAVELLS INDIA LIMITED	
		INCOM CABLES (P) LTD	
		KEI INDUSTRIES LTD	
		KRISHNA ELECTRICAL INDUSTRIES LTD	
		KEC INTERNATIONAL LIMITED	
		MANSFIELD CABLES COMPANY LTD	
		NICCO CORPORATION LTD	
		PARAMOUNT COMMUNICATIONS LTD	
		POLYCAB WIRES PVT. LTD	
		RAVIN CABLES LIMITED	
		SUYOG ELECTRICALS LTD	
		SPECIAL CABLES PVT. LTD	
		SCOT INNOVATION WIRES AND CABLES PVT. LTD	
		SAM CABLES & CONDUCTORS (P) LTD	
		SPM POWER & TELECOM PVT. LTD	
		TORRENT CABLES LTD	
		THERMO CABLES LTD	
		TIRUPATI PLASTOMATICS PVT. LTD	
		UNIVERSAL CABLES LTD	
21.	TRAILING CABLES	NICCO	
		UNIVERSAL	
		INCAB	
		ICL	
		APAR INDUSTRIES LTD	
		CMI LTD	
		KEI INDUSTRIES LTD	
		SUYOG ELECTRICALS LTD	
22.	XLPE POWER CABLES	APAR INDUSTRIES LTD	
		CORDS CABLE INDUSTRIES LTD	
		CRYSTAL CABLE INDUSTRIES LTD	
		DIAMOND POWER INFRASTRUCTURE LTD	
		GEMSCAB INDUSTRIES LTD	
		GOVIND CABLE INDUSTRIES	
		GUPTA POWER INFRASTRUCTURE LIMITED	
		HAVELLS INDIA LIMITED	
		KEI INDUSTRIES LTD	
		KRISHNA ELECTRICAL INDUSTRIES LTD	
		KEC INTERNATIONAL LIMITED	
		MANSFIELD CABLES COMPANY LTD	
		PARAMOUNT COMMUNICATIONS LTD	
		POLYCAB WIRES PVT. LTD	
		RAVIN CABLES LIMITED	
		SUYOG ELECTRICALS LTD	



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		SPECIAL CABLES PVT. LTD	
		SCOT INNOVATION WIRES AND CABLES PVT. LTD	
		SRIRAM CABLES PVT. LTD	
		TORRENT CABLES LTD	
		THERMO CABLES LTD	
		TIRUPATI PLASTOMATICS PVT. LTD	
23.	XLPE CONTROL CABLES	APAR INDUSTRIES LTD	
		CABLE CORPORATION OF INDIA LTD	
		CRYSTAL CABLE INDUSTRIES LTD	
		DIAMOND POWER INFRASTRUCTURE LTD	
		GEMSCAB INDUSTRIES LTD	
		HAVELLS INDIA LIMITED	
		KEI INDUSTRIES LTD	
		KRISHNA ELECTRICAL INDUSTRIES LTD	
		KEC INTERNATIONAL LIMITED	
		PARAMOUNT COMMUNICATIONS LTD	
		POLYCAB WIRES PVT. LTD	
		RADIANT CORPORATION PRIVATE LIMITED	
		RAVIN CABLES LIMITED	
		SUYOG ELECTRICALS LTD	
		SRIRAM CABLES PVT. LTD	
		TORRENT CABLES LTD	
		UNIVERSAL CABLES LTD	
24.	CABLE GLAND	COMMET	
		SUNIL&CO	
		ARUP ENGINEERING	
		JAINSON	
		DOWELL	
25.	PUSH BUTTONS	SIEMENS	
		L&T	
		BCH	
		SCHNEIDER	
26.	LIMIT SWITCHES	SPEED-O-CONTROL	
		ELECTROMAG	
27.	MASTER CONTROLLER	SPEED-O-CONTROL	
		ELECTROMAG	
28.	SAFETY SWITCHES	ALSTOM	
		L&T	
		SCHNEIDER	
		ABB	
		SIEMENS	

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29.	PENDENT PUSH BUTTON STATION	OEM	
30.	INDICATING LAMPS	TECKNIC	
		BCH	
		SIEMENS	
		STANDARD	
31.	MCB	MDS	
		INDO COPP	
		STANDARD	
		SIEMENS	
		L&T	
		ABB	
		SCHNEIDER	
32.	PANELS	OEM	
		RITTAL	
		BCH	
		PYROTECH	
33.	RESISTANCE BOXES	ENAPROS	
		SOC	
		EMM	
		OEM	
34.	FIRE EXTINGUISHERS	ASKA EQUIPMENTS LTD.	
		ASHOKA ENGINEERING COMPANY	
		KANADIA FYR FYTER PVT. LTD	
		NITIN FIRE PROTECTION INDUSTRIES LTD	
		NEW ENGINEERING CORPORATION	
		SAFEX FIRE SERVICES LTD	
		UNITED FIRE EQUIPMENTS PVT. LTD	
		ZENITH FIRE SERVICES (INDIA) PVT LTD	
		BIS APPROVED SOURCE WITH VALID LICENSE	
35.	VVVF	L&T -YASKAWA	
		ABB	
		SIEMENS	
		SCHNIEDER	
		FUJI ELECTRIC	
		ROCKWELL	
		VACON	
		MITSUBISHI ELECTRIC	

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**TECHNICAL SPECIFICATION
2X800 MW LARA TPP STAGE II
DOUBLE GIRDER EOT CRANES
FOR TG HALL 265/25T**

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36.	SHROUDED DSL	SUSHEEL	
		STROMAG	
37.	ANTI COLLISION DEVICE	SICK	
		IFM	
		ELECTRONIC SWITCHES INDIA	
38.	LOAD CELL	IPA	
		METTLER TOLEDO	
		SARTORIUS	
39.	RRC	ACROPOLIS ENGINEERING	
		HBC	
		SOC	
		SNT CONTROLS	
40.	GEAR BOX	OEM	* = Applicable for Geared Motors only
		ELECON ENGINEERS	
		SHANTI GEARS	
		PBL*	
		NAW*	
		NORD*	
		SEW*	
		BONGFILIOLI*	
41.	RAIL	JSPL	
		SAIL	
42	CENTRALIZED LUBRICATION / HYDRAULIC POWER PACK	LUBCON, PUNE	CRANE OEM MAKE POWERPACK IS NOT ALLOWED.
		PRAKASH LUBRICANT, KOLKATA	
		AFMC, KOLKATA	
		SKF ENGG AND LUBRICATION (LINCOLN HELIOS)	
		VIJAY ENGINEERS	
		INDO HYDRAULIC BOMBAY PVT LTD	
		MEHATA HYDRAULIC EQUIPMENT	
		CLAYSYS	
		VEDNAT ENGINEERING SERVICES	
		ELECTROPNEUMATICS AND HYDRAULIC PVT LTD	
		SN HYDRAULIC	
43	MCCB/MPCB	L&T	
		ABB	
		SIEMENS	
		SCHNIEDER	
44	SINGLE PHASE PREVENTOR	MINILEC	
		L&T	
		SIEMENS	

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Note:

1	THE SUB VENDOR LIST ABOVE IS INDICATIVE ONLY AND IS SUBJECT TO BHEL AND NTPC APPROVAL DURING DETAILED ENGINEERING STAGE WITHOUT ANY COMMERCIAL & DELIVERY IMPLICATION TO BHEL
2	BIDDER TO PROPOSE SUB VENDOR WITHIN 4 WEEKS OF PLACEMENT OF LOI. THEREAFTER NO REQUEST FOR ADDITIONAL SUB-VENDOR SHALL BE ENTERTAINED.
3	THE INSPECTION CATEGORY WILL BE INTIMATED AFTER AWARD OF CONTRACT BY BHEL/CUSTOMER. HOWEVER THE SAME WILL BE ADHERED BY THE BIDDER WITHOUT ANY COMMERCIAL AND DELIVERY IMPLICATION TO BHEL/ NTPC.

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PAINTING REQUIREMENT

Package	Condition	Surface Preparation	Primer Coat	No. of Coats	DFT (in Microns)	Intermediate Coat (in Microns)	No. of Coats	DFT (in Microns)	Final Coat	No. of Coats	DFT (in Microns)	Total DFT
DOUBLE GIRDER EOT CRANE	STEEL STRUCTURE	Surface preparation: Shot blast cleaning/ abrasive blast cleaning to SA21/2 (near white metal) 35-50 microns.	Inorganic Ethyl Zinc Silicate.	1	35 µm per coat.	Epoxy base Tio2 pigmented coat	1 coat	35 µm per coat	Epoxy base paint - 2 coats, DFT 25 µm per coat. Final coat of paint Aliphatic Acrylic Polyurethane CDE134, %V=40.0(min.)	1 coat	30 µm. per coat	150µ
DOUBLE GIRDER EOT CRANE	For Indoor components such as motors, electrical parts etc	Epoxy based with suitable additives. The thickness of finish coat shall be minimum 50 microns (minimum total DFT shall be 100 microns). However in case electrostatic process of painting is offered for any electrical equipment, minimum paint thickness of 50 microns shall be acceptable for finish coat.										

COLOR SHADE				
SL. No	Item Description	Color Shade		Remarks
1	Crane Structure	Golden Yellow shade 356 as per IS-5		Colour band-Black
2	Trolley and hook	Golden Yellow shade 356 as per IS-5		
3	Motors	RAL 5012 (Blue)		
4	Control Panels	Light Gray (Powder coated) as per IS-5		

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PACKING REQUIREMENT

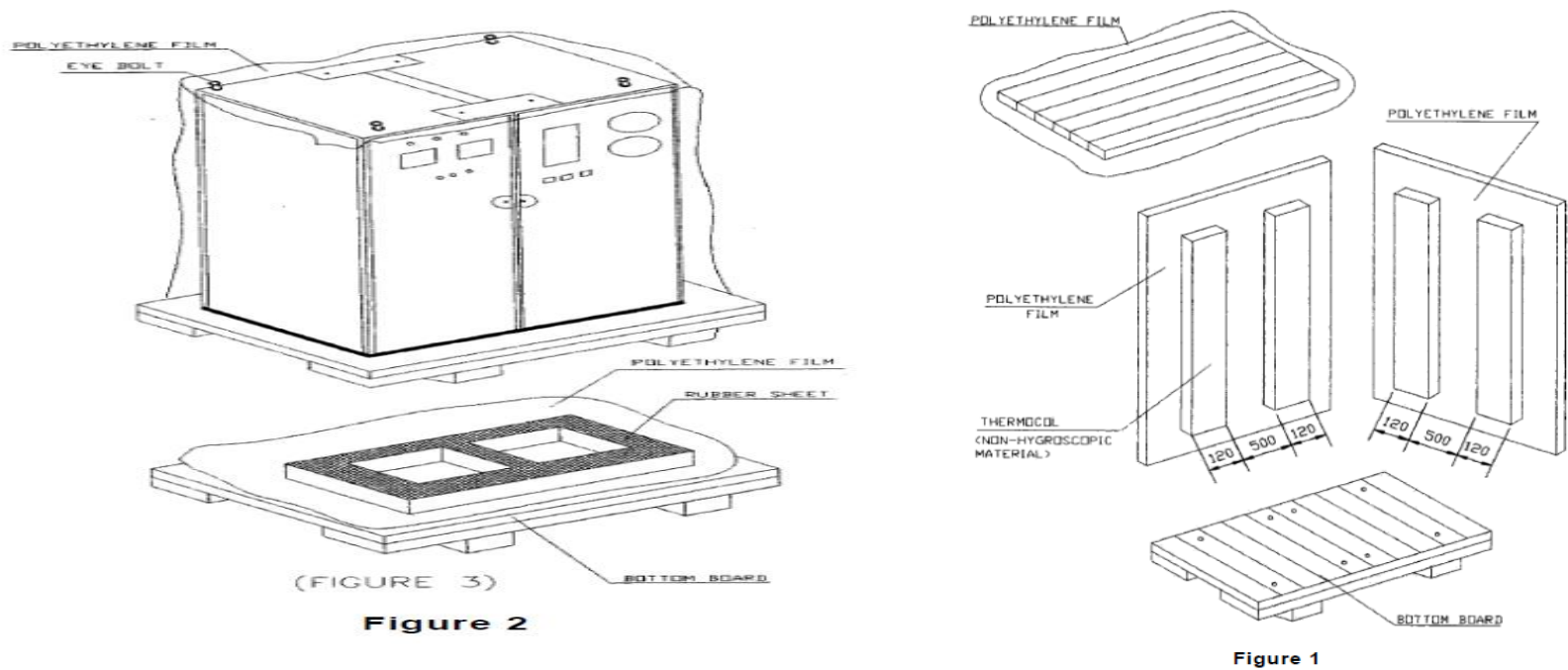
	COMMON GUIDELINES FOR PACKING				
1	GENERAL:				
1.1	The Components/Assemblies need to be packed suitably to avoid physical damage & corrosion during transit & storage. This packing shall be suitable for different handling operations and for the adverse conditions during transportation and during indoor / outdoor storage of materials.				
1.2	All the equipment shall be suitably protected, coated, covered or boxed and crated to prevent damage or deterioration during transit, handling and storage at site till the time of erection. The Contractor shall be responsible for all loss or damage during transportation, handling and storage due to improper packing.				
1.3	The identification marking indicating the name and address of the consignee shall be clearly marked in indelible ink on two opposite sides and top of each of the packages. In addition the Contractor shall include in the marking gross and net weight, outer dimension and cubic measurement.				
1.4	Each package shall be accompanied by a packing note quoting specifically the name of the Contractor, the number and date of contract and names of the office placing the contract, nomenclature of contents and Bill of Material.				
2.	TYPES OF PACKING:				
	The following 5 types of packing have been standardized for packing of General Components/ Assemblies.				
a	OP' - Open Type.				
b	PP' - Partially Packed.				
c	CP' – Crate/Box Packing - Components/Equipment requiring physical protection.				
d	'CQ' - Case Packing – Machined components-Small & Medium Components/ Assemblies/ Equipment which require corrosion & physical protection.				
e	'CR' - Case Packing – Electrical/Electronic Components/ Assemblies, which require special packing viz. Water Proof, Shock Proof etc...				
3.	DESCRIPTION OF TYPES OF PACKING:				
	The various types of packing, as standardized above, are described below.				
3.1	'OP' - Open Type				
	In case, of components which are not affected by water & dust and do not require special protection, are generally not machined, shall be sent as open packages. However, these components may be sent in crates, wherever necessary.				
3.2	PP' - Partially Packed				
3.2.1	Components which need special protection at selected portions only shall be despatched partially packed. Machined surfaces should not be allowed to come directly in contact with the wood. Such surfaces should be protected with 100GSM(Colourless) Multi Layered Cross Laminated Polyethylene				
3.2.2	Film. All sharp corners and edges shall be protected by rubber mats to prevent damage to the polyethylene film.				
3.3	'CP' - Crate Packing				
	Assemblies/Components which need only physical protection from the point of view of handling shall be despatched duly packed in crates.				
3.4	'CQ' - Case Packing - Machined Components/Assemblies/Equipment				
3.4.1	Small and medium sized components/assemblies/equipment due to size/weight and to avoid handling and pilferage problems shall be packed in Case/Containers. Wherever required adequate quantity of silica gel or VCI Powder/Tablets, packed in thin muslin cloth cotton bags shall be suitably placed. Small machines/components of less weight shall be provided with suitable cushioning by Rubberised coir. The components inside the case shall be entirely covered with 100GSM(Colourless) Multi Layered Cross Laminated Polyethylene Film, wherever required. This may be prescribed for electronic parts/critical machined components/surfaces.				
3.4.2	For mechanical product like valves where motors are separately securely wrapped in polyethylene, the requirement of individual component wrapping shall be exempted.				
3.5	CR' - Case Packing - Electrical & Electronic Components/Assemblies				
	Delicate components likely to be damaged e.g. Gauges, Instruments etc. are to be wrapped in waxed paper or polyethylene air bubble film and packed in cartons. Adequate quantity of Silica gel packed in cotton bags of 100grams each are to be suitably placed in the cartons. The cartons shall be entirely covered with 100GSM(Colourless) Multi Layered Cross Laminated Polyethylene Film before being packed in the cases. VCI Powder/Tablets can be used as an alternative to Silica Gel.				

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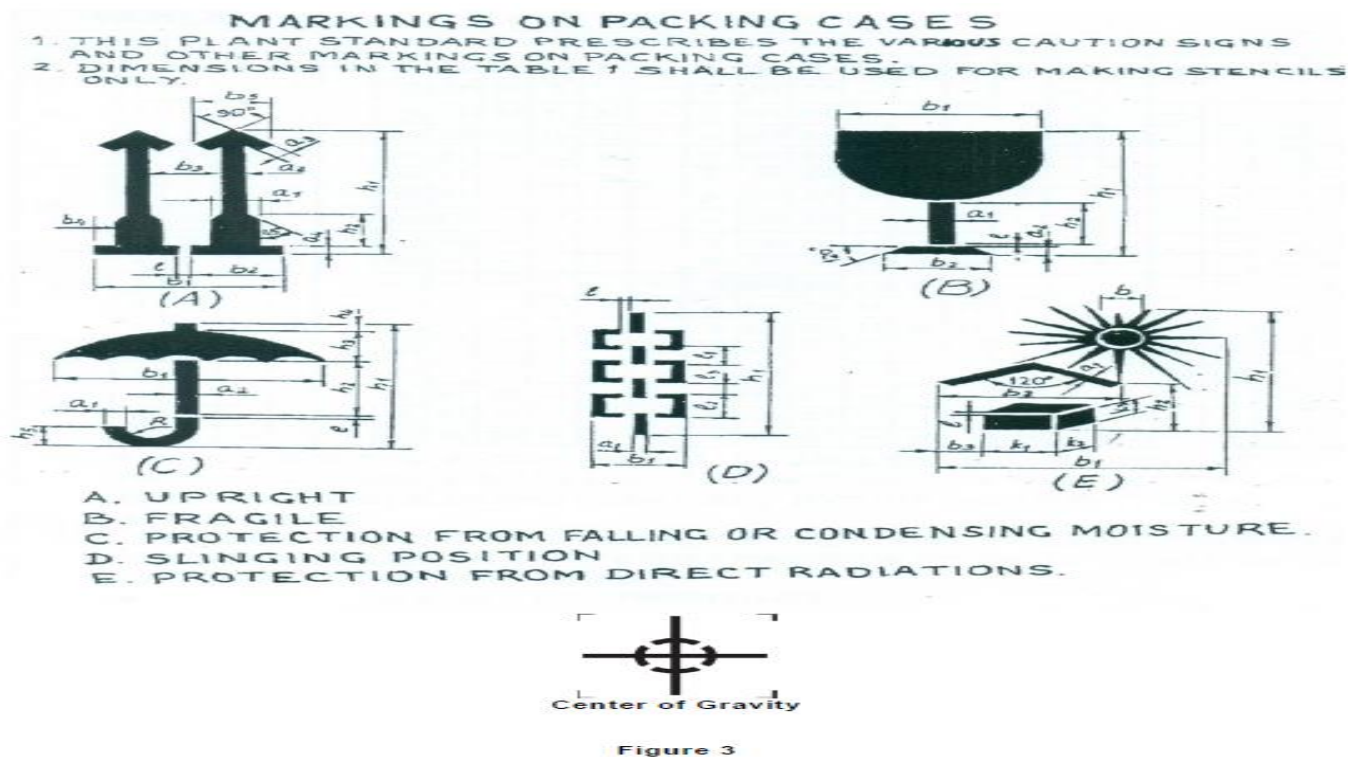
4	PREPARATION OF PACKING CASES
4.1	DIMENSIONS:
a)	Thickness of planks for Front, rear, top and bottom sides and binding, jointing battens shall be 25/20mm +2/-3 mm as per applicable drawings of the respective units/manufacturers.
b)	Width of all planks including the tongue shall be more than 125mm and after planing it shall be minimum 100mm.
c)	Minimum number of planks shall be used for a shook.
d)	Horizontal, vertical, diagonal planks shall be given for binding (number of such planks depend on the dimension of panel).
e)	Width of binding planks shall be minimum 100mm.
f)	Distance between any 2 binding planks shall be less than 750mm.
g)	diagonal planks shall be used in between vertical binding planks when distance between inner to inner of vertical planks is more than 750mm
h)	Distance of the outer edges of these planks from the edge of case shall be less than 250mm.
i)	Diagonal planks are not required for top planks and width side, if the width of pallet is less than 750mm.
4.2	HOOP IRON STRIPS
	These are used for strapping the boxes. The width of the strips shall be 19+1mm and thickness 0.6+0.01mm. The material shall be free from rust. If sufficient nailing is done for bigger boxes, strapping need not be done.
4.3	BRACKETS
	These brackets are used for nailing to the corners of cubicle boxes. The brackets shall be of mild steel of thickness min 2mm and width 25+1mm. The brackets shall be of "L" shape, the length of each side being 100+2mm. Two holes shall be provided towards the end of each side for screwing /nailing.
4.4	MULTI LAYERED CROSS LAMINATED POLYTHELENE FILM
	100GSM (Colourless) Multi Layered Cross Laminated Polythelene Film are used to make covers to the jobs individually. The cross lamination gives qualities of extra toughness, together with flexibility and lightness coupled with good weather resistance to ultra violet rays.
4.5	RUBBERISED COIR:
	The rubberized coir is used as cushioning material. For the packing of loose items, items are to be arrested by using rubberized coir. For the packing of cubicles rubberized coir of thickness 25mm and width 75mm shall be used.
5	MULTI LAYER CROSS LAMINATED POLY FILM WHILE PACKING OF CUBICLES/CASING
5.1	The inner surface of 4 sides of shook's shall be nailed with Multi-layer cross laminated poly film (as per 4.4) using blue nails wherever 2 pieces of Cross laminated poly film are used, the joint shall have an overlap of minimum 20mm.
5.2	The inner surface of top cover shall be nailed with Multi-layer cross laminated poly film. This sheet shall project outside on 4 sides by at least 100mm and shall be nailed properly on sides. Joining of sheets should have overlap of minimum 20mm.
5.3	The cubicles shall be covered with Multi-layer cross laminated poly film.
6	PACKING OF LOOSE ITEMS/SPARES
6.1	Inner surfaces of all 6 sides shall be lined with Multi Layered Cross Laminated Polythelene Film (as per clause 5.4) using blue nails.
6.2	Rubberized coir of minimum 25mm thickness and 100 mm width shall be nailed to inner surfaces of bottom and 4 sides of box.
6.3	Internal packing: Items that go into the box shall be packed using 100GSM, (Colourless) Multi Layered Cross Laminated Polyethylene Film. Any space left between the job and the sides and the top of the box shall be filled with rubberized coir to get proper cushioning effect.
6.4	Certain items like transformers, reactors, breakers, etc., shall be bolted to the bottom of the box using bolts, nuts and washers.
6.5	Silica gel held in cotton bags shall be kept at proper places in the box.
6.6	Packing slip kept in polyethylene bag shall be placed in the box.
6.7	Two numbers of hoop iron strips shall be strapped tightly on the case using clips.
6.8	Stencil marking of various details and marking of various symbols shall be done as per BHEL instructions using indelible/non-washable marking ink.
6.9	Loose items to be kept inside the cubicle/casing
	- Other items which are given loose in addition to cubicle shall be packed in separate boxes.

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7	TYPICAL PATTERN OF WOODEN BOX
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8	SEALED PACKING:
	Components sub-assemblies and assemblies sensitive to climatic conditions shall be packed seal tight. All the openings of the sensitive components, sub-assemblies and assemblies shall be blanketed to prevent the ingress of dust and moisture. The components sub-assemblies and assemblies are completely covered with 2 layers of polyethylene sheet. All sharp corners and
9	MARKINGS/STENCILINGS
9.1	"HANDLE WITH CARE", "FRAGILE DO NOT TURN OVER".
9.2	Besides the caution signs the product information's shall be stencilled of letters with 13mm to 50mm height.
9.3	In case of consignment consists of more than one package, each package shall carry its package no as given in shipping list. All caution signs shall be stencilled in high quality full glossy out door finishing paint red in colour (AA56126). All other markings shall be carried out in black enamel.
9.4	Caution signs & other markings shall be stencilled on both the end shooks & the side shooks.
9.5	Caution sign (for slinging) shall be stencilled only on side shooks at the appropriate place.
9.6	In case the size of package is small for using the stencils, then hand written letters/figures shall be allowed.



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 BHEL – <unit> - <location> - <pin>					
CONSIGNEE					
MATERIAL					
CUSTOMER REF.				MO. NO.	
DESPATCH ADVICE NOTE NO				CASE NO	
DIMENSIONS(MM) L x B x H				NET WT -KGS	GROSS WT -KGS
SPECIAL INSTRUCTIONS					
HANDLE WITH CARE - KEEP DRY DO NOT DROP - DO NOT TILT					

Figure 4 – TYPICAL MARKING PLATE (225 X 170)



Figure 5

Easy spares [Initial and O&M] Traceability and Identification at units and as well as at sites:

10	STANDARD METHOD OF PACKING
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Table 1 - Standard Method of Packing						
S. No.	DESCRIPTION	CASE	CRATE	BUNDLE	BARE	DRUM
1	FAB STRUCTURALS, GIRDER				O	
2	FAB STRUCTURALS, GIRDER				O	
3	SUPPORTING STRUCTURALS				O	
4	STRUCTURE SUB ASSEMBLY, CRAB, END CARRIAGE, END STOPPERS, ROPE DRUM				O	
5	RAIL				O	
6	STAIR CASES				O	
7	HANDRAILS/ PLATFORMS/ LADDERS/ CAGE				O	
8	FASTENERS, RAIL CLAMPS AND FIXING ACCESSORIES	O				
9	BEARING BLOCKS	O				
10	FANS	O				
11	GASKETS	O	O			
12	FLANGES	O	O			
13	PAINT TINS		O			
14	PAINT DRUMS					O
15	MOTORS, TRANSFORMERS, VVFD, LIMIT SWITCHES, ELECTRIC HOIST ASSEMBLY, RELAYS, FUSES, LIGHTING FIXTURES, PENDANT, ISOLATING SWITCH, RRC, TRANSMITTERS AND OTHER ELECTRICAL ACCESORIES	O				
16	SWITCH BOARDS, DISTRIBUTION BOARDS, STARTERS, JUNCTION BOXES, PANELS,		O			
17	INDICATORS, VIBRATOR SWITCHES	O				
18	CABLE TRAYS, CABLE RACKS, EARTHING MATERIAL,		O			
19	OPERATIONAL SPARES , MAINTENANCE TOOLS AND TACKLES	O				
20	ALL OTHER LOOSE ITEMS	O				

Note

Protective coating applied on machined surfaces should not be disturbed. The plastic covering should be put back carefully so that it prevents ingress of dust and moisture. Some packing may have vapour phase inhibitor (VPI) paper enclosed inside the packing cases. This should be restored to its original place as far as possible.



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BILL OF QUANTITY

A	SUPPLY:							
	S. No.	Description	For 265/25T Double Girder Crane 1		For 265/25T Double Girder Crane 2		Common for both Double Girder cranes	
			Qty	UOM	Qty	UOM	Qty	UOM
	1	Bridge girders along with walkway, platform, handrails, CT stoppers etc.	2	Nos.	2	Nos.	----	----
	2	End carriages						
	a	End carriages structure with walkway, platform, handrails, LT buffers etc.	1	set	1	set	----	----
	b	Long Travel Mechanism (Motor, gear box, shaft couling, wheels, brakes, bearings etc.)	1	set	1	set	----	----
	3	Crab (trolley)						
	a.	Crab (trolley) structure with CT rails, platform, handrails, CT buffers etc.	1	set	1	set	----	----
	b	Main Hoist Mechanism (Motor, Gear box, Rope drum, Rope Upper block, Lower block, hook, couplings, shaft, brakes, bearings etc.)	1	set	1	set	----	----
	c.	Aux Hoist Mechanism (Motor, Gear box, Rope drum, Rope Upper block, Lower block, hook, couplings, shaft, bearings, brakes etc.)	1	set	1	set	----	----
	d.	Cross Travel Mechanism (Motor, gear box, shaft couling, wheels, brakes, bearings etc.)	1	set	1	set	----	----
	4	LT End stopper	4	Nos.	4	Nos.	----	----
	5	Storm Brake	2	Nos.	2	Nos.	----	----
	6	LT rail along with accessories	----	----	----	----	577	m
	7	LT PVC insulated shrouded bus bar conductor type DSL with accessories and junction boxes as required	----	----	----	----	288.5	m
	8	Operator's cabin along with operator's seat, gong, fan and other accesories	1	set	1	set	----	----
	9	Main hoist limit switch (Rotory gar + Gravity)	1+1	Nos.	1+1	Nos.	----	----
	10	Aux hoist limit switch (Rotory gar + Gravity)	1+1	Nos.	1+1	Nos.	----	----
	11	CT lever type limit switch (one way/two way)	2/1	Nos./No.	2/1	Nos./No.	----	----
	12	LT lever type limit switch (one way/two way)	2/1	Nos./No.	2/1	Nos./No.	----	----
	13	Power cables, control cables etc. along with cable tray/conduits etc.	1	set	1	set	----	----
	14	Temprrory cable: 3.5 Core Power copper flexible cable of suitable size as per load calculation for commissioning, testing & operation of EOT Crane till such time the DSL is charged.	170	m	170	m	----	----
	15	Main Isolating switch cum Changeover	----	----	----	----	1	No.
	16	Protective Panel along with Control tansformers, lighting transformers, 415/24 V (DC) transformer, contactors, switches, fuses relays and other	1	No.	1	No.	----	----
	17	Main Hoist Panel along with VVVFD, contactors, switches, fuses relays and other accessories	1	No.	1	No.	----	----
	18	Aux Hoist Panel along with VVVFD, contactors, switches, fuses relays and other accessories	1	No.	1	No.	----	----
	19	Cross Travel Panel along with VVVFD, contactors, switches, fuses relays and other accessories	1	No.	1	No.	----	----
	20	Long Travel Panel along with VVVFD, contactors, switches, fuses relays and other accessories	1	No.	1	No.	----	----
	21	Master Controller	1	No.	1	No.	----	----
	22	Lighting for cranes (including illumination in cabin, over bridge and under bridge) along with fittings, sockets etc.	1	set	1	set	----	----
	23	Portable 40 W hand lamp with minimum 14.5 m length flexible cable for inspection	1	set	1	set	----	----
	24	Fire extinguisher	4	Nos.	4	Nos.	----	----
	25	Maintenance cage	1	No.	1	No.	----	----

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26	Mechanical overload protection (Load cell) for hoist mode	1	No.	1	No.	----	----
27	Radio Remote control with transmitter unit, receiver unit, batterg etc.	1	set	1	set	----	----
28	Additional isolating switches for maintenance of cranes	1	No.	1	No.	----	----
29	Lifting beam & its slings	----	----	----	----	1	No.
30	Anti collision device	1	No.	1	No.	----	----
31	Centralized grease lubrication system to be provided with hand pumps located at crab and both end carriages for all grease lubricated bearings of crane.	1	set	1	set	----	----
32	DSL Phase indicating lamps (RYB)	----	----	----	----	4	Sets
33	Earthing strips	1	set	1	set	----	----
34	First fill of lubricants i.e. oils, grease, servo fluids, cadmium compounds etc.	1	set	1	set	----	----
35	E-Learning Package	----	----	----	----	1	no.
36	Slings for load & overload testing	----	----	----	----	1	set
37	Maintenance tools & tackles						
a.	Complete set of ring spanners	----	----	----	----	1	set
b.	Complete set of screwdrivers (Min. 6 Nos., Indicate the sizes)	----	----	----	----	1	set
c.	Adjustable Spanner	----	----	----	----	1	no.
d.	Insulated plier	----	----	----	----	1	no.
e.	Wrench spanner	----	----	----	----	1	no.
f.	Grease Gun	----	----	----	----	1	no.
g.	Oil Gun.	----	----	----	----	1	no.
h.	Hand Lamp.	----	----	----	----	1	no.
i.	Line tester	----	----	----	----	1	no.
j.	O&M Manual	----	----	----	----	1	no.
k.	Steel box to place above tools & manual	----	----	----	----	1	no.
41	Erection & Commissioning Spares	----	----	----	----		
a.	Oil seal for each gear box	2	nos.	2	nos.	----	----
b.	Indicating lamps of each color	2	nos.	2	nos.	----	----
c.	Push button of each type and rating	2	nos.	2	nos.	----	----
d.	Auxiliary Contactor of each rating	2	nos.	2	nos.	----	----
e.	Limit switches	2	nos.	2	nos.	----	----
f.	HRC Fuses of each size	1	no.	1	no.	----	----
g.	Touch up paints for structural component	10	Ltr.	10	Ltr.	----	----
42	Operation and maintenance Spares						
a.	Gear Oil (ISO VG 68)	20	litres	20	litres	----	----
b.	Grease (ISO VG 220)	20	kg	20	kg	----	----
c.	Brake shoes of each size and rating	2	nos.	2	nos.	----	----
d.	Brake liners of each size and rating	2	nos.	2	nos.	----	----
e.	Brake springs of each size and rating	1	no.	1	no.	----	----
f.	Oil seal of each size for each gear box	2	nos.	2	nos.	----	----
g.	Main contactors of each rating	1	no.	1	no.	----	----
h.	Overload relays of each rating	1	no.	1	no.	----	----
i.	Bearing for motors of each size and rating	1	no.	1	no.	----	----

B	MANDATORY SPARES:		For 265/25T Double Girder Crane 1		For 265/25T Double Girder Crane 2		Common for both Double Girder cranes	
	S. NO.	ITEM DESCRIPTION	Qty	UOM	Qty	UOM	Qty	UOM
	1.1	Mechanical: Main TG Hall						
	(a)	Bearings for long travel wheels	----	----	----	----	1 Set (Requirement for one Crane)	
	(b)	Bearings for cross travel wheels	----	----	----	----	1 Set (Requirement for one Crane)	
	(c)	Bearings for Gear Boxes for each type of Hoist & travel (Main and aux hoist, LT and CT travel))	----	----	----	----	1 Set (Requirement for one Crane)	

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(d)	Brake Liner for all the brakes (main and aux hoist, LT and CT travel)	----	----	----	----	2 Sets (Requirement for two Crane)	
(e)	Hydraulic thruster for all Brakes (Main and aux hoist, CT and LT travel)	----	----	----	----	1 Set (Requirement for one Crane)	
(f)	Oil Seals (both main and aux hoist, CT and LT)	----	----	----	----	2 Sets (Requirement for two Crane)	
(g)	Brake springs for all brakes (both main and aux hoist, LT and CT travel)	----	----	----	----	1 Set (Requirement for one Crane)	
(h)	Wire Rope for Aux. Hook	----	----	----	----	1 No.	
(i)	Wire Rope for Main Hook	----	----	----	----	1 No.	
1.2	Electrical:						
i)	Solenoid Coils for Brakes	----	----	----	----	2 sets	
ii)	MCBs/MCCBS/Fuse links for the whole crane	----	----	----	----	1 set	
iii)	Contactors and overload Relays of each type, size & rating for Motors of the EOT	----	----	----	----	1 set	
iv)	Timers of each type, size & rating	----	----	----	----	1 set	
v)	Limit Switches for	----	----	----	----		
a	Main Hoist	----	----	----	----	1 set	
b	Aux. Hoist	----	----	----	----	1 set	
c	Cross Travel	----	----	----	----	1 set	
d	Long Travel	----	----	----	----	1 set	
vi)	Master Controller for Aux. Hoist	----	----	----	----	1 set	
vii)	Drive for MH, AH, CT & LT of each tpe and rating	----	----	----	----	1 No.	

C	SUPERVISION OF E&C AND PERFORMANCE GUARANTEES		For 265/25T Double Girder Crane 1		For 265/25T Double Girder Crane 2		Common for both Double Girder	
			Qty	UOM	Qty	UOM	Qty	UOM
1	Visit during supervision of erection & Commissioning							
a.	No .of visits for during erecton & commisioning for both cranes		2	visits	2	visits	----	----
b.	No. of days of stay at site during Erection and Commissioning		60	days	60	days	----	----
2	Visit during supervision of performance guarantee tests							
a.	No .of visits for supervision of performance guarantee tests		1	visits	1	visits	----	----
b.	No. of days of stay at site during supervision of performance guarantee tests		4	days	4	days	----	----
3	Visit during warranty period for healthiness checks							
a.	No .of visits (tentatively in a span of 6 months for each crane)		----	----	----	----	4	visits
b.	No. of days of stay at site during supervision of performance guarantee tests		----	----	----	----	16	days

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DOCUMENTATION REQUIREMENT

DRAWINGS & DOCUMENTS TO BE SUBMITTED BY ALL THE BIDDERS ALONG WITH THE BID

Sl. No.	DOCUMENT TITLE
1	PQR CREDENTIALS
2	COMPLIANCE SHEET
3	"NO DEVIATION" CERTIFICATE DULY STAMPED AND SIGNED.

DRAWINGS & DOCUMENTS TO BE SUBMITTED BY SUCCESSFUL BIDDER AFTER AWARD OF CONTRACT ALONG WITH SUBMISSION SCHEDULE				
S.N.	BHEL drawing No.	Title	Approval category	Schedule date of
1	PE-V0-508-501-A501*	Manufacturing Quality Plan with sub vendor list For TG Hall Crane	A	2
2	PE-V0-508-501-A503	Data sheet of motors for TG Hall Crane	I	5
3	PE-V0-508-501-A504*	Mechanism Sizing Calculation Including storm brake calculation for TG Hall Crane	A	2
4	PE-V0-508-501-A505*	General arrangement for TG Hall Crane with CT DSL details	A	2
5	PE-V0-508-501-A506	Crab sub assembly for TG Hall crane with CT wheel assembly	I	3
6	PE-V0-508-501-A508	General arrangement for PVC shrouded DSL for TG Hall crane	I	3
7	PE-V0-508-501-A509	Main and Auxiliary hook block assembly with details of hook, nut and check plate For TG Hall Crane	I	2
8	PE-V0-508-501-A510	Long travel Machinery Assembly with LT wheel assembly For TG Hall Crane	I	4
9	PE-V0-508-501-A511	Lifting beam assembly for TG Hall Crane	A	3
10	PE-V0-508-501-A512*	Structural calculations For TG Hall Crane (including structural calculation for crab structure)	A	3
11	PE-V0-508-501-A514	O & M Manual For TG Hall Crane	I	9
12	PE-V0-508-501-A515	Detailed BOM/BOQ for TG Hall Crane	I	8
13	PE-V0-508-501-A516	Electrical equipment layout in cabin for TG Hall crane	I	5
14	PE-V0-508-501-A517*	"Schematic circuit diagram of a) Protective panel, Main and lighting circuit & BOM b) Main hoist panel & BOM c) Aux. hoist panel & BOM d) Cross Traverse & BOM e) Long Traverse & BOM Including earthing diagram For TG Hall Crane"	A	5
15	PE-V0-508-501-A518	"General Arrangement of a) Protective panel b) Main hoist panel c) Aux. hoist panel d) Cross Travel panel e) Long Traverse travel panel. f) Pendant g) Remote Radio Control For TG Hall Crane"	I	5
16	PE-V0-508-501-A519	Cable Sizing and cable schedule For TG Hall Crane	A	6
17	PE-V0-508-501-A520	Crane Operational write up For TG Hall Crane	I	5

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18	PE-V0-508-501-A521	Type test certificate (for motors) For TG Hall Crane (Applicable for above 100 KW rating motors)	A	8
19	PE-V0-508-501-A523	Mandatory spare parts list For TG Hall Crane	A	8
20	PE-V0-508-501-A525	Erection procedure For TG Hall Crane	I	8
21	PE-V0-508-501-A526	Manufacturing Quality Plan For Lifting Beam	A	3
22	PE-V0-508-501-A527	Data sheet of TG Hall Crane with painting details	A	3
23	PE-V0-508-501-A530	Electrical load for TG Hall EOT Crane	I	8
24	PE-V0-508-501-A532	Gantry Rail installation for TG Hall crane	I	3
25	PE-V0-508-501-A550	Crane lubrication drawing For TG Hall Crane	I	6
LEGENDS				
A= Approval category				
I= Information category				
*Marked drawing/documents are Basing engineering drawing/documents.				

Notes:-

1	Bidder to follow the following the drawing submission schedule: i.1st submission of drawings from date of LOI as per the submission schedule. ii.Every revised submission incorporating comments – within 7 days.
2	Bidder to submit revised drawings complete in all respects incorporating all comments. Any incomplete drawing submitted shall be treated as non-submission with delays attributable to bidder's account. For any clarification/ discussion required to complete the drawings, the bidder shall himself depute his personal to BHEL for across the table discussions/ finalizations/ submissions of drawings.

DRAWINGS & DOCUMENTS TO BE SUBMITTED AS FINAL/AS-BUILT DOCUMENT			
Sl. No.	DOCUMENT TITLE	No. of prints (Sets)	No. of portable hard
1	APPROVED DOCUMENTS	3	2
2	AS BUILT DRAWINGS/ DOCUMENTS	3	2
3	ERECTION MANUAL	3	2
4	O&M MANUAL	3	2
5	PERFORMANCE AND FURNTIONAL GUARANTEE TEST REPORTS	3	0



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DOUBLE GIRDER EOT CRANES
FOR TG HALL 265/25T**

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COMPLIANCE CERTIFICATE

The bidder shall confirm compliance with following by signing / stamping this compliance certificate (every sheet) and furnish same with the offer.

1	The scope of supply, technical details, construction features, design parameters etc. shall be as per technical specification & there are no exclusions, other than those mentioned under exclusion.
2	Bidder shall submit QP in the event of order based on the guidelines given in the specification & QP enclosed therein. QP will be subject to BHEL / CUSTOMER approval & customer hold points for inspection / testing shall be marked in the QP at the contract stage. Inspection / testing shall be witnessed as per same apart from review of various test certificates/ Inspection records etc. This is within the contracted price without any extra implications to BHEL after award of the contract.
3	All drawings/ data-sheets / calculations etc. submitted along with the offer shall not be taken cognizance off.
4	The offered materials shall be either equivalent or superior to those specified in the specification & shall meet the specified / intended duty requirements. In case the material specified in the specifications is not compatible for intended duty requirements then same shall be resolved by the bidder with BHEL during the pre-bid discussions, otherwise BHEL / Customer's decision shall be binding on the bidder whenever the deficiency is pointed out. For components where materials are not specified, same shall be suitable for intended duty, all materials shall be subject to approval in the event of order.
5	All sub vendors shall be subject to BHEL / CUSTOMER approval in the event of order.
6	Guarantee for plant/ equipment shall be as per relevant clause of GCC / SCC / Other Commercial Terms & Conditions.
7	In the event of order, all the material required for completing the job at site shall be supplied by the bidder within the ordered price even if the same are additional to approved billing break up, approved drawing or approved Bill of quantities within the scope of work as tender specification. This clause will apply in case during site commissioning, additional requirements emerges due to customer and / or consultant's comments. No extra claims shall be put on this account.
8	Schedule of drawings submissions, comment incorporations & approval shall be as stipulated in the specifications. The successful bidder shall depute his design personnel to BHEL's / Customer's / Consultant's office for across the table resolution of issues and to get documents approved in the stipulated time.
9	As built drawings shall be submitted as and when required during the project execution.
10	The bidder has not tempered with this compliance cum confirmation certificate and if at any stage any tempering in the signed copy of this document is noticed then same shall be treated as breach of contract and suitable actions shall be taken against the bidder.



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11	Document approval by customer under Approval category or information category shall not absolve the vendor of their contractual obligations of completing the work as per specification requirement. Any deviation from specified requirement shall be reported by the vendor in writing and require written approval. Unless any change in specified requirement has been brought out by the vendor during detail engineering in writing while submitting the document to customer for approval, approved document (with implicit deviation) will not be cited as a reason for not following the specification requirement.
12	In case vendor submits revised drawing after approval of the corresponding drawing, any delay in approval of revised drawing shall be to vendor's account and shall not be used as a reason for extension in contract completion.

Signature of authorised Representative

Name and Designation :

Name & Address of the Bidder

Date

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PRE QUALIFICATION REQUIREMENT (TECHNICAL)

Pre-Qualification Requirement:-Double girder EOT crane having capacity of 100T or more with span of 28M or more.

1	The Bidder should have designed, manufactured, erected and commissioned EOT cranes of capacity 100T or more with minimum crane span of 28 meters, which is in successful operation in at least one (1) station for a minimum period of one (1) year as on 03/03/2023. For this the supplier has to submit performance certificate in English from end user along with copy of Purchase Order, meeting above mentioned pre-qualifying requirement.
2	Notwithstanding anything stated above, BHEL/NTPC reserves the right to assess the capabilities and capacity of the Bidder/ its subcontractors to perform the contract, should the circumstances warrant such assessment in the overall interest of BHEL/NTPC.
3	Bidder shall provide all necessary data such as type, design, make, capacity, duty conditions, date of commissioning/ operation etc.



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Bidders to note the following Additional Terms and Conditions for subject tender-

1. Tender Type	Open Tender (Domestic-Indian)	
2. Package	D/G EOT CRANE ABOVE 100T	
3. Project	2 X 800 MW NTPC LARA STPS STAGE - II	
4. End Customer	NTPC	
5. Executing Agency	BHEL-PSWR	
6. Nature of Package (Divisible/Non-Divisible)	Non-Divisible	
7. Technical Scope	As per Technical specification No: PE-TS-508-501-A501	
8. Schedule of Pre-Bid Discussion	Based on Bidder's request, Pre-Bid meeting shall be arranged.	
9. PVC	APPLICABLE Please refer PVC Annexure enclosed in GeM bid	
10. CIF APPLICABLE	NO	
11. QUANTITY VARIATION	AS PER GCC BOP (+/-10%)	
12. REVERSE AUCTION	YES – BID TO RA H1 ELIMINATION	
13. CUSTOMER APPROVAL REQUIRED	YES	
14. Eligibility of Local Supplier as per Make in India Guideline	Only Class I Supplier (with local content 60% and above)	
15. HSE Guideline	Not Applicable	
16. Prequalification Requirement	Financial PQR- YES	Technical PQR- YES
17. Delivery terms for Supply portion	FOR Despatch Station	
18. Bid Security/ Earnest Money Deposit (EMD)	EMD is applicable. EMD amount shall be Rs. 40 Lakh. EMD is to be submitted by the all bidders along with their bids (except Micro and Small Enterprises (MSEs) or Startups as recognized by Department for Promotion of Industry and Internal Trade (DPIIT)). Modes of deposit The EMD may be accepted only in the following forms: i) Electronic Fund Transfer credited in BHEL account (before tender opening) BHEL-PEM account details are as follows: Bank name, State Bank of India Account No: 39922687394 IFSC: SBIN0017313 BRANCH-CAG II NEW DELHI ii) Banker's cheque/ Pay order/ Demand draft, in favor of BHEL-PEM, Noida (along with the offer). iii) Fixed Deposit Receipt (FDR) iv) Bank Guarantee from any of the Scheduled Banks (refer Annexure A along with GeM Bid/NIT for BG Format) v) Insurance Surety Bonds.	



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	Validity period of EMD The EMD shall remain valid for a period of 45 (forty-five) days beyond the final bid validity period. EMD shall not carry any interest Forfeiture of EMD I. A bidder's EMD will be forfeited if the bidder withdraws or amends its/his tender or impairs or derogates from the tender in any respect within the period of validity of the tender or if the successful bidder fails to furnish the required performance security within the specified period mentioned in the Tender. II. EMD by the tenderer to be withheld in case any action on the bidder is envisaged under the provisions of extant "Guidelines on Suspension of business dealings with suppliers/ contractors (abridged version of guidelines is available on www.bhel.com)" and forfeited/ released based on the action as determined under these guidelines. Return of EMD I. Bid securities of the unsuccessful bidders shall be returned to them after expiry of the final bid validity period and latest by the 30th day after the award of the contract. However, Bid securities of unsuccessful bidders during first stage i.e. technical-commercial evaluation etc. shall be returned within 30 days of declaration of result of first stage i.e. technical-commercial evaluation. II. Bid security shall be refunded to the successful bidder on conclusion of the order/ receipt of a performance security.
19. Performance Security (PS)	I. Initially 10% of the contract value (total order value in case of GeM POs excluding PVC/total Ex-works price in case of outside GeM POs excluding PVC). However, 5% of the contract value (as above) will be released after completion of Main Supply based on certification by Project Group/Purchaser OR II. 5% of the contract value (total order value in case of GeM POs excluding PVC/total Ex-works price in case of outside GeM POs excluding PVC). Additional 5% of the contract value will be retained from first bill & subsequent bill(s) of the same contract. The retention amount will be released after completion of Main Supply based on certification by Project Group/Purchaser Validity of PS Initial validity of performance security shall be 34 months from LOA date (Considering delivery period of 14 months + 18 months guarantee period + 2 months claim period is already mentioned in GTC cl no. 7.ii GeM 3.0). Further, extension if any shall be as per GeM Terms.



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	Performance Security of 10% of the contract value shall be cover the guarantee period valid upto 2 years after load test of respective EOT Crane. Further, extension if any shall be as per GeM Terms Modes of deposit Performance security may be furnished in the following forms: a) Local cheques of Scheduled Banks (subject to realization)/ Pay Order/ Demand Draft/ Electronic Fund Transfer in favour of BHEL. b) Bank Guarantee from Scheduled Banks / Public Financial Institutions as defined in the Companies Act. The Bank Guarantee format should have the approval of BHEL. c) Fixed Deposit Receipt issued by Scheduled Banks / Public Financial Institutions as defined in the Companies Act (FDR should be in the name of the Contractor, a/c BHEL). d) Securities available from Indian Post offices such as National Savings Certificates, Kisan Vikas Patras etc. (held in the name of Contractor furnishing the security and duly endorsed/ hypothecated/ pledged, as applicable, in favour of BHEL). e) Insurance Surety Bond. (Note: BHEL will not be liable or responsible in any manner for the collection of interest or renewal of the documents or in any other matter connected therewith) Performance Security is to be furnished within 14 days from the date of PO/LOA and it should remain valid for a period of 60 (sixty) days beyond the date of completion of all contractual obligations of the supplier, including warranty obligations. Remarks for PS a) The performance security will be forfeited and credited to BHEL's account in the event of a breach of contract by the supplier. b) Performance security should be refunded to the contractor without interest, after he duly performs and completes the contract in all respects but not later than 60(sixty) days of completion of all such obligations including the warranty under the contract. The Performance Security shall not carry any interest.
20. Breach of contract, Remedies and Termination	In case of Breach of Contract, BHEL shall recover 10% of the contract value from the Vendor using following instruments: (i) encashment of security instruments like EMD, Performance Security with with executing agency (PS-Regions/PEM as applicable) against the said contract (ii) balance amount (if value of security instruments is less than 10% of the contract value) from other financial remedies i.e. available



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	bills of the Vendor, retention amount etc. with executing agency (PS-Regions/PEM as applicable) (iii) balance amount from security instruments like EMD, Performance Security and other financial remedies i.e. available bills of the Vendor, retention amount etc. with other units of BHEL (iv) if recovery is not possible then legal remedies shall be pursued The balance scope shall be got done independently without Risk & Cost of the failed supplier/ contractor. Further, levy of liquidated damages, debarment, termination, de-scoping, short-closure, etc., shall be applied as per provisions of the contract.
21. Integrity Pact Applicability -	YES
22. Bidders can to download detailed technical specification number- PE-TS-508-501-A501 at www.pem.bhel.com and www.bhel.com	
23. Bidders are requested to refer clause no 26.0 (Make in India) of GCC-BOP. “For this procurement, the local content to categorize a supplier as Class I local supplier/ Class II local supplier/ Non Local supplier and purchase preference to Class I local supplier is as defined in Public Procurement (Preference to Make India), Order 2017 dated 16.09.2020 issued by DPIT. In case of subsequent order issued by nodal ministry changing the definition of local content for item in NIT, the same shall be applicable even if issued after issue of this NIT but before opening of part-II bids against this NIT.” This package is not divisible in nature. The margin of purchase preference shall be as per order dtd. 16.09.2020. For this tender, offer from only class-1 local suppliers (meeting minimum 60% local content requirement) shall be considered. Bidders are required to provide the following along with the part-1 bid: • Provide a certificate (in line with attached draft) from statutory auditor or cost auditor of the company (in the case of companies) or from a practicing cost accountant or practicing chartered accountant (in respect of suppliers other than companies) giving the percentage of local content. • Provide the details of the location(s) at which the local value addition shall be made. Please submit the extract of AGM Resolution of your company regarding appointment of statutory auditor or cost auditor of current year.	
24. Please furnish land border certificate as per enclosed format dully signed and stamped by Director or Company Secretary or authorised person by Board of the Company.	
25. In line with cl. No. 12 of (ITB) BOP-GCC, following Independent External Monitors (IEMs) have been appointed by BHEL. Shri Otem Dai, IAS (Retd.) (iem1@bhel.in) Shri Bishwamitra Pandey, IRAS (Retd.) (iem2@bhel.in) Shri Mukesh Mittal, IRS (Retd.) (iem3@bhel.in)	
26. Delivery Schedule shall be as follows- • Main Supply (along with commissioning spares) – I. Crane-1: 10 months from the date of LOA. II. Crane-2: 14 months from the date of LOA. Drawing/ documents submission and re-submission shall be as per Technical Specification.	



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- Mandatory Spares - 14 months from the date of LOA
- Supervision of E&C - Personnel for supervision of E&C shall be deputed within 10 days of intimation.
- Healthiness Check Service- Personnel for Healthiness Check Service shall be deputed within 10 days of intimation.

Note: Above delivery conditions are to be complied by bidder strictly
Delivery on GeM portal shall be selected as 999 days. Same shall be indicative to suffice the GeM portal requirement.

27. Payment Terms – Main Supply -

i) Payment of 80% of basic price of materials supplied, as per approved billing schedule, along with 100% freight, taxes and duties (as applicable), shall be paid against receipt of material (receipted LR) at site on pro-rata basis.

ii). 10% of basic price of materials supplied will be released on pro-rata basis after submission of Material Receipt Certificate (MRC) from project site engineer of Purchaser.

ii). 10% of basic price of materials supplied shall be released against completion of successful completion of Load Test.

Mandatory Spares: As per clause no. 9.1.1 of GCTC of GCC BOP

Supervision of E&C: As per clause no. 9.4 of GCTC of GCC BOP

Healthiness Check Service: As per clause no. 9.4 of GCTC of GCC BOP

Provision of offline payment in GeM shall be utilized.

28. Guarantee Period : Guarantee shall be as per clause no -12.0 of GCTC of GCC BOP Rev-00 except clause no-12.1 2nd paragraph shall be read as -

Guarantee period for packages (excluding mandatory spares) shall be 24 calendar months from the date of load test of respective EOT Crane.

29. Evaluation Criteria - Total Package Price (including freight and taxes)

Bidder has to quote the total package price of complete scope, as per technical specification, in GeM. Price break up of total package price shall be provided by bidder in price format uploaded in GeM.

In case of discrepancy between total package price and price break up, total price quoted on GeM shall prevail and break up shall be corrected accordingly.

30. In case of single qualified bid, price bid of single qualified bidder shall be opened.

31. In the event of conflicts or discrepancies among the Contract Documents, interpretations will be based on the following order of precedence:

- i. Amendments to Purchase Order/ Work Order/ Framework Agreement
- ii. Purchase Order/ Work Order/ Framework Agreement
- iii. Letter of intent (LOI)/ Letter of Award (LOA)
- iv. Clarifications agreed between Buyer and Seller as regards to the tender or the bidding conditions
- v. The final set of deviations acceptable to purchaser with loading as specified in relevant section.
- vi. Corrigenda to NIT, with those of later date having precedence over those of earlier date
- vii. Enquiry letter along with Buyer specific ATC and annexures except documents listed in point no (vii) to (ix) below
- viii. Technical specifications
- ix. Special Conditions of Contract (SCC)
- x. GeM GTC latest version applicable as on enquiry date.



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Bidders to note the following Additional Terms and Conditions for subject tender-

1. Insurance Deductibles and Excess:

For Marine Cover: Rs 20,000/-

"The above-mentioned insurance deductibles/excess are tentative in nature and may change after award of contract which will be applicable within quoted price".

2. Vendors shall submit billing documents for payment directly to BHEL. Payment will be released within days as mentioned below after submission of complete documents:

- i. 90 days for non MSME as per MSMED Act
- ii. 45 days for vendors qualified and registered as Micro and Small Enterprises MSEs as per MSMED Act
- iii. 60 days for vendors qualified as Medium Enterprises as per MSMED Act.

Notes:

1. Vendors are required to issue Tax Invoice inclusive of PVC value (if applicable) wherever indices are available. In case PVC indices not available, vendors to submit PVC invoices on availability of applicable indices.
2. Any negative PVC, if not adjusted in earlier payments, will be adjusted at the time of remaining payments.

3. Bidder to note that this is an **Open Tender enquiry** & PBO/RA participation shall be subject to following condition:

a. Qualifying Technical & Financial Pre-Qualification Requirement.

b. Techno-commercial acceptance of offer by BHEL-PEM.

c. Approval of bidder by End Customer: - Same shall be taken up with end customer based on the latest credentials/reference list furnished by bidder in the format. Accordingly, bidders are requested to submit credential along with their technical bid.

The bidders who are not registered with BHEL-PEM may apply for registration in BHEL-PEM through Registration Portal available at www.pem.bhel.com --> vendor section --> online supplier registration. All credentials and/or documents duly signed & stamped related to registration has to be uploaded on the website & submit the application for registration. One set of hard copy filled-up SRF downloaded from Online Registration Portal duly signed & stamped has to be submitted.

4. The offers of the bidders who are under suspension as also the offers of the bidders, who engage the services of the firms debarred across BHEL, shall be rejected. The list of firms debarred across BHEL is available on BHEL web site www.bhel.com.

1.0 Integrity commitment, performance of the contract and punitive action thereof:

1.1. Commitment by BHEL: BHEL commits to take all measures necessary to prevent corruption in connection with the tender process and execution of the contract. BHEL will during the tender process treat all Bidder(s) in a transparent and fair manner, and with equity.

1.2. Commitment by Bidder/ Supplier/ Contractor:

1.2.1. The bidder/ supplier/ contractor commit to take all measures to prevent corruption and will not directly or indirectly influence any decision or benefit which he is not legally entitled to nor will act or omit in any manner



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which tantamount to an offence punishable under any provision of the Indian Penal Code, 1860 or any other law in force in India.

1.2.2. The bidder/ supplier/ contractor will, when presenting his bid, disclose any and all payments he has made, and is committed to or intends to make to agents, brokers or any other intermediaries in connection with the award of the contract and shall adhere to relevant guidelines issued from time to time by Govt. of India/ BHEL.

1.2.3. The bidder/ supplier/ contractor will perform/ execute the contract as per the contract terms & conditions and will not default without any reasonable cause, which causes loss of business/ money/ reputation, to BHEL.

If any bidder/ supplier/ contractor during pre-tendering/ tendering/ post tendering/ award/ execution/ post-execution stage indulges in malpractices, cheating, bribery, fraud or and other misconduct or formation of cartel so as to influence the bidding process or influence the price or acts or omits in any manner which tantamount to an offence punishable under any provision of the Indian Penal Code, 1860 or any other law in force in India, then, action may be taken against such bidder/ supplier/ contractor as per extant guidelines of the company available on www.bhel.com and/or under applicable legal provisions".

5. Bidders to ensure that Third party/customer issued certificates being submitted as proof of PQR qualification should have verifiable details of document/certificate issuing authority such as name & designation of Issuing Authority and its organization contact number and e - mail Id etc. In case the same found not available, Purchaser has right to reject such document from evaluation.
6. Bidders to comply Govt. of India, Ministry of Power, order no-25-111612018-PG dated 02/07/2020 regarding mandatory testing of all the imported items/equipment's/components.
7. This item/Package falls under the list of items defined in Para 3 of Ministry guideline ref no.F.20/2/214-PPD(Pt.) dated.20-09-2016 (in respect of procurement of items related to public safety, health, critical security operations and equipment's, etc) & hence no relaxation of PQR for start-up/MSME vendors is envisaged for the items/Package"
8. Bidders may visit site/ work area and study the job content, facilities available, availability of materials, prevailing site conditions including law & order situation etc. before quoting for this tender. They may also consult this office before submitting their offers, for any clarifications regarding scope of work, facilities available at sites or on terms and conditions. No additional claim shall be entertained by BHEL in future, on account of non-acquaintance of above.
9. The Bidder declares that they will not enter into any illegal or undisclosed agreement or understanding, whether formal or informal with other Bidder(s). This applies in particular to prices, specifications, certifications, subsidiary contracts, submission or non-submission of bids or any other actions to restrict competitiveness or to introduce cartelization in the bidding process. In case, the Bidder is found having indulged in above activities, suitable action shall be taken by BHEL as per extant policies/ guidelines
10. A bidder shall not have conflict of interest with other bidders. Such conflict of interest can lead to anti-competitive practices to the detriment of Procuring Entity's interests. The bidder found to have a conflict of interest shall be disqualified. A bidder may be considered to have a conflict of interest with one or more parties in this bidding process, if:
 - a) they have controlling partner (s) in common;' or
 - b) they receive or have received any direct or indirect subsidy/ financial stake from any of them; or
 - c) they have the same legal representative/agent for purposes of this bid; or
 - d) they have relationship with each other, directly or through common third parties, that puts them in a position to have access to information about or influence on the bid of another Bidder; or



BHARAT HEAVY ELECTRICALS LIMITED PROJECT ENGINEERING MANAGEMENT, NOIDA

- e) Bidder participates in more than one bid in this bidding process. Participation by a Bidder in more than one Bid will result in the disqualification of all bids in which the parties are involved. However, this does not limit the inclusion of the components/ sub-assembly/ Assemblies from one bidding manufacturer in more than one bid, or
- f) In cases of agents quoting in offshore procurements, on behalf of their principal manufacturers, one agent cannot represent two manufacturers or quote on their behalf in a particular tender enquiry. One manufacturer can also authorize only one agent/dealer. There can be only one bid from the following:
1. The principal manufacturer directly or through one Indian agent on his behalf; and
 2. Indian/foreign agent on behalf of only one principal,
- or
- g) A Bidder or any of its affiliates participated as a consultant in the preparation of the design or technical specifications of the contract that is the subject of the Bid, or
- h) In case of a holding company having more than one independently manufacturing units, or more than one unit having common business ownership/management, only one unit should quote. Similar restrictions would apply to closely related sister companies. Bidders must proactively declare such sister/ common business/ management units in same/ similar line of business. "
11. Bidder to quote non-zero freight %.
12. "Self-declarations/ auditor's/ accountant's certificates submitted by the manufacturer/ supplier may be verified randomly by the committee constituted as per MoP Order 28-07- 2020. In case of false documents/misrepresentation of the facts requisite action against such manufacturer/ supplier will be taken based on the recommendation of the Committee."
- 13. Bidder to agree with all the clauses except (clause no-6.0 to 9.0, 13.0, 15.0 & 25.0 of ITB of GCC-BOP, 11.0 & 27.0 of GCTC of GCC-BOP) of GCC BOP (available on www.pem.bhel.com) & SCC Rev-01 of the project.**
14. All other correspondence thereof shall be addressed to the undersigned by name & designation and sent at the following address:

Sanjeev Kumar/Dy. Engineer– BOP
M/s Bharat Heavy Electricals Ltd.,
Project Engineering Management,
Power Project Engineering Institute,
HRD & ESI Complex,
Plot No 25, Sector-16 A, Noida-201301
E-MAIL: sanjeev_k@bhel.in
Ph. No. 9958175655

Sumeet Sahay/MGR-BOP
M/s Bharat Heavy Electricals Ltd.,
Project Engineering Management,
Power Project Engineering Institute,
HRD & ESI Complex,
Plot No 25, Sector-16 A, Noida-201301
E-MAIL: sumeetsahay@bhel.in
Ph. No. 09999498202

	TECHNICAL SPECIFICATION 2X800 MW LARA TPP STAGE II DOUBLE GIRDER EOT CRANES FOR TG HALL 265/25T	PE-TS-508-501-A501
		Rev. No. 00
		Date : FEB 2024

PRE QUALIFICATION REQUIREMENT (TECHNICAL)

Pre-Qualification Requirement:-Double girder EOT crane having capacity of 100T or more with span of 28M or more.

1	The Bidder should have designed, manufactured, erected and commissioned EOT cranes of capacity 100T or more with minimum crane span of 28 meters, which is in successful operation in at least one (1) station for a minimum period of one (1) year as on 03/03/2023. For this the supplier has to submit performance certificate in English from end user along with copy of Purchase Order, meeting above mentioned pre-qualifying requirement.
2	Notwithstanding anything stated above, BHEL/NTPC reserves the right to assess the capabilities and capacity of the Bidder/ its subcontractors to perform the contract, should the circumstances warrant such assessment in the overall interest of BHEL/NTPC.
3	Bidder shall provide all necessary data such as type, design, make, capacity, duty conditions, date of commissioning/ operation etc.



PRE - QUALIFYING REQUIREMENTS

PROJECT:	2X800 MW Lara STPP
PACKAGE:	D/G EOT Crane above 100T

CRITERIA FOR EVALUATION - FINANCIAL :

	Amount (in Rs.)
Average annual financial turnover during the last Three Financial Years should not be less than Rs.Three Crore Twenty One Lakh only	3,21,00,000.00

Notes:-

a) The bidder has to submit financial accounts (audited, if applicable comprising of Audit report, Balance Sheet, Profit & Loss A/c Statement and Notes/Schedules pertaining to Turnover/Sales/Revenue), for last three years (or from the date of incorporation, whichever is less) as on tender due date to review the above criteria. In case the incorporation of vendor is less than 3 years, average annual financial turnover shall be calculated based on available information as below:-

i) If the accounts are available for ≤ 1 Financial Year, the Average Annual Turnover shall be calculated based on available information divided by 1 (One).

ii) If the accounts are available for >1 but ≤ 2 Financial Years, the Average Annual Turnover shall be calculated based on available information divided by 2 (Two).

iii) If the accounts are available for >2 but ≤ 3 Financial Years, the Average Annual Turnover shall be calculated based on available information divided by 3 (Three).

b) Foreign bidder is to submit a latest report from reputed third party business rating agency like Dun & Bradstreet, Credit reform etc. in addition to the documents mentioned at point (a) above for review of above criteria.

c) Other Income shall not be considered for arriving at Annual Turnover/Sales. For evaluation purpose, turnover figure excluding taxes shall be considered.

d) For evaluation of foreign bidder, exchange rate (TT selling rate of SBI) as on scheduled date of tender opening (Part-I bid in case of two part bid) shall be considered.

[illegible]

ANNEXURE-I: PRICE BREAKUP FOR SUPPLY PART					
NAME OF PROJECT:		2x800MW LARA TPP STAGE-II			
NAME OF PACKAGE:		265/25T DOUBLE GIRDER EOT CRANES FOR TG HALL			
TECHNICAL SPECIFICATION:		PE-TS-508-501-A501			
S. No.	DESCRIPTION	UNIT	QTY	UNIT EX- WORKS PRICE	TOTAL EX- WORKS PRICE
	BROAD BREAK-UP OF S.N. 2.1 OF MAIN SHEET ARE AS A.0 BELOW				
A.0	Total lump sum firm price for SUPPLY part comprising of design design (i.e. preparation and submission of drawing /documents including "As Built" drawings and O&M manuals), engineering, manufacture, fabrication, assembly, inspection / testing at vendor's & sub-vendor's works, painting, maintenance tools & tackles, fill of lubricants & consumables along with all accessories and spares for erection, start up and commissioning, forwarding, proper packing, shipment and delivery at site for the total scope for EOT cranes defined as per BHEL NIT & tender technical specification, amendment & agreements till placement of order. (Price break up to be furnished at Annexure- I).				
1.0	MAJOR BREAK-UP OF PRICES GIVEN IN A.0				
1.1	Total Ex. Work price for Cranes including storm brake and all other accessories (Excluding DSL,RAIL, Lifting beam, temproray cables, maintenance tools & tackles, Erection & commissioning spares, Operation & maintenance spares and E-learning package)	Nos.	2		₹ -
1.2	Total Ex. Work price for SUPPLY part for DSL ALONG WITH ACCESSORIES (FOR BAYLENGTH 288.5 M)	MTR	288.5		₹ -
1.3	Total Ex. Work price for SUPPLY part for RAIL ALONG WITH ACCESSORIES (FOR BAYLENGTH 288.5 M)	MTR	577		₹ -
1.4	Total Ex. Work price for SUPPLY part for temproray cables	MTR	340		₹ -
1.5	Total Ex. Work price for SUPPLY part for LIFTING BEAM WITH SLINGS AND ACCESSORIES	set	1		₹ -
1.6	Total Ex. Work price for SUPPLY part for Maintenance tools & tackles	set	1		₹ -
1.7	Total Ex. Work price for SUPPLY part for Erection & Commissioning Spares	set	2		₹ -
1.8	Total Ex. Work price for SUPPLY part for Operation & maintenance Spares	set	2		₹ -
1.9	Total Ex. Work price for SUPPLY part for E-learning package	set	1		₹ -
GRAND TOTAL (1.1 to 1.9)					₹ -
Note: 1) Bidder to note that there shall be no implication with reference to change of Lift upto (+/-) 500 mm as indicated in CCD. 2) Any variation in baylength will be adjusted based on unit rates arrived from 1.2,1.3 and 1.4 above.					

ANNEXURE II: PRICE BREAKUP FOR SERVICE PART (SUPERVISION OF ERECTION AND COMMISSIONING & LOAD AND OVERLOAD TESTING OF CRANES AT SITE)

NAME OF PROJECT:	2x800MW LARA TPP STAGE-II	
NAME OF PACKAGE:	265/25T DOUBLE GIRDER EOT CRANES FOR TG HALL	
TECHNICAL SPECIFICATION:	PE-TS-508-501-A501	

S. No.	DESCRIPTION	UNIT	QTY	UNIT PRICE	TOTAL PRICE
1.0	Total lump sum firm price for SERVICE part comprising of Supervision of erection and commissioning of crane and supervision of load & overload testing at site for cranes for the total scope defined as per BHEL NIT & tender technical specification, amendment & agreements till placement of order.				
2.0	Break Up Prices of 1.0				
2.1	Total lump sum prices for visits (should include travel expenses to/ fro site, intermediary stay) for supervision of erection & commissining for crane, load & overload and testing at site for 2 nos. 265/25T Double Girder Cranes for the total scope defined as per BHEL NIT & tender technical specification, amendment & agreements till placement of order.	Nos.	6		₹ -
2.2	Total lump sum prices for SUPERVISION (in days) of erection & commissining for crane and load & overload and testing at site for 2 nos. 265/25T Double Girder Cranes for the total scope defined as per BHEL NIT & tender technical specification, amendment & agreements till placement of order.	days	128		₹ -
2.3	Total of 2.0 (2.1. to 2.2)				₹ -

Note:

- No. of days at site defined at S.N. 2.2 above shall be calculated on the basis of presence at site (travel time is excluded).
- No. of Visits and days for supervision of E & C, Load testing, may vary depending on site requirement. Any variation in no. of visits & no. of days shall be exercised based on unit rate arrived from S.N. 2.1 & 2.2 above respectively.

ANNEXURE III: PRICE BREAKUP FOR HEALTHINESS CHECK SERVICES

NAME OF PROJECT:	2x800MW LARA TPP STAGE-II	
NAME OF PACKAGE:	265/25T DOUBLE GIRDER EOT CRANES FOR TG HALL	
TECHNICAL SPECIFICATION:	PE-TS-508-501-A501	

S. No.	DESCRIPTION	UNIT	QTY	UNIT PRICE	TOTAL PRICE
1.0	Total lumpsum firm prices for HEALTHINESS CHECK SERVICE for cranes after load/ overload testing for the total scope defined as per BHEL NIT & tender technical specification, amendment & agreements till placement of order.				
2.0	Break Up Prices of 1.0				
2.1	Total lump sum prices for visits (should include travel expenses to/ fro site, intermediary stay) for healthiness check services for 2 nos. 265/25T Double Girder Cranes for the total scope defined as per BHEL NIT & tender technical specification, amendment & agreements till placement of order.	Nos.	4		₹ -
2.2	Total lump sum prices for Healthiness check services (in days) for 2 nos. 265/25T Double Girder Cranes for the total scope defined as per BHEL NIT & tender technical specification, amendment & agreements till placement of order.	days	16		₹ -
2.3	Total of 2.0 (2.1. to 2.2)				₹ -

Note:

1. No. of days at site defined at S.N. 2.2 above shall be calculated on the basis of presence at site (travel time is excluded).
2. No. of Visits and days for healthiness check service may vary pending on site requirement. Any variation in no. of visits & no. of days shall be exercised based on unit rate arrived from S.N. 2.1 & 2.2 above respectively.

ANNEXURE-IV
PRICE BREAKUP FOR MANDATORY SPARES

NAME OF PROJECT: 2x800MW LARA TPP STAGE-II

NAME OF PACKAGE: 265/25T DOUBLE GIRDER EOT CRANES FOR TG HALL

TECHNICAL SPECIFICATION: PE-TS-508-501-A501

S. NO.	ITEM DESCRIPTION	QUANTITY	Total Ex-Works Price
1.1	Mechanical: Main TG Hall		
(a)	Bearings for long travel wheels	1 Set (Requirement for one Crane)	
(b)	Bearings for cross travel wheels	1 Set (Requirement for one Crane)	
(c)	Bearings for Gear Boxes for each type of Hoist & travel (Main and aux hoist , LT and CT travel))	1 Set (Requirement for one Crane)	
(d)	Brake Liner for all the brakes (main and aux hoist, LT and CT travel))	2 Sets (Requirement for two Crane)	
(e)	Hydraulic thruster for all Brakes (Main and aux hoist, CT and LT travel)	1 Set (Requirement for one Crane)	
(f)	Oil Seals (both main and aux hoist, CT and LT)	2 Sets (Requirement for two Crane)	
(g)	Brake springs for all brakes (both main and aux hoist, LT and CT travel)	1 Set (Requirement for one Crane)	
(h)	Wire Rope for Aux. Hook	1 No	
(i)	Wire Rope for Main Hook	1 No	
1.2	Electrical:		
i)	Solenoid Coils for Brakes	2 sets	
ii)	MCBs/MCCBS/Fuse links for the whole crane	1 set	
iii)	Contactors and overload Relays for Motors of the EOT	1 set of each type, size & rating	
iv)	Timers of each type, size & rating	1 set	
v)	Limit Switches for		
a	Main Hoist	1 set	
b	Aux. Hoist	1 set	
c	Cross Travel	1 set	
d	Long Travel	1 set	
vi)	Master Controller for Aux. Hoist	1 set each	
vii)	Drive for MH, AH, CT<	1 no. of each type& rating	
TOTAL			₹ -
NOTES			
1	Any variation in quantity of items during detail engineering shall be adjusted based on prices quoted above against each item.		
2	For other notes, please refer General Technical Requirements of Technical specification.		

**PRICE ADJUSTMENT FORMULA FOR MAIN SUPPLY AND MANDATORY SPARES FOR
DOUBLE GIRDER EOT CRANES ABOVE 100T PACKAGE FOR 2x800MW LARA TPP STAGE-
II**

- (1) The price adjustment formula is defined for price components related to Main Supply including commissioning spares and Mandatory spares.
- (2) The amount of price adjustment shall be computed as under:

$$EC = EC1 - EC0$$

EC1 will be computed as follows:

$$EC1 = EC0 \times \{F + a \times (0.8 \times A_1 / A_0 + 0.2 \times B_1 / B_0) + L_b \times L_1 / L_0\}$$

Where

EC = Adjustment in Ex-Works supply Price.

EC1 = Adjusted Amount of Ex-Works supply Price.

EC0 = Ex-Works supply Price as per LOA.

(i) 'F' shall be fixed portion of the Ex-Works supply price and shall be considered as 0.15.

(ii) 'a' shall be co-efficient of major materials/ items involved in the Ex-Works Component of the Contract Price and shall be considered as 0.55.

(iii) 'A' shall be Wholesale Price Index for "MANUFACTURE OF BASIC METALS" as published in RBI Bulletin, Sl.no. 1.3.14, Base: 2011-12 = 100

(iv) 'B' shall be Wholesale Price Index for "MANUFACTURE OF ELECTRICAL EQUIPMENT" as published in RBI Bulletin, Sl.no. 1.3.17, Base: 2011-12 = 100

(v) 'L_b' shall be co-efficient for labour component in the Ex-Works Component of the supply Price which shall be considered as 0.3.

(vi) 'L' shall be consumer price index for industrial workers as published by RBI in RBI Bulletin, S.N. 1, Base year 2016=100 (Extract of website is pasted below for reference).

(vii) For the indices,

Subscript '0' refers to indices of the Base Month.

Subscript '1' refers to indices of the month before the month in which delivery is made. The latest available indices are to be extrapolated to the above defined month wrt the base month.

Source link of RBI bulletin: https://rbi.org.in/Scripts/BS_ViewBulletin.aspx?Id=20964

Note:

- 1) Prices shall remain firm till completion schedule as defined in LOA/s. Price adjustment as defined above, shall be applicable only beyond completion schedule as per LOA. Price adjustment shall be payable to vendor only if the delay is not attributable to the vendor. However, if the delay is attributable to vendor then the negative price adjustment (if applicable) shall be passed on to BHEL.
- 2) The price adjustment shall be limited to (+) 10% of Ex-Works Supply Price including commissioning spares, Mandatory spares.

BANK GUARANTEE FOR EMD

Bank Guarantee No: _____

Date: _____

To,

Name & Addresses of The Beneficiary

Dear Sirs,

Beneficiary: Noida Account no. - 39922687394 IFSC Code- SBIN0017313 Branch- CAG II New Delhi (BHEL PEM Noida) (hereinafter referred to as Beneficiary / Government) Date: [Insert date of issue of BG](To be insert by issuing bank) Bank Guarantee No.: [Insert guarantee number].....(To be insert by issuing bank)..... Bank Guarantee Amount:(BG Amount)..... Bid / RA No.:(GeM Bid No.)..... EMD Applicant / Bidder: NAME AND ADDRESS OF THE VENDOR / CONTRACTOR / SUPPLIER..... Guarantor: [Insert name and address of the issuing Bank](To be insert by issuing bank).....

Whereas Applicant / Bidder is willing to submit its bid against above referred Bid / RA by the Beneficiary on behalf of President of India/Governor of State/Chairman, CMD, Secretary, Commissioner etc. of Central/State PSUs/Departments for the supply of Goods and / or Services and as per Bid / RA conditions, Applicant is required to submit a Bank Guarantee as EMD.

At the request of the Applicant, we as Guarantor under this Guarantee, hereby irrevocably and unconditionally undertake to forthwith and immediately pay to the Employer without any demur, merely on your first demand any sum or sums of INR (BG AMOUNT IN FIGURES AND WORDS).....(in words Indian Rupees.....) without any reservation, protest, and recourse and without the beneficiary needing to prove or demonstrate reasons for its such demand.

Any such demand made on the Bank shall be conclusive as regards the amount due and payable by the Bank under this guarantee. However, our liability under this guarantee shall be restricted to an amount not exceeding INR(BG AMOUNT IN FIGURES AND WORDS).....

We undertake to pay to the Employer any money so demanded notwithstanding any dispute or disputes raised by the Vendor/Contractor/Supplier in any suit or proceeding pending before any Court or Tribunal, Arbitrator or any other authority, our liability under this present being absolute and unequivocal.

The payment so made by us under this Guarantee shall be a valid discharge of our liability for payment hereunder and the Tenderer shall have no claim against us for making such payment.

The Bank also agrees that the Employer at its option shall be entitled to enforce this Guarantee against the Bank as a principal debtor, in the first instance without proceeding against the Tenderer and notwithstanding any security or other guarantee that the Employer may have in relation to the Tenderer's liabilities.

This Guarantee shall be irrevocable and shall remain in force up to and including.....(*BG AMOUNT IN FIGURES AND WORDS*)..... and shall be extended from time to time for such period as may be desired by the Employer.

This Guarantee shall not be determined or affected by liquidation or winding up, dissolution or change of constitution or insolvency of the Tenderer but shall in all respects and for all purposes be binding and operative until payment of all money payable to the Employer in terms hereof. However, unless a demand or claim under this Guarantee is made on us in writing on or before the(*DATE OF EXPIRY OF CLAIM PERIOD*)..... we shall be discharged from all liabilities under this Guarantee.

We, ... Bank lastly undertake not to revoke this guarantee during its currency except with the previous consent of the Employer in writing.

Notwithstanding anything to the contrary contained hereinabove:

- a) The liability of the Bank under this Guarantee shall not exceed..... (*BG AMOUNT IN FIGURES AND WORDS*).....
- b) This Guarantee shall be valid up to
- c) Unless the Bank is served a written claim or demand on or before ____ (*DATE OF EXPIRY OF CLAIM PERIOD*)_____ all rights under this guarantee shall be forfeited and the Bank shall be relieved and discharged from all liabilities under this guarantee irrespective of whether or not the original bank guarantee is returned to the Bank

We, _____ Bank, have power to issue this Guarantee under law and the undersigned as a duly authorized person has full powers to sign this Guarantee on behalf of the Bank.

For and on behalf of

(Name of the Bank)

Date.....

Place of Issue.....

To be given on Letter head of Bidder

Ref:

Date:

To,

Bharat Heavy Electricals Limited
PEM, PPEI Building,
Plot No 25, Sector -16A
Noida (U.P)-201301

Reference:

Order no-F6/18/2019-PPD dated 23.07.2020 issued by Ministry of Finance.

Tender Enquiry No-.....

Offer No-.....

Name of Package:

Dear Sir,

I have read the clause regarding restriction on procurement from a bidder of a country which shares a land border with India. I hereby certify that Company name, is not from such a country and is eligible to be considered.

Thanking You,

Yours faithfully,

(Company director seal and signature)

To be given on Letter head of Bidder

Ref:

Date:

To,

Bharat Heavy Electricals Limited
PEM, PPEI Building,
Plot No 25, Sector -16A
Noida (U.P)-201301

Reference: Tender Enquiry No-.....

Name of Package:

Dear Sir,

We hereby certify that items of(Package name)
for.....(Project Name) offered by M/s(bidder's name)
having its works/office at has local content of%.

Further, it is also certified that the local content percentage (%) certified above is in line with definition of local content given in point no 2 of Public Procurement (Preference to Make in India), Order 2017-revision, having ref. no. P-45021/2/2017-PP(BE-II) dated 04.06.2020 & 16.09.2020 an M/s..... qualifies as Class-I/Class-II (strike out whichever is not applicable) local supplier.

Details of the location(s) at which the local value addition-

Yours very truly

..... (Signing Authority Name & Sign)

..... (Firm Name)

Company Stamp

INTEGRITY PACT

Between

Bharat Heavy Electricals Ltd. (BHEL), a company registered under the Companies Act 1956 and having its registered office at "BHEL House", Siri Fort, New Delhi - 110049 (India) hereinafter referred to as "The Principal", which expression unless repugnant to the context or meaning hereof shall include its successors or assigns of the ONE PART

And

_____, (description of the party along with address), hereinafter referred to as "The Bidder/ Contractor" which expression unless repugnant to the context or meaning hereof shall include its successors or assigns of the OTHER PART

Preamble

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

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

Section 1- Commitments of the Principal

- 1.1 The Principal commits itself to take all measures necessary to prevent corruption and to observe the following principles:
 - 1.1.1 No employee of the Principal, personally or through family members, will in connection with the tender for, or the execution of a contract, demand, take a promise for or accept, for self or third person, any material or immaterial benefit which the person is not legally entitled to.
 - 1.1.2 The Principal will, during the tender process treat all Bidder(s) with equity and reason. The Principal will in particular, before and during the tender process, provide to all Bidder(s) the same information and will not provide to any Bidder(s) confidential/ additional information through which the Bidder(s) could obtain an advantage in relation to the tender process or the contract execution.
 - 1.1.3 The Principal will exclude from the process all known prejudiced persons.
- 1.2 If the Principal obtains information on the conduct of any of its employees which is a penal offence under the Indian Penal Code 1860 and Prevention of Corruption Act 1988 or any other statutory penal enactment, or if there be a substantive suspicion in this regard, the Principal will inform its Vigilance Office and in addition can initiate disciplinary actions.

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

- 2.1 The Bidder(s)/ Contractor(s) commit himself to take all measures necessary to prevent corruption. The Bidder(s)/ Contractor(s) commits himself to observe the following principles during participation in the tender process and during the contract execution.
 - 2.1.1 The Bidder(s)/ Contractor(s) will not, directly or through any other person or firm, offer, promise or give to the Principal or to any of the Principal's employees involved in the tender process or the execution of the contract or to any third person any material, immaterial or any other benefit which he/ she is not legally entitled to, in order to obtain in exchange any advantage of any kind whatsoever during the tender process or during the execution of the contract.
 - 2.1.2 The Bidder(s)/ Contractor(s) will not enter with other Bidder(s) into any illegal or undisclosed agreement or understanding, whether formal or informal. This applies in particular to prices, specifications, certifications, subsidiary contracts, submission or non-submission of bids or any other actions to restrict competitiveness or to introduce cartelization in the bidding process.
 - 2.1.3 The Bidder(s)/ Contractor(s) will not commit any penal offence under the relevant Indian Penal Code (IPC) and Prevention of Corruption Act; further the Bidder(s)/ Contractor(s) will not use improperly, for purposes of competition or personal gain, or pass on to others, any information or document provided by the Principal as part of the business relationship, regarding plans, technical proposals and business details, including information contained or transmitted electronically.

- 2.1.4 Foreign Bidder(s)/ Contractor(s) shall disclose the name and address of agents and representatives in India and Indian Bidder(s)/ Contractor(s) to disclose their foreign principals or associates. The Bidder(s)/ Contractor(s) will, when presenting his bid, disclose any and all payments he has made, and is committed to or intends to make to agents, brokers or any other intermediaries in connection with the award of the contract.
- 2.2 The Bidder(s)/ Contractor(s) will not instigate third persons to commit offences outlined above or be an accessory to such offences.
- 2.3 The Bidder(s)/ Contractor(s) shall not approach the Courts while representing the matters to IEMs and shall await their decision in the matter.

Section 3 - Disqualification from tender process and exclusion from future contracts

If the Bidder(s)/ Contractor(s), before award or during execution has committed a transgression through a violation of Section 2 above, or acts in any other manner such as to put his reliability or credibility in question, the Principal is entitled to disqualify the Bidder(s)/ Contractor(s) from the tender process , terminate the contract, if already awarded, exclude from future business dealings and/ or take action as per the separate "Guidelines on Banning of Business dealings with Suppliers/ Contractors", framed by the Principal.

Section 4 - Compensation for Damages

- 4.1 If the Principal has disqualified the Bidder (s) from the tender process before award / order acceptance according to Section 3, the Principal is entitled to demand and recover the damages equivalent to Earnest Money Deposit/ Bid Security.
- 4.2 If the Principal is entitled to terminate the Contract according to Section 3, or terminates the Contract in application of Section 3 above , the Bidder(s)/ Contractor (s) transgression through a violation of Section 2 above shall be construed breach of contract and the Principal shall be entitled to demand and recover from the Contractor an amount equal to 5% of the contract value or the amount equivalent to Security Deposit/ Performance Bank Guarantee , whichever is higher, as damages, in addition to and without prejudice to its right to demand and recover compensation for any other loss or damages specified elsewhere in the contract.

Section 5 - Previous Transgression

- 5.1 The Bidder declares that no previous transgressions occurred in the last 3 (three) years with any other company in any country conforming to the anti-corruption approach or with any other Public Sector Enterprise in India that could justify his exclusion from the tender process.
- 5.2 If the Bidder makes incorrect statement on this subject, he can be disqualified from the tender process or the contract, if already awarded, can be terminated for such reason or action can be taken as per the separate "Guidelines on Banning of Business dealings with Suppliers/ Contractors", framed by the Principal.

Section 6 - Equal treatment of all Bidder (s)/ Contractor (s) / Sub-contractor (s)

- 6.1 The Principal will enter into Integrity Pacts with identical conditions as this Integrity Pact with all Bidders and Contractors.
- 6.2 In case of Sub-contracting, the Principal Contractor shall take the responsibility of the adoption of Integrity Pact by the Sub-contractor(s) and ensure that all Sub-contractors also sign the Integrity Pact.
- 6.3 The Principal will disqualify from the tender process all Bidders who do not sign this Integrity Pact or violate its provisions

Section 7 - Criminal Charges against violating Bidders/ Contractors /Subcontractors

If the Principal obtains knowledge of conduct of a Bidder, Contractor or Subcontractor, or of an employee or a representative or an associate of a Bidder, Contractor or Subcontractor which constitutes corruption, or if the Principal has substantive suspicion in this regard, the Principal will inform the Vigilance Office.

Section 8 -Independent External Monitor(s)

- 8.1 The Principal appoints competent and credible panel of Independent External Monitor (s) (IEMs) for this Integrity Pact. The task of the IEMs is to review independently and objectively, whether and to what extent the parties comply with the obligations under this Integrity Pact.
- 8.2 The IEMs are not subject to instructions by the representatives of the parties and performs his functions neutrally and independently. He reports to the CMD, BHEL.

- 8.3 The IEMs shall be provided access to all documents/ records pertaining to the Contract, for which a complaint or issue is raised before them as and when warranted. However, the documents/records/information having National Security implications and those documents which have been classified as Secret/Top Secret are not to be disclosed.
- 8.4 The Principal will provide to the IEMs sufficient information about all meetings among the parties related to the Contract provided such meetings could have an impact on the contractual relations between the Principal and the Contractor. The parties offer to the IEMs the option to participate in such meetings.
- 8.5 The advisory role of IEMs is envisaged as that of a friend, philosopher and guide. The advice of IEMs would not be legally binding and it is restricted to resolving issues raised by a Bidder regarding any aspect of the tender which allegedly restricts competition or bias towards some Bidders. At the same time, it must be understood that IEMs are not consultants to the Management. Their role is independent in nature and the advice once tendered would not be subject to review at the request of the organization.
- 8.6 For ensuring the desired transparency and objectivity in dealing with the complaints arising out of any tendering process or during execution of Contract, the matter should be examined by the full panel of IEMs jointly, who would look into the records, conduct an investigation, and submit their joint recommendations to the Management.
- 8.7 The IEMs would examine all complaints received by them and give their recommendations/ views to the CMD, BHEL at the earliest. They may also send their report directly to the CVO, in case of suspicion of serious irregularities requiring legal/ administrative action. Only in case of very serious issue having a specific, verifiable Vigilance angle, the matter should be reported directly to the Commission. IEMs will tender their advice on the complaints within 30 days.
- 8.8 The CMD, BHEL shall decide the compensation to be paid to the IEMs and its terms and conditions.
- 8.9 IEMs should examine the process integrity, they are not expected to concern themselves with fixing of responsibility of officers. Complaints alleging mala fide on the part of any officer of the Principal should be looked into by the CVO of the Principal.
- 8.10 If the IEMs have reported to the CMD, BHEL, a substantiated suspicion of an offence under relevant Indian Penal Code / Prevention of Corruption Act, and the CMD, BHEL has not, within reasonable time, taken visible action to proceed against such offence or reported it to the Vigilance Office, the IEMs may also transmit this information directly to the Central Vigilance Commissioner, Government of India.
- 8.11 After award of work, the IEMs shall look into any issue relating to execution of Contract, if specifically raised before them. As an illustrative example, if a Contractor who has been awarded the Contract, during the execution of Contract, raises issue of delayed payment etc. before the IEMs, the same shall be examined by the panel of IEMs. Issues like warranty/ guarantee etc. shall be outside the purview of IEMs.
- 8.12 However, the IEMs may suggest systemic improvements to the management of the Principal, if considered necessary, to bring about transparency, equity and fairness in the system of procurement.
- 8.13 The word 'Monitor' would include both singular and plural.

Section 9 - Pact Duration

- 9.1 This Integrity Pact shall be operative from the date this Integrity Pact is signed by both the parties till the final completion of contract for successful Bidder, and for all other Bidders 6 months after the Contract has been awarded. Any violation of the same would entail disqualification of the bidders and exclusion from future business dealings.
- 9.2 If any claim is made/ lodged during currency of this Integrity Pact, the same shall be binding and continue to be valid despite the lapse of this Pact as specified above, unless it is discharged/ determined by the CMD, BHEL.

Section 10 - Other Provisions

- 10.1 This Integrity Pact is subject to Indian Laws and exclusive jurisdiction shall be of the competent Courts as indicated in the Tender or Contract, as the case may be.
- 10.2 Changes and supplements as well as termination notices need to be made in writing.
- 10.3 If the Bidder(s)/ Contractor (s) is a partnership or a consortium or a joint venture, this Integrity Pact shall be signed by all partners of the partnership or joint venture or all consortium members.
- 10.4 Should one or several provisions of this Integrity Pact turn out to be invalid, the remainder of this Integrity Pact remains valid. In this case, the parties will strive to come to an agreement to their original intentions.
- 10.5 Only those bidders / contractors who have entered into this Integrity Pact with the Principal would be competent to participate in the bidding. In other words, entering into this Integrity Pact would be a preliminary qualification.

10.6 In the event of any dispute between the Principal and Bidder(s)/ Contractor(s) relating to the Contract, in case, both the parties are agreeable, they may try to settle dispute through Mediation before the panel of IEMs in a time bound manner. In case, the dispute remains unresolved even after mediation by the panel of IEMs, either party may take further action as the terms & conditions of the Contract. The fees/expenses on dispute resolution through mediation shall be shared by both the parties. Further, the mediation proceedings shall be confidential in nature and the parties shall keep confidential all matters relating to the mediation proceedings including any settlement agreement arrived at between the parties as outcome of mediation. Any views expressed, suggestions, admissions or proposals etc. made by either party in the course of mediation shall not be relied upon or introduced as evidence in any further arbitral or judicial proceedings, whether or not such proceedings relate to the dispute that is the subject of mediation proceedings. Neither of the parties shall present IEMs as witness in any Alternative Dispute Resolution or judicial proceedings in respect of the dispute that was subject of mediation.

Sumeet Sahay

Digitally signed by Sumeet Sahay
DN: cn=Sumeet Sahay, o=Bharat
Heavy Electricals Ltd, ou=PS-PEM,
email=sumeetsahay@bhel.in, c=IN
Date: 2022.04.28 14:57:08 +05'30'

For & On behalf of the Principal
(Office Seal)

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

Place-----

Date-----

SHARAD
Witness:
CHANDRA
(Name & Address)

Digitally signed by SHARAD CHANDRA
DN: c=IN, o=SHARAD HEAVY ELECTRICALS LIMITED, ou=POWER SECTOR,
PROJECT ENGINEERING MANAGEMENT (PS-PEM), postalCode=201301,
serialNumber=11589C5A963E220B8E465C0DC9C3D1A2B152E342C,
2.5.4.20=09616018023cc45670d9ff7d16d090921775267d5defc6e3d
o=SHARAD CHANDRA
serialNumber=8028948064F2C2291CB1001210178DCCE109E108A,
serialNumber=411890C5A963E220B8E465C0DC9C3D1A2B152E342C,
98EC0B22C9D2EF81, ou=SHARAD CHANDRA
email=sharad.chandra@bhel.in, c=IN

Witness: _____
(Name & Address) _____

**CORPORATE QUALITY ASSURANCE/ कॉरपोरेट गुणवत्ता आश्वासन****SUB-VENDOR QUESTIONNAIRE/ सब-वेंडर प्रश्नावली**

i.	Item/Scope of Sub-contracting उप-संविदा(अनुबंध) का मद/ दायरा			
ii.	Address of the registered office पंजीकृत कार्यालय का पता	Details of Contact Person संपर्क व्यक्ति का विवरण (Name, Designation, Mobile, Email) (नाम, पदनाम, मोबाइल, ईमेल)		
iii.	Name and Address of the proposed Sub-vendor's works where item is being manufactured प्रस्तावित उप-विक्रेता के कार्यों का नाम और पता, जहां मद का निर्माण किया जा रहा है	Details of Contact Person: संपर्क व्यक्ति का विवरण (Name, Designation, Mobile, Email) (नाम, पदनाम, मोबाइल, ईमेल)		
iv.	Annual Production Capacity for proposed item/scope of sub-contracting उप-संविदा(अनुबंध) के प्रस्तावित मद / दायरे के लिए वार्षिक उत्पादन क्षमता			
v.	Annual production for last 3 years for proposed item/scope of sub-contracting उप-संविदा(अनुबंध) के प्रस्तावित मद / दायरे के लिए पिछले 3 वर्षों का वार्षिक उत्पादन			
vi.	Details of proposed works प्रस्तावित कार्यों का विवरण			
1.	Year of establishment of present works वर्तमान फैक्टरी की स्थापना का वर्ष			
2.	Year of commencement of manufacturing at above works उपरोक्त फैक्टरी में निर्माण कार्य शुरू होने का वर्ष			
3.	Details of change in Works address in past (if any पूर्व में फैक्टरी स्थल में परिवर्तन का विवरण (यदि कोई हो))			
4.	Total Area कुल क्षेत्र			
	Covered Area शामिल क्षेत्र			
5.	Factory Registration Certificate फैक्टरी पंजीकरण प्रमाण पत्र	Details attached at Annexure – F2.1 विवरण अनुलग्नक- एफ 2.1 पर संलग्न है		
6.	Design/ Research & development set-up डिजाइन / अनुसंधान और विकास सेटअप (No. of manpower, their qualification, machines & tools employed etc.) (श्रमिकों की संख्या, उनकी योग्यता, मशीन और उपलब्ध उपकरण आदि)	Applicable / Not applicable if manufacturing is as per Main Contractor/purchaser design) Details attached at Annexure – F2.2 (if applicable) लागू / लागू नहीं, अगर विनिर्माण मुख्य संविदाकार / खरीददार के डिजाइन के अनुसार है) विवरण अनुलग्नक –एफ 2.2 पर संलग्न है। (यदि लागू हो)		
7.	Overall organization Chart with Manpower Details (Design/Manufacturing/Quality etc) मैनपावर विवरण के साथ समग्र संगठन का चार्ट (डिजाइन / विनिर्माण / गुणवत्ता आदि)	Details attached at Annexure – F2.3 विवरण अनुलग्नक – F2.3 में संलग्न है।		
8.	After sales service set up in India, in case of foreign sub-vendor(Location, Contact Person, Contact details etc.) भारत में बिक्री सेवा की स्थापना के बाद, विदेशी उप-विक्रेता के मामले में(स्थल , संपर्क व्यक्ति, संपर्क विवरण आदि)	Applicable / Not applicable लागू / लागू नहीं Details attached at Annexure – F2.4 विवरण अनुलग्नक -2.4 पर संलग्न है।		
9.	Manufacturing process execution plan with flow chart indicating various stages of manufacturing from raw material to finished product including outsourced process, if any फ्लोचार्ट सहित विनिर्माण प्रक्रिया निष्पादन योजना , जिसमें आउटसोर्स प्रक्रिया, यदि कोई हो, सहित कच्चे माल से तैयार उत्पाद तक विनिर्माण के विभिन्न चरणों को दर्शाया गया हो,	Details attached at Annexure – F2.5 विवरण अनुलग्नक - F2.5में संलग्न है।		
10.	Sources of Raw Material/Major Bought Out Item कच्चे माल के स्रोत / खरीदे हुए मुख्य मद	Details attached at Annexure – F2.6 विवरण अनुलग्नक - F2.6में संलग्न है।		
11.	Quality Control exercised during receipt of raw material/BOI, in-process , Final Testing, packing कच्चे माल / खरीदे हुए मद, प्रक्रियाबद्ध, अंतिम परीक्षण, पैकिंग करते समय गुणवत्ता नियंत्रण	Details attached at Annexure – F2.7 विवरण अनुलग्नक - F2.7 पर संलग्न है		

12.	Manufacturing facilities (List of machines, special process facilities, material handling etc.) विनिर्माण सुविधा(मशीनों की सूची , विशेष प्रक्रिया सुविधाएं, सामग्री रख-रखाव आदि)	Details attached at Annexure – F2.8 विवरण अनुलग्नक - F2.8में संलग्न है ।
13.	Testing facilities (List of testing equipment) परीक्षण सुविधाएं(परीक्षण उपकरण की सूची)	Details attached at Annexure – F2.9 विवरण अनुलग्नक – F2. 9 में संलग्न है ।
14.	If manufacturing process involves fabrication then- यदि निर्माण प्रक्रिया में फेब्रिकेशन की गई है तो- List of qualified Welders पात्र वेल्डर की सूची List of qualified NDT personnel with area of specialization विशेषज्ञता के क्षेत्र सहित पात्र एनडीटी कार्मिकों की सूची	Applicable / Not applicable लागू / लागू नहीं Details attached at Annexure – F2.10 विवरण अनुलग्नक - F2.10में संलग्न है। (if applicable) लागू / लागू नहीं
15.	List of out-sourced manufacturing processes with Sub-Vendors' names & addresses सब-वेंडर द्वारा बाह्य स्रोतों (उनके नाम और पते सहित)से करवाएं गए निर्माण प्रक्रियाओं की सूची	Applicable / Not applicable लागू / लागू नहीं Details attached at Annexure. –F2.11 विवरण अनुलग्नक - F2.10में संलग्न है। (if applicable) (यदि लागू हो)
16.	Supply reference list including recent supplies नवीनतम आपूर्ति सहित आपूर्ति संदर्भ सूची	Details attached at Annexure – F2.12 विवरण अनुलग्नक - F2.12 में संलग्न है । (as per format given below) (नीचे दिए गए प्रारूप के अनुसार)

Project/ package परियोजना /पैकेज	Customer Name ग्राहक का नाम	Supplied Item (Type/Rating/Model /Capacity/Size etc) आपूर्ति की गई वस्तु (प्रकार / रेटिंग / मॉडल / क्षमता / आकार आदि)	PO ref no/date पीओ संदर्भ सं. / तिथि	Supplied Quantity आपूर्ति की मात्रा	Date of Supply आपूर्ति की तारीख

17.	Product satisfactory performance feedback letter/certificates/End User Feedback उत्पाद के संतोषजनक प्रदर्शन संबंधी फीडबैक पत्र / प्रमाण पत्र / अंतिम उपयोगकर्ता फीडबैक	Attached at annexure - F2.13 अनुलग्नक F2. 3पर संलग्न है
18.	Summary of Type Test Report (Type Test Details, Report No, Agency, Date of testing) for the proposed product (similar or higher rating) प्रस्तावित उत्पाद (एक समान या उच्च रेटिंग वाले) के लिए टाइप टेस्ट रिपोर्ट (टाइप टेस्ट विवरण, रिपोर्ट संख्या, एजेंसी, जांच की तारीख) का सारांश नोट: - रिपोर्ट प्रस्तुत करने की आवश्यकता नहीं है Note:- Reports need not to be submitted	Applicable / Not applicable लागू / लागू नहीं Details attached at Annexure – F2.14 विवरण अनुलग्नक - F2.1 4में संलग्न है (if applicable) (यदि लागू हो)
19.	Statutory / mandatory certification for the proposed product प्रस्तावित उत्पाद के लिए वैधानिक / अनिवार्य प्रमाणीकरण	Applicable / Not applicable लागू / लागू नहीं Details attached at Annexure – F2.15 (if applicable) (यदि लागू हो)
20.	Copy of ISO 9001 certificate आईएसओ 9001 प्रमाण पत्र की प्रति (if available(यदि उपलब्ध हो)	Attached at Annexure – F2.16 अनुलग्नक में संलग्न - F2.1 6 है
21.	Product technical catalogues for proposed item (if available) प्रस्तावित मद के लिए उत्पाद तकनीकी कैटलॉग (यदि उपलब्ध हो)	Details attached at Annexure – F2.17 विवरण अनुलग्नक - F2.1 7 में संलग्न है

Name : नाम:		Desig : पद:		Sign : हस्ता क्षर:		Date : तिथि:	
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Company's Seal/Stamp: - कंपनी की मुहर / मोहर: -

PROJECT GROUP I
POWER SECTOR – PROJECT ENGINEERING MANAGEMENT
BHARAT HEAVY ELECTRICALS LIMITED

SPECIAL CONDITIONS OF CONTRACT (SCC) Rev.00
2 X 800 MW NTPC LARA STPS STAGE - II – EPC
(JOB NO. 508)

These Conditions shall be read and construed along with latest applicable (i.e. BOI or BOP) General Conditions of Contract (GCC) enclosed along with the tender enquiry. In case of any conflict or inconsistency, the conditions given in SCC shall prevail over the GCC.

Sl. No.	Title	Description
1.	Project Name	2 X 800 MW NTPC LARA STPS STAGE - II – EPC
2.	Nature of project & Type of Bidding	Mega Power Project Competitive Bidding
3.	Customer Order Ref No	Supply: - CS-9587-001R-2-FCNOA-7332, dtd 29.08.23 Services: - CS-9587-001R-2-SCNOA- 7333. dtd 29.08.23 Mandatory Spares: -CS-9587-001R-2-SCNOA- 7333, Dtd 29.08.23
4.	BHEL's Customer	NTPC
5.	NTPC LARA GST No.	22AAACN0255D4Z5
6.	Customer Consultants	NA
7.	Buyer and Paying Authority	a. For packages where BHEL PEM will issue the Purchase Order - BHEL PEM will be the paying authority. b. For packages where BHEL-PEM will issue only the LOA and Purchase Order shall be issued by BHEL PSWR - BHEL PSWR Site will be the paying Authority.
8.	Consignee Address (Bill To)	FOR SUPPLY PACKAGES: BHEL, Power Sector-Project Engineering Management, Power Project Engineering Institute, Plot No. 25, Sector-16A, Noida, Uttar Pradesh-201301. BHEL-PEM GSTIN: 09AAACB4146P2ZC FOR TURNKEY PACKAGES (where BHEL-PEM will issue only the LOA and Purchase Order shall be issued by BHEL-PSWR): Construction Manager, BHEL site office, 2 X 800 MW NTPC LARA STPS STAGE - II P.O. - PUSSORE, VILLAGE-CHHAPORA, RAIGARH CHHATTISGARH-496440 BHEL-PSWR - GSTIN No.- 22AAACB4146P1ZP
9.	Delivery Address (Ship To)/BHEL Site office address	Construction Manager, BHEL site office, 2 X 800 MW NTPC LARA STPS STAGE - II P.O. - PUSSORE, VILLAGE-CHHAPORA, RAIGARH CHHATTISGARH-496440 BHEL-PSWR - GSTIN No.- 22AAACB4146P1ZP

10.	Location of Plant	The project is located in Raigarh district of Chhattisgarh State. The project is located south-east of Raigarh town near village Lara, bounded by villages Lara, Chhapora & Lohakhan and on the western side of Odisha State boundary. Nearest Road- NH-200 (Raigarh–Sarangarh) via Kondatarai. Nearest Railway: Raigarh Railway is approximately 30 kms. Nearest Airport: Raipur is about 250 km
11.	Mode of Dispatch	By Rail/Road/Sea on door delivery and freight pre-paid basis
12.	Packages for which CIF value considered	NIL
13.	BHEL GSTIN Details	For supply packages: BHEL-PEM is registered in the State of Uttar Pradesh with GSTIN 09AAACB4146P2ZC For Turnkey packages: BHEL-PSWR – GSTIN - 22AAACB4146P1ZP
14	QR Code Affixing Requirement for SPMS (Mandatory Requirement)	Vendor to mandatorily required to furnish detailed shipping/packing list to BHEL in format as per Annexure 1 of this SCC. BHEL shall provide QR codes for each boxes/bundle/shipping sections etc. Vendor is mandatorily required to print the generated QR in half of A4 size printer using a normal printer. One copy of this QR code must be attached to the respective box/bundle/gunny bag/shipping section etc. The other copy of the QR code must be enclosed with the documents sent along with the consignment. After reaching at site, QR code shall be scanned at gate and material shall be received by site. Further, vendor to ensure that - All the items being dispatched in the consignment/LR are listed in the packing list. - Proper precautions are taken while affixing to ensure that the “Fixed QR Code” should not damage during transit. - QR code is correctly fixed to all the box/bundles/loose items being dispatched in consignment. Any delay arising thereof due to incorrect tagging/missing tags shall be to vendor’s account. BHEL shall provide QR code within 2-3 days of submission of shipping/packing details (as per Annexure-1) by vendor. Vendor to plan dispatches accordingly without affecting the delivery schedule.
15A	Transit Insurance	Transit Insurance in vendor scope , unless specified in NIT. In case, Transit Insurance is specified in BHEL Scope in NIT - Insurance details shall be provided by BHEL-PEM. For each dispatch, vendor shall inform the following to the Underwriter under intimation to BHEL-PEM and BHEL Site office: Policy No.

		• Consignee Name. • Consignment Details (items with their weights and value (in INR). • Project Name and P.O. No. • LR No. and date, Dispatch origin and destination details, Invoice No. • Vendors to intimate the underwriters quoting the insurance Policy details.
15B	Insurance of unloading, storage, handling, erection and commissioning	For Turkey Packages: Insurance of unloading, storage, handling, erection and commissioning shall be in BHEL Scope Insurance Deductibles and Excess: For Marine Cover: Rs 20,000/- For Storage /Erection and Testing Cover: a. Normal Period: 5 % of the claim amount subject to a minimum of Rs. 2.25 Lakh. b. Testing Period: 5% of the claim amount subject to minimum of Rs. 6.0 Lakh. Act of God Perils: - 10% of the claim amount subject to minimum of testing period excess. Fire / Explosion Claims: 20% of the claim amount subject to minimum of testing period excess Extended Maintenance Cover/ Defect Liability Cover: As applicable for testing period excess. Third Party Liability: The policy excesses (normal/testing periods) shall apply for third party liability property damage claims also. For third party liability claims arising out of acts of GOD perils. The excess applicable to AOG claims shall apply. “The above-mentioned insurance deductibles/excess are tentative in nature and may change after award of contract which will be applicable within quoted price”.
16.	Dispatch intimation	Yes, in writing, not less than 30 (Thirty) days prior to date of shipment and dispatch details to be sent to: • BHEL Site office (address as mentioned at Sl. No. 9) • BHEL PEM Noida (address as mentioned in NIT for PO issued by PEM) • BHEL PSWR (For PO Issued by BHEL PSWR)
17.	Demurrage charges	Demurrage charges shall be paid by supplier/vendor only. No claim shall be acceptable to BHEL in this regard.
18.	Unloading, Storage & Movement of material at site	• By BHEL site office for supply packages (where only supply is in vendor's scope).

		By vendors for Turnkey (where Supply and E&C is in vendor scope) Note: The Supplier shall furnish LR wise Gross Wt. of the consignment for the purpose of handling the consignment by BHEL Site Contractor. Please note that unloading of materials at Site shall sometimes may take 3-5 days. As such, transporters to be advised suitably before dispatch of materials in this regard. Also, no claim on a/c of delay in unloading before this period shall be entertained. Prior intimation as mentioned in sl. no. 15 above is solicited.
19.	Taxes & Duties (For Domestic Vendor)	As per Notice Inviting Tender (NIT).
20.	Taxes & Duties (For Order Directly to Foreign Bidders)	In case of foreign vendors, quoted prices & Dispatches shall be on C & F Port – Kolkata Basis and Taxes & Duties in the country of dispatch shall be borne by Foreign vendor.
21.	Inspection Agency	Inspection of packages shall be carried out by agency as per below Inspection category of packages: Cat-I: Inspection shall be done jointly or separately by NTPC and BHEL or BHEL's TPIA. Cat-II: Inspection shall be done by BHEL only. Cat-III: Certificate of Compliance shall be furnished by Vendor. Note: Please note, for Cat I & II items BHEL reserve the right to carry inspection by themselves or through nominated third party inspection agency (TPIA). Third party inspection agency, if any, shall be informed after award of contract.
22.	Inspection procedure	<u>For Domestic supplies:</u> As per Notice Inviting Tender (NIT). <u>For Foreign supplies</u> In case of Foreign supplies, if NTPC approved 3rd party inspection agency does not participate in the inspection, test certificates & inspection reports duly accepted by the agreed Inspection agency shall be submitted in soft copy to BHEL-PEM. The same shall be reviewed by BHEL PEM and then, sent to NTPC for clearance. The dispatch clearance (MDCC) by NTPC/ BHEL as applicable shall be given to the foreign supplier or representative in India after acceptance of above test certificates and photographs as per above.
23.	Material Dispatch Clearance Certificate (MDCC) Issuing Agency	MDCC shall be issued by BHEL only after receipt from NTPC. It is the responsibility of vendor to furnish all requisite documents like Material Test Certificates, Inspection Reports etc. required for obtaining of NTPC MDCC by BHEL
24.	Mandatory Spares	Delivery of mandatory spares shall be as per NIT

25.	Construction Facilities to Vendor	Construction Power: Construction Power is chargeable as per customer contract which can be provided at single point source post establishment of Construction Power grid by PSWR. Further distribution is to be done by concerned vendor. Construction water: Construction water is not available within project premises. Therefore, construction water is to be arranged by vendor.
26	Storage Infrastructure by Vendor	For Turnkey packages: Space for office will be provided free of charge as per availability in consultation with customer.
26A	Storage Infrastructure by Vendor	For Turnkey packages (Fuel Oil Handling and Storage System, Compressed Air System, Air conditioning System, Ventilation system, DM Plant, Condensate Polishing Unit, Pretreatment Plant, Mill Reject System, Effluent Treatment Plant and Sewage Treatment Plant packages) (a) Vendor shall compulsory make covered storage shed of minimum size of 15 feet x 15 feet for storage of valuable Electrical/ Electronic items/ Instruments etc. (b) Vendor shall compulsory make office of size 10 feet x 10 feet for site Engineer/ Staff along with facility of Computer/ Laptop/ Printer for protocol preparation and submission to BHEL. (c) Alternately, vendor can provide container of suitable size for above purpose, i.e. (a) and (b).
26B	Storage space by BHEL	For Turnkey package supplies - BHEL shall provide the 1 no. closed storage shed for C&I and critical items storage free of charge. Mandatory spare of Turnkey package shall be stored in BHEL provided close storage shed.
27.	Safety Officer and Quality Engineer by Vendor	For Turnkey packages, vendor shall deploy one number Safety Officer and one number Quality Engineer during total E&C period. In case of failure of above, BHEL shall deploy it and appropriate charges shall be deducted from vendor due payments. The charges for Non-deployment of Safety officer and Quality Engineer is Rs. 50,000.00 per man-month for each staff. This charge amount is exclusive of GST
28.	Packing Identification & Marking [If not specified in NIT]	Each box shall be marked with Capital Letters in "Red" indicating the PEM SUPPLY (Main Supply/Commissioning Spares/Mandatory Spares) for 2 X 800 MW NTPC LARA STPS Stage-II – II project. NOTE: Main supply item and items for commissioning spares must be packed separately. Each package delivered under the Contract shall be marked by supplier and such marking must be distinct and in English language (all previous irrelevant markings being carefully obliterated). Such marking shall show the description and quantity of contents, the name and address of consignee, the Gross weight and Net weight of the package, the name of the Supplier, PEM P.O. reference number, with a distinctive number of mark sufficient for purposes of identification. Besides above necessary, packing shall bear a special marking 'TOP', 'BOTTOM', 'DO NOT TURN OVER', 'KEEP DRY', 'HANDLE WITH CARE', etc

		IMPORTANT: - - Two copies of respective standard manufacturer's erection instruction/operation instruction manual shall be kept in each package / container for immediate reference by BHEL site and same shall be reflected in packing slip also. - The Packing list details for the consignment must be put inside the Box/Boxes. Items like pumps, Valves, Hoists, Cranes etc shall essentially have O&M Manuals and E&C guidelines duly enclosed in the packing box. Certificate to such effect shall also be reflected in packing slip. Mandatory spares shall be properly packed separately in separate box painted in Red, indicating Mandatory Spares in bold letters and each spare shall be properly tagged giving details i.e. item number of the equipment in line with the CUSTOMER approved BBU for Mandatory spares & Number per item (to match the description given in the packing slip) to facilitate their- proper identification by end customer/ BHEL Site. One Copy of Packing list must be put inside the Box along with Manufacturing drawing no. reference, Catalogue reference etc.
28.	Submission of Final Drgs/ Docs along with O&M Manual, Type Test Certificates (if any)	No. of O&M Manuals As per applicable GCC / Tender documents/Kick-off meeting. If not specified anywhere, Vendor to submit final approved O&M Manual in 12 Hard copies and 4 No of CD ROMs/DVDs/Pen drive.

	Prepared by	Checked / Reviewed by	Approved by
Name	Netrapal Singh	Awadhesh Singh	GC Thakur
Designation	Manager/ PG-I-1	Sr. Manager & SH-2/ PG-I-1	Sr DGM & DH/ PG-I-1
Signature			

Enclosures

Annexure 1 – Format of packing list/shipping list for QR code generation as per SCC Clause no. 14

ANNEXURE-1

SN O	Cust omer	Contract No	Type	PG MA	P G M A D	DU Des	Dis patch Qty.	Unit	BB U No.	BB U S no	Box N o.	Packing List No.	Material Required For (Set1/ Set-2)	NS	Remarks
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	NTPC	CS-9 587-001 R-2-FCN OA-7332, dtd 29.08.23	<BOI *> <*BHEL shall indicate whether item is BOI or BHEL Inhouse manufacture >	<Vendor to fill Bill of Materials Code>	BH EL PSP EM NOI AD	<Vendor to fill up Item wise description>	<Vendor to fill up Dispatch quantity>	<Vendor to fill up UOM>	to fill up BBU No. provided by BH EL>	<Vendor to fill up BBUNo . provide d b y BHE L>	<Vendor to fill up box no.>	<Vendor to fill up Packing list number>	Vendor to indicate Material is for Unit-1 o r Unit-2	<Nature of Supply : Vendor to indicate whether Item is Main supply or mandatory spares >	Remarks if any
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