

PART-'B'

TECHNICAL SPECIFICATION OF MOBILE CRANE



TECHNICAL SPECIFICATION OF MOBILE CRANE

PSNR, NOIDA

Rev 00

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PART A:

1. INTRODUCTION

This specification stipulates the requirement of Design, Engineering, Manufacturing, Assembling, Inspection, Delivery, proper packing and painting, Erection, Commissioning and testing of **30MT Rough Terrain (Tyre mounted) Mobile Hydraulic Crane [Telescopic Boom Crane]** and final handing over to customer, complete with all accessories as specified in the **scope of supply** and as required for the safe and trouble-free operation of equipment to be installed at site.

2. PROJECT INFORMATION

PROJECT	1 x FR5PA GTG OPEN CYCLE PLANT, CALABAR
CUSTOMER	GOVERNMENT OF CROSS RIVER STATE, CALABAR

The site is situated in Calabar, Cross River State Nigeria.

Nearest City: Calabar, Nigeria

Nearest Airport: Calabar

Nearest Port: TINCAN/APAPA

Rainy Season: June- September

3. DESIGN PARAMETERS OF CRANE

3.1 Design Parameters/Requirements of Rough Terrain Telescopic Boom Mobile Crane:

Description	Hydraulic Telescopic Boom Crane for Gas Turbine/ Associated Equipment maintenance
Quantity (No.)	1
Minimum Lifting Capacity (MLC)	30 MT (min load lifting capacity) at 3 meter radius. Site requirement to lift Note: Crane should be able to lift load 5 Tons @ 10m horizontal distance from lifting point & crane lifting hook at 10m height.
Minimum Crane Speed	25 km/hr on road (without carrying load)
Boom length extendable up to minimum length	25 meter
Operation and Access Area	The Access Path to the operation area is 6m wide.

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Ref Doc:
Crane Spec

Revision:

Refer to record of
revisions

Prepared :

(Santosh Kumar Verma)

Checked :

(Rakesh Khatri)

Approved :

(T S Saini)

Date :

19-10-2019



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Limitation	The operation area is also 6m wide. The crane should be able to approach the access area with all auxiliaries and operate to it's full capacity with fully extended outriggers in the available space.
Derricking Angle Range	Minimum angle: -2° or lesser angle Maximum angle: 60° or higher angle
Required Angle of Rotation With Load	240° minimum with MLC
Any other Standard Accessories	To be included and supplied by Bidder
Area Classification	Safe area
Boom Type	Telescopic
Power Transmission	Hydraulic
Driving & Operator Cabin	Standard cabin with maximum visibility for operation fitted with crane control safe load lifting visual indicator & lockable doors. Driving and operator Cabins shall be fitted with cabin light and ventilation.
Telescoping Time (Extension/Retraction)	Less than 120 seconds
Derricking Time (Lifting/Descending)	Less than 120 seconds
Slewing Speed Range	Hydraulic driven planetary gear box including spring loaded hydraulic released multiple disc brakes, slewing speed unladen 0-2 rpm (approx..)

3.2 Technical Details of Cranes:

Sl. No.	Description	Details
1.	Applicable Design Codes & Specifications: [Latest revision of the standards as on the date of enquiry shall be applicable.]	The crane shall comply with all applicable National and International standards and codes (IS, ASME, etc.) for material selection, design, erection and testing. The vendor shall submit the list of respective code compliances and deviations if any for BHEL review along with the bid document.

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14.	Safety devices	Safety valves for protection against pipe or hose rupture, which over hoist limit switch, automatic hydraulic cut off in case of over loading, slew locking during travel, auto steer reversal, safety – latch in hook.
15.	Chassis	Torsion resistant and rigid steel structure of side member construction.
16.	Outriggers	4 nos. steel fabricated, quick releases type hydraulic outriggers fitted for total safety.
17.	Engine	Suitable water cooled diesel engine of adequate HP.
18.	Gear box	Power shift gear box with adequate forward and reverse speed
19.	Drive Configuration	4x4x4; 4 Wheels, 4 wheel drive, 4 wheel steer
20.	Electrical system	Two 12 volt batteries. Batteries shall be suitable for stalling of engine and lighting of crane.
21.	Axle	Drive & Steer on Front & Rear axle
22.	Axle Suspension	As per supplier's standard manufacturer practice
23.	Hydraulic System	As per manufacturer Design.
24.	Control valves	Should be provided in sufficient Nos.
25.	Brake	Service -foot operated pneumatic/ hydraulic brakes Parking - Hand operated pneumatic/ hydraulic brakes
26.	Steering	Fully independent power steering. Fully hydrostatic two wheel steering. Auto steer reversal system
27.	Tyres	4 Nos. of suitable size and strength: Earth mover type.
28.	Safe load indicator	Automatic safe load indicator giving display of actual and maximum safe working load (at a particular radius) along with audible and visual warnings on approach to over load and cut off.
29.	Gradient	1 in 5(un laden) approx.
30.	Dimensions	Manufacturer to specify
31.	Lighting	Full lighting including turn indicator, head trail, brake and suitable for hazardous condition.
32.	Turning Radius	Max. 6 M with 4X4X4 condition

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3.3 Additional Details:

1.	Mandatory spares	Party should supply Mandatory spares required for One year preventive maintenance of crane (List to be enclosed along with offer). Party should supply standard tool kit also to routine maintenance of supplied crane.
2.	Documents required before dispatch:	Within 3 weeks of PO, vendor shall submit detailed QA plan along with design documentation indicating all the inspection and testing requirements of the unit for BHEL approval. (QAP for reference purpose is provided at Annexure-III). For inspection of crane at manufacturer's works advance intimation shall be given by the vendor to BHEL which shall not be less than 15 days prior to the date of inspection.
3.	Guarantee Requirements	Minimum 12 month from the date of commissioning or 18 months from date of dispatch of crane at site whichever is early. All replacements and repairs during the guarantee period shall be delivered and completed promptly and satisfactorily within a period of three months from the time of reporting the defect/ loss/ rejection etc.


3.4 Delivery Period:


The crane delivery period shall be 24 weeks at Mumbai Port from the date of placement of PO. Time extension shall be applicable as per BHEL discretion subject to LD provisions as per GCC.

3.5 Other Details:

- E-way bill/road permit for transportation shall be provided by Vendor.
- Transit insurance up to Mumbai port shall be in BHEL scope. Transit insurance policy details are furnished under SCC.
- Unloading of crane at Mumbai port shall be in the scope of BHEL.
- Instruction/Two day (as per requirement) training for Operation & maintenance should be provided during commissioning at site.

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<p style="text-align: center;">Notes:</p> <p>a) All Equipment including electrical shall be designed for ambient temperature of 50 Deg Celsius.</p>					
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COPY RIGHT AND CONFIDENTIAL The information on this document is property of BHARAT HEAVY ELECTRICALS LIMITED It must not be used directly or indirectly in any way detrimental to the interest of the company.	<p>4. SCOPE OF SUPPLY</p> <ol style="list-style-type: none"> a. One Number 30MT Rough Terrain Telescopic Boom Hydraulic Mobile Crane with all standard equipment and accessories including first fill oils. b. Standard and special Tools for crane maintenance. c. Essential Accessories (10 sets of engine filters and hydraulic filters of each size used). d. Document indicating the List for First fill of lubricants, greases, and consumables, etc. The vendor shall provide details indicating the quantity required for first fill and make up, schedule, vendor list, reference priced purchase orders for enabling BHEL/Cross River State, Nigeria customer to source these items and ensure compliance to crane operation and functional requirement. e. One set of commissioning spares. f. List for 1 Years O&M spares. g. Lubrication, Load and critical Schedule chart separately in laminated form – 3 copies. h. O&M manual and standard documents – 6 hard copies + 2 soft copies. i. List of latest contact details for after Sales Service Support. j. Performance Certificate k. Compliance Certificate for meeting all local statutory regulations in Nigeria. l. Factory inspection and Testing m. SONCAP compliance (if applicable). n. Necessary compliances and certificates to meet Nigeria local statutory and regulatory requirements. o. Factory Performance Test. p. All formalities related to custom clearance at Mumbai Port including submission of concessional forms, duty drawback etc. Vendor has to extend support to BHEL while obtaining clearances as and when required. q. Temporary registration of crane (if applicable) during transit of crane from vendor works to Mumbai Port. <p>5. SERVICES</p> <p style="text-align: center;">Refer Special Conditions of Contract for Services scope.</p>				
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	Part-B: <u>Detailed Technical Specification of Rough Terrain Mobile Hydraulic Crane</u> (use separate sheets with cross reference clause No. for providing detailed information)	<u>Bidder's compliance</u>
1.	Description: Rough Terrain Mobile Hydraulic Crane	
2.	Standard:- As per DIN EN/ISO/ANSI/BIS/BS Standard	
3.	Stability Rating: 75%	
4.	Critical Load to be handled by offered crane (240°slew minimum) a) Minimum 20 MT with basic boom at minimum radius. b) Minimum 5 MT at minimum 10m radius or above with load hook at 10m height. This requirement should be meet with supplied crane and accessories without any additional requirements. c) Minimum length of main boom required: 10m Length of the jib required: As per OEM standard, if applicable (Minimum length of main boom offered where jib shall be fixed must be 20m or more. All the accessories required for jib operation such as Winch, wire rope, fittings and all offsets etc. shall be supplied along with crane.) Note: For boom and jib combination, crane must have provision of erecting two hook simultaneously one each at boom and jib respectively whereas work shall be carried out only with one hook block at a time. Load chart for all combinations of boom and jib for this operation shall be provided.	
5.	Boom hoisting, slewing, main/aux. hoisting, travel drives etc.: All Hydraulic drives	
6.	Central & Main Ballast: Base Frame for full ballast to meet the offered load chart. Complete set of counter weights available for the offered crane must be supplied.	
7.	Engine: Turbo charged Water/Oil cooled diesel engine of adequate power, preferably CUMMINS/CATERPILLAR/DAIMLER	


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	25.	<p>Training: Necessary training for operation & maintenance shall be given to two end customer personnel (GOVERNMENT OF CROSS RIVER STATE, CALABAR) free of charge for 2 man weeks at manufacturer's works (if required by customer). Training modules should necessarily cover complete activity of operation and maintenance including the changes proposed to be done while increasing/decreasing the boom/jib length. Necessary arrangements for Customer personals stay during training period shall be not in Vendors scope.</p>			
	26.	<p>Drawing/Documentation: 6 hard copies + 2 soft copies of operation and maintenance manual along with equipment part list, shop manual (for bought out items) boom repair manuals of the same are to be submitted to BHEL during the time of delivery of the equipment. As built drawing with details of all the bought out items with make and model/part number also to be submitted along with the O&M manual.</p>			
	27.	<p>SONCAP: The Supplier must meet all statutory, regulatory, documentation, packaging and inspection requirement with respect to SONCAP requirement by Nigeria.</p> <p>Vendor must confirm that he is aware of SONCAP certification requirement for exporting his equipment to Nigeria and will comply to all such requirements.</p> <p>Fr5 GT, Calabar being a Nigerian project has got a statutory requirement for pre-shipment verification of all the goods that enter into the country and are assessed through a program named</p>			
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	<p>“SONCAP”. May refer to the link: http://son.gov.ng/soncap_service for further information on SONCAP.</p> <p>The following may be noted on this context and adhered to:</p> <ol style="list-style-type: none"> i. As part of this assessment program, there would be pre-packing & post-packing verification/inspection of all the equipment by a separate TPI (probably SGS/BHEL engineer). Scope of this SONCAP-TPI would be mainly targeted towards inspecting the type of item being dispatched and may not be much into the functioning of the equipment; but may be prone to inspection of the certification (TCs, MTCs, etc.). ii. This SONCAP-TPI inspection is in addition to the regular TPI which inspects the regular conformity & performance of our equipment. SONCAP-TPI does not waive the regular TPI requirement. iii. There is also a different set of requirements for packing, in addition to the sea-worthy packing. The list of packing requirements are detailed out by BHEL at Annexure – I 	
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IMPORTANT NOTE: -

- ***FOR MAKE OF ALL MAJOR COMPONENTS OF THE CRANE, BIDDERS MUST FILL THE ANNEXURE-V AND SUBMIT ALONG WITH THE BID, FAILING WHICH THEIR BID WILL NOT BE CONSIDERED FOR FURTHER PROCESSING.***
- ***THE MAKE OF MAJOR COMPONENTS AS COMMITTED BY THE BIDDER SHALL FORM PART OF PURCHASE ORDER WHICH WILL BE PLACED ON THE SUCCESSFUL BIDDER.***
- ***DURING INSPECTION OF THE CRANE, THE MAKE OF THE COMPONENTS, RELEVANT TEST CERTIFICATE FROM THE RESPECTIVE COMPONENT MANUFACTURER AND CO-RELATION WITH THE ACTUAL COMPONENTS USED IN THE CRANE SHALL BE CHECKED BY BHEL ENGINEER.***
- ***BIDDER MAY ALSO NOTE THAT, DURING INSPECTION NDT TEST RECORDS FOR WELDING OF BOOM, JIB, BODY OF THE CRANE ETC. VETTED BY THIRD PARTY AGENCY OF INTERNATIONAL REPUTE SHALL BE VERIFIED. 100% ULTRASONIC TESTING IS REQUIRED FOR WELDING OF MAIN FRAME OF BOOM & JIB ETC. AND ITS RECORD ALONGWITH NDT RECORD WILL BE VERIFIED.***
- ***BIDDER MAY ALSO PROVIDE DOCUMENTARY EVIDENCE WHEREVER APPLICABLE.***

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PART – C: ADDITIONAL REQUIREMENTS


1. BIDDER SHALL FURNISH THE LATEST DETAILED TECHNICAL LITERATURE AND CATALOGUE OF THE OEM FOR THE CRANE OFFERED. **BHEL RESERVES THE RIGHT TO TALLY THE SAME FROM THE OFFICIAL WEB SITE OF THE OEM & IF ANY DISCREPANCY IS FOUND IN TERMS OF BASIC CAPACITY ETC. THEN BIDDERS OFFER SHALL BE REJECTED OUTRIGHT.**
2. BIDDER SHALL FURNISH CRANE LOAD CHART AND CRANE RANGE DIAGRAM FOR ALL OPERATING CONDITIONS OF THE CRANE.
3. CRANE SHALL BE INSPECTED AND LOAD TESTED AT MANUFACTURER’S WORKS AS PER APPLICABLE STANDARD/NORMS AND AS PER **QUALITY PLAN** ATTACHED AS **ANNEXURE-III. BIDDER IS REQUESTED TO FILL UP THE QUALITY PLAN AND SUBMIT WITH THE OFFER.** THE BIDDER SHALL ALSO CONDUCT LOAD TEST AND OVERLOAD TEST OF THE CRANE AT MANUFACTURER’S WORKS IN PRESENCE OF BHEL/TPI INSPECTION ENGINEER. EXPENSES OF BHEL INSPECTION ENGINEER TOWARDS TO & FRO TRAVEL BETWEEN INDIA AND MANUFACTURER’S LOCATION, STAY AND LOCAL CONVEYANCE IN MANUFACTURER’S PLACE WILL BE BORNE BY BHEL. **FOR INSPECTION OF CRANE AT MANUFACTURER’S WORKS ADVANCE INTIMATION SHALL BE GIVEN BY THE VENDOR TO BHEL WHICH SHALL NOT BE LESS THAN 15 DAYS PRIOR TO THE DATE OF INSPECTION.**
4. **MANUFACTURER SHALL PROVIDE TRAINING FOR PERSONS OF GOVERNMENT OF CROSS RIVER STATE, CALABAR, NIGERIA FOR THE ORDERED CRANE ON OPERATION AND MAINTENANCE FOR 2 MAN WEEK DURATION AT MANUFACTURER’S PLACE (if asked by customer). TRAINING TO BE IMPARTED ON CONSTRUCTIONAL FEATURES, ASSEMBLY, PREVENTIVE MAINTENANCE, and TROUBLE SHOOTING, ELECTRICAL & CONTROL SYSTEMS AND HYDRAULIC SYSTEM ETC. THE SAME GOVERNMENT OF CROSS RIVER STATE, CALABAR OR BHEL ENGINEERS OR TPI MAY CARRY OUT THE INSPECTION OF THE CRANE AS STATED IN POINT NO. 3 ABOVE.**
5. **INSTALLATION AND COMMISSIONING (IF APPLICABLE FOR THE OFFERED MODEL) OF CRANE AT CALABAR, NIGERIA WILL BE DONE UNDER SUPERVISION OF COMPETENT ENGINEER OF THE CRANE MANUFACTURER. LOAD AND ACCEPTANCE TEST SHALL BE CARRIED OUT AFTER ASSEMBLY AND COMMISSIONING OF CRANE IN THE PRESENCE OF ENGINEERS FROM SUPPLIER and BHEL/CROSS RIVER STATE, CALABAR, NIGERIA. AT CALABAR NIGERIA, LOAD TEST SHALL BE CARRIED OUT WITH MAXIMUM AVAILABLE LOAD/LOADS ACCORDING TO THE CRANE CAPACITY**

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COPY RIGHT AND CONFIDENTIAL The information on this document is property of BHARAT HEAVY ELECTRICALS LIMITED It must not be used directly or indirectly in any way detrimental to the interest of the company.	<p>CHART SUBMITTED WITH THE TECHNICAL BID. BHEL/GOVERNMENT OF CROSS RIVER STATE, CALABAR WILL TAKE OVER THE CRANE AFTER SUCCESSFUL COMPLETION OF SUCH TESTS WITH SIGNING OF COMMISSIONING PROTOCOL.</p> <p>6. ESSENTIAL ACCESSORIES: SUPPLIER SHALL SUPPLY TEN SETS OF ALL THE FILTERS, WITH 2 YEARS OF SHELF LIFE AT THE POINT OF DESPATCH, FOR VARIOUS SYSTEM OF THE CRANE. THESE TEN SETS SHALL BE IN ADDITION TO ONE SET ASSEMBLED AS PART OF THE CRANE. BIDDER SHALL FURNISH THE LIST OF SUCH ITEMS INDICATING DESCRIPTION, MAKE ALONGWITH PART NUMBER, AND QUANTITY OF THESE ESSENTIAL ACCESSORIES IN THEIR TECHNICAL BID. BIDDERS TO NOTE THAT THE TOTAL COST FOR PRICE COMPARISON BETWEEN DIFFERENT BIDDERS WILL INCLUDE THIS ALSO.</p> <p>7. SUPPLIER SHALL DELIVER A BRAND NEW PRODUCT WITH LATEST AND IMPROVED FEATURES. SUPPLIER SHALL SUBMIT AS A PART OF THE DELIVERY/DISPATCH DOCUMENT A CERTIFICATE CONFIRMING THAT THE SUPPLIED GOODS ARE NEW.</p> <p>8. SERVICE SUPPORT OF THE EQUIPMENT UNDER PURCHASE IS OF UTMOST CONCERN. BIDDER SHALL ELABORATE ON THE SERVICE NETWORKS AND SPARE PARTS AVAILABILITY, WHICH SHALL ENSURE MAINTENANCE OF THE EQUIPMENT AFTER INITIAL COMMISSIONING AND COMPLETION OF WARRANTY PERIOD. IN CASE SPARE PARTS STOCKING FACILITIES ARE NOT AVAILABLE IN NIGERIA, BIDDER SHALL INDICATE THE MAXIMUM TURNAROUND TIME IN MAKING SUCH SERVICES AVAILABLE AT CALABAR, NIGERIA.</p> <p>9. THE EQUIPMENT TO BE OFFERED SHOULD BE OF ROBUST DESIGN AND SUITABLE FOR OPERATIONS IN CALABAR, NIGERIA (TROPICAL) CLIMATE, COASTAL SALINE ATMOSPHERE, AMBIENT TEMPERATURE OF UP TO FIFTY DEGREE CELSIUS (50 °C) AND DUSTY ATMOSPHERIC CONDITION. THE ELECTRICAL, CONTROL SYSTEM AND PAINTING SHALL BE SUITABLE TO WITHSTAND SUCH ADVERSE TROPICAL CLIMATIC CONDITIONS.</p> <p>10. WITH THE CRANE, THE SUPPLIER SHALL DELIVER ONE SET OF TOOL BOX CONTAINING TOOLS & TACKLES LIKE SPANNERS, SCREW DRIVERS, ALLEN KEY AND ANY SPECIAL PURPOSE TOOL(S) THAT ARE ESSENTIAL FOR ASSEMBLY/ERECTION/DISMANTLING OF THE CRANE IN A METALLIC TOOL BOX.</p>				
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MONTHS FROM THE DATE OF DESPATCH FOR SUPPLIERS OR 12 MONTHS FROM THE DATE OF COMMISSIONING/ COMMERCIAL OPERATION OF THE CRANE AT CALABAR, NIGERIA, WHICHEVER IS EARLIER. BIDDER SHALL SUPPLY ALL THE SPARES REQUIRED DURING WARRANTY PERIOD FREE OF COST. A TENTATIVE UN-PRICED LIST OF SUCH WARRANTY SPARES SHOULD BE ENCLOSED WITH TECHNO-COMMERCIAL OFFER. **THE WARRANTY ON SUB SYSTEMS LIKE PRIME MOVER, HYDRAULIC PUMPS ETC ARE TO BE CARRIED FORWARD BY CRANE MANUFACTURER FOR THE PERIOD OF WARRANTY OFFERED BY THE RESPECTIVE SUB SUPPLIERS OR FOR CRANE WARRANTY PERIOD WHICHEVER IS LATER. (THE LIST OF SUCH ITEMS AND THE RESPECTIVE EXTENDED WARRANTY PERIOD OFFERED BY SUB SUPPLIERS NEEDS TO BE BROUGHT OUT IN THE OFFER EXPLICITLY)**

20. Quality Assurance Provisions

a. General

The equipment specified herein shall be designed and supplied by the manufacturer to meet the conditions of sound engineering, economy of manufacture and procurements of spare parts. The entire assembly shall be guaranteed to be free of all defect in design, materials and workmanship.

b. Responsibility for Test and Inspections

The vendor is responsible for the performance of all test and inspection requirements. The supplier may utilize his own facilities or any commercial laboratory acceptable to BHEL. BHEL, in addition, reserves the right to perform any of the required inspections and tests where such inspections and tests are considered necessary to assure that the items supplied conform to the requirements of this specifications. All tests and inspections shall be conducted in accordance with ANSI/ASME B31.3 or applicable national/international standard and shall record pertinent data reliably and accurately, so as to permit proper evaluation of inspection and test results by BHEL.

c. Quality Assurance Plan

Within 3 weeks of PO, vendor shall submit detailed QA plan along with design documentation indicating all the inspection and testing requirements of the unit for BHEL approval. (QAP for reference purpose is provided at Annexure-III)

21. Testing and inspection

i. Performance test and inspection requirements


In order to indicate conformity with this specification and to qualify the system for acceptance by BHEL, the system shall be tested as follows:


ii. Inspection

Functional check of all instruments. Verify the assembled equipment, wiring confirms to the approved schematic and electrical drawings. Verification of test certificates, CCOE

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COPY RIGHT AND CONFIDENTIAL The information on this document is property of BHARAT HEAVY ELECTRICALS LIMITED It must not be used directly or indirectly in any way detrimental to the interest of the company.	<p>certificates of all components. Calibration of all the flow, temperature and pressure gauges, switches as applicable shall be checked. All pressure and temperature switches shall be set and verified for the settings specified in the ordering spec / approved drawings. All the equipment assembled on the skid shall be checked and verified with the nameplate & approved drawings/datasheets.</p> <p>iii. <u>Factory test</u> Before the mobile crane unit is shipped, the vendor shall perform whatever test necessary to demonstrate that the system has been properly assembled and that all components are functioning correctly. The vendor shall furnish to BHEL, a factory test procedure for the system for BHEL approval. The factory test procedure shall include a description of the tests to be run and the results expected. The vendor to notify BHEL at least 15 days in advance of the date the tests are to start so that the tests will be witnessed by BHEL / BHEL TPI.</p> <p>iv. <u>Hydrostatic test</u> The pressurized components in the crane shall be hydro tested. The piping/hose system shall be pressurized to 150% of the design pressure for a 30-minute period after closing all gauge valves. While under pressure, carefully inspect all piping, connection and joints for leakage and note any drop of pressure during the period. Hydrostatic test shall be conducted in accordance with ANSI B31.3.</p> <p>v. <u>Flushing</u> The equipment shall be completely inspected and if necessary cleaned prior to flushing. The crane shall be flushed to verify it is clean, both up-stream and downstream of any filters. The crane shall be flushed and cleaned dry before dispatch of equipment.</p> <p>vi. <u>Mechanical Run & Load Test</u> Mechanical run test to be performed as per BHEL approved test procedure and BHEL approved quality plan to check the operation of the crane and associated equipment/devices.</p> <p>22. <u>DOCUMENTATION SUBMISSION & INFORMATION BY VENDOR:</u></p> <p>22.1 Along with offer, the following documentation essential for technical review and acceptance. The technical offer is likely to be considered inadequate if the data provided is not in compliance with the below. In such cases, at the discretion of BHEL, the offer may be disqualified. Schematic drawing for total system; BOM with makes, model numbers</p>				
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f) O & M manual:

Vendor shall furnish 6 print copies and 2 soft copies (in the form of CDs) of O & M manuals (per project) containing all O & M instructions, all approved drawings & data sheets, sub-vendor catalogues, approved quality plan and technical information, test reports, O & M instructions, DO's & DON'Ts, warnings, spares list etc. One number of O & M manual soft copy (in the form of CD) shall be submitted for approval by engineering before supplying the final O & M manuals. O & M manuals must be submitted along with each of the supplies (as part of main supply) and completion of supplies will be treated accordingly.

23. PREPARATION FOR DELIVERY:

23.1 Preservation:


The supplier shall ship the equipment prepared for storage for up to 2 years. If there are any requirements for the equipment to be stored for this period of time, the requirements shall be documented and provided on the exterior of the crane/shipping crate as applicable. The equipment may be stored outside in the same ambient conditions listed in this functional specification.

23.2 Packing:

- 23.2.1 The shipping containers are expected to be put in open environment at site for 2 years before taken for erection. Packing to be done accordingly to avoid any damage/malfunctioning of the components in the shipping containers.
- 23.2.2 The supplier shall make shipment using minimum number of shipping containers consistent with the requirements of safe transit, available modes of transportation and routing. It shall be the vendor's responsibility to determine that packing as done is adequate to assure that all equipment shall arrive at destination in an undamaged condition and ready for its intended use.
- 23.2.3 Packing shall be done as per BHEL specification at Annexure-I. Vendor shall submit packing details, if any for all equipment for BHEL approval.
- 23.2.4 Lifting points shall be clearly marked on each of the containers.
- 23.2.5 When more than one shipping container is required, the vendor shall provide suitable container markings for recognition of parts of one unit. Complete assembly instructions shall be included with each such shipment.
- 23.2.6 All shipping containers shall be identified in accordance with the purchaser's instructions furnished by the purchasing office at the time of shipment.

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Sl. No.	Description	Quantity	Unit	Assembly drawing no.	Package No.	Total weight (in KGs)	Package size (in meters)		
							L	W	H
1									
2									
3									

23.4 Shipment:

23.4.1 For specific shipping instructions, see purchase order or quotation request. Approval for shipment must be obtained from the BHEL purchasing department. Shipment shall be done for the complete scope of supply as required for installation of the complete unit.

23.4.2 Spare parts:

The vendor shall supply one set of commissioning spares and essential accessories as indicated in this document. These items are part of main supply. Same shall be marked and packed and noted in BOM.

24. NOTES:

24.1 Vendor's responsibilities:

It shall be the vendor's responsibility to furnish, when requested by the BHEL information, advice & design assistance. The vendor will be furnished with all the information needed in order to perform the required design work. When a field test of the mobile crane is to be conducted utilizing the equipment defined by this specification, the vendor shall provide technical assistance as required and if needed, a representative at the site to assist with the tests. It is expected that the vendor's representative will work with BHEL representative in a spirit of co-operation until the test results show the system to be satisfactory.

24.2 Configuration control:

24.2.1 The manufacturer shall make no changes to approved drawings without the permission of BHEL engineer. Review/approval of documents & data by BHEL shall not relieve the vendor from its responsibilities of compliance with all applicable codes, regulation standards, good engineering practices

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(Santosh Kumar Verma)

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(Rakesh Khatri)


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<p><u>NOTE:</u></p> <p>The following information shall be part of tender enquiry:</p> <ol style="list-style-type: none"> 1. The tenderers shall also submit following information along with the technical bid: <ol style="list-style-type: none"> a) Gross/Net Weight of Equipment in Kgs b) Volume of Cargo in packed conditions in CBM/Freight-Tons c) No. of packages and their individual weight/Vol.in MKS system, along with tentative shipping list. 						
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25. ADDITIONAL TENDER DOCUMENTS:

Refer Annexures for Other Tender Requirements:

S.No.	Document Description	Doc No.	Rev No.
1.	PACKAGING INSTRUCTIONS	ANNEXURE – I	00
2.	PRE QUALIFICATION CRITERIA (PQR) FOR PARTICIPATING IN THE TENDER	ANNEXURE – II	00
3.	QAP (for reference)	ANNEXURE-III	00
4.	DETAILS OF SUPPLIES MADE FOR THE LAST FIVE YEAR PERIOD	ANNEXURE-IV	00
5.	MAKE OF MAJOR COMPONENTS OF THE QUOTED CRANE	ANNEXURE-V	00
6.	TENDER DRAWING / SKETCH FOR PROPOSED CRANE USAGE.	ANNEXURE-VI	00
7.	UNPRICED SCHEDULE	ANNEXURE-VII	00

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Ref Doc: Crane Spec	Revision: Refer to record of revisions	Prepared : (Santosh Kumar Verma)	Checked : (Rakesh Khatri)	Approved : (T S Saini)	Date : 19-10-2019
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