



Bharat Heavy Electricals Limited

(High Pressure Boiler Plant)

Tiruchirappalli – 620014, TAMIL NADU, INDIA

CAPITAL EQUIPMENT / MATERIALS MANAGEMENT

An ISO 9001
Company

ENQUIRY

NOTICE INVITING TENDER

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Email : tvenkat@bheltry.co.in

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TWO PART BID

Tender to be submitted in two Parts

Enquiry
Number:

2851300007

Enquiry
Date:

24.08.2013

Due date for submission of
quotation:

07.10.2013

You are requested to quote the Enquiry number date and due date in all your correspondence. This is only a request for quotation and not an order.

Please note that under any circumstances both delayed offer and late offers will not be considered. Hence vendors are requested to ensure that the offer is reaching physically our office before 14.00 hrs on the Date of tender opening.

Item	Description	Quantity	Delivery Schedule
10	20T Battery Operated Powered Trolley as per the technical specification & commercial conditions applicable (to be downloaded from web site www.bhel.com or http://tenders.gov.in)	8.00 Nos	31.01.2015
20	20T Battery Operated Powered Trolley as per the technical specification & commercial conditions applicable (to be downloaded from web site www.bhel.com or http://tenders.gov.in)	3.00 Nos	4 Months from date of PO

Important points to be taken care during submission of offer

1. Checklist No. BND/IND/05 and to be filled and enclosed along with the offer failing which, the Offer will not be considered for evaluation.
2. Material shall be delivered to
 - For Item SI.No.10 (8 Nos.): FOR, BHEL Stores, POWER EQUIPMENT FABRICATION PLANT, BHARAT HEAVY ELECTRICALS LIMITED, Mundipar- 441804, Taluka: Sakoli, District: Bandara, Maharashtra State.
 - For Item SI.No.20 (3 Nos.): FOR ,BHEL Stores, HIGH PRESSURE BOILER PLANT, BHARAT HEAVY ELECTRICALS LIMITED, Tiruchirappalli- 620014, Tamilnadu State.
3. Offer shall be evaluated both items (SI.Nos.10 & 20) as a Single Package (over all L1 basis). Hence, both items should be quoted without fail any, otherwise your offer will not be considered
4. Erection & Commissioning period required 2 Weeks for Item SI.No.10 (8 Nos.) and 1 week for Item SI.No.20 (3 Nos) from the date of intimation by BHEL to Vendor for deputation of their Engineers for E&C.
4. EMD for this Tender will be (₹) : 2,00,000.00
5. All updates, amendments, corrigenda, etc., (if any), for each tender will be posted only on the above websites from time to time, as and when required, until each tender is opened. There will be no publication of such updates, amendments, corrigenda, etc., through newspapers or any other media.

BHEL's General guidelines / instructions (refer MM / CE / GENL / 001 - EMD) including bank guarantee formats and list of consortium banks, commercial terms check-list can be downloaded from BHEL web site <http://www.bhel.com> or from the Government tender website <http://tenders.gov.in> (public sector units > Bharat Heavy Electricals Limited page) under Enquiry reference "2851300007".

Tenders should reach us before 14:00 hours on the due date
Tenders will be opened at 14:30 hours on the due date
Tenders would be opened in presence of the tenderers who have submitted their offers and who may like to be present

Yours faithfully,
For **BHARAT HEAVY ELECTRICALS LIMITED**


Sr. Manager / Capital Equipment / MM

PART A.**SECTION-I: -QUALIFING CRITERIA**

The BIDDER/VENDOR (OEM) has to compulsorily meet the following requirements to get qualified for consideration of the technical offer for the SUPPLY OF Battery powered transfer car

S. No.	PARTICULARS	VENDOR'S RESPONSE
1.0	Only those Bidder/vendor (OEM), who have supplied and commissioned at least ONE 20 Ton capacity Battery Powered transfer car in the past five years should quote.	
2.0	Vendor to submit Performance certificates along with their offer from minimum two of their customers for satisfactory performance of 20T Capacity Battery powered Transfer car supplied to them and are working satisfactorily for a minimum period of one year after commissioning (as on the date of opening of Tender). Suggestive format is given in the annexure.	
3.0	The vendor should have minimum 10 years experience in design, fabrication and supply of Battery operated transfer car. Actual experience of the vendor can be specified	
4.0	BHEL reserves the right to verify the information provided by vendor. In case the information provided by vendor is found to be false/ incorrect, the offer shall be rejected.	

PART A.**SECTION – II**

The vendors are requested to provide the following details

S. No.	PARTICULARS	VENDOR'S RESPONSE
5.0	Number of Battery operated transfer cars supplied, installed and commissioned till date	
6.0	Number of Battery operated transfer cars supplied, installed and commissioned till date in the QUOTED MODEL	
7.0	Details on SERVICE-AFTER-SALES Set-Up in India including the Addresses of Agents / Service Centre in India and Asia	
8.0	Any Additional Data to supplement the manufacturing capability of the BIDDER for the subject equipment.	

PART A.

PERFORMANCE CERTIFICATE

(On Customer's Letter Head)

1. Supplier of the Equipment :
2. Make & Model of the Equipment :
3. Month & Year of Commissioning :
4. Application :
5.
 - a) Transfer car Type:
 - b) Transfer car Capacity (Metric Tonnes):
 - c) Transfer car Dimensions :
6. Performance of the Equipment : Satisfactory /
(Strike off whichever is not applicable) Good /
Average /
Not Satisfactory
7. Any other remarks:

Date:

Signature & Seal of the Authority
Issuing the Performance Certificate

**TECHNICAL SPECIFICATION FOR BATTERY POWERED TRANSFER CAR
[CARRYING CAPACITY : 20 Tons]**

S.No.	PARTICULARS	BHEL SPECIFICATIONS	VENDOR's OFFER
1.0.0	APPLICATION	<p>a. The proposed Transfer Car is intended for material handling within a large and heavy fabrication industry, on steel rails embedded in the shopfloor.</p> <p>b. The Transfer Car will be put to use for continuous duty [three shifts in a day and for all the 365 days in an year].</p> <p>c. The shopfloor environment will be dust prone, humid, welding fume filled and ambient temperature going upto 50° C.</p>	
2.0.0	SCOPE OF SUPPLY	<p>a. Design and Manufacture as per BHEL Tender Specifications.</p> <p>b. Assembly and Running Test before Despatch, at Supplier's Works.</p> <p>c. Supply in Modules / Sub-Assemblies</p> <p>d. Commissioning and Performance Prove-Out at BHEL Works</p> <p>e. Mechanical & Electrical Spares</p>	
3.0.0	TECHNICAL SPECIFICATIONS		
3.1.0	Capacity	20,000 kgs. [20 Tons]	
3.2.0	Rail Track Gauge	1676 mm [Broad Gauge]	
3.3.0	Trolley Platform Length	4500 mm	
3.4.0	Trolley Platform Width	2500 mm	
3.5.0	Height from Rail Level	900 mm [Loading Platform Level]	
3.6.0	No of Axles	Two	
3.7.0	Wheel Tread Diameter	500 mm	
3.8.0	Motor	DC SERIES MOTOR 3.5 HP 1700 RPM 36V	
3.9.0	Haulage Speed	Upto 30 mtrs. / min.	

S.No.	PARTICULARS	BHEL SPECIFICATIONS	VENDOR's OFFER
4.0.0	CONFIGURATION & CONSTRUCTION		
4.1.0	Basic Design	The transfer car shall be configured to run on BG [Broad Gauge] track with a sturdy steel structure, powered with a suitable DC motor (in conjunction with a gearbox and battery) and provided with controls, operator console, battery charger, etc., as per the details given under the following clauses.	
4.2.0	TRANSFER CAR CARRIAGE	<ul style="list-style-type: none"> a. The under frame shall be fabricated out of steel rolled beams and sections by welding. b. The top shall be covered with steel plates of adequate thickness (not less than 8 mm) to withstand load capacity of the transfer car. c. The main members shall be adequately reinforced to withstand shock loads encountered in service. 	
4.2.1	Raw Material	<ul style="list-style-type: none"> a. Only steel plates, tested and certified for quality by reputed inspection authorities, shall be used. b. Test Certificates to be produced for BHEL verification and form part of the documentation. 	
4.2.2	Welding Electrodes	<ul style="list-style-type: none"> a. For all Horizontal Welding E 7018 Electrode only should be used. b. For all Vertical Welding E 7048 Electrode only should be used. 	
4.2.3	Welded Joint Testing	All Butt Welded Joints (if carried out/though not preferred by BHEL) shall be subjected to 100% X-Ray Testing and X-Ray Films to be produced for BHEL evaluation and form part of the documentation.	
4.2.4	Bottom Clearance	The bottom most part of the components mounted under the trolley carriage shall have a minimum ground clearance of 100 mm.	
4.2.5	Suspension system	The transfer car frame shall rest on the axle box through a suspension system with helical coil springs to eliminate shocks being transferred from rail to the under frame during operation.	
4.2.6	Battery Compartment	Battery compartment shall be protected from damage using guard plates	
4.2.7	Attachments	The below listed attachments are to be compulsorily provided with the Transfer Car.	
4.2.8	Buffers	Two each of spring-loaded buffers with rubber pads shall be provided at both ends of the transfer car.	
4.2.9	Coupler	Hook type couplers are to be provided at both ends, for shunting purposes.	

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4.2.10	Lifting Hooks	Adequate number of lifting hooks shall be provided for transporting / lifting the transfer car by means of overhead cranes	
4.2.11	Side Supports	3 Nos. of support pockets with inside dimension of 75mm x 75 mm shall be provided on each side of the trolley to accept side-support pipes	
4.3.0	DRIVE SYSTEM	<ul style="list-style-type: none"> a. The drive shall consist of DC Series motor coupled to the totally enclosed gearbox and drive the wheel through axle-mounted heavy duty gearbox. b. Motor & Gearbox to be mounted on the same frame. c. Suitable arrangement may be provided to avoid damage to motor & gearbox assembly due to jerking at start & stop. d. The power to the motor shall be supplied from the batteries mounted on the trolley itself. 	
4.3.1	Motor	<ul style="list-style-type: none"> a. DC Series motor of suitable capacity having adequate starting torque shall be used. b. The motor shall be totally enclosed. c. The speed control shall be through armature resistance control. d. Three-step speed in either direction shall be provided. e. DC magnetic brake shall be provided. 	
4.3.2	Traction Motor Make	Motor make shall be of reputed make. BIDDER to specify make and rating.	
4.3.3	Track Rail Size	ISR 90 Lbs./Yard	
4.3.4	Brake	Fail safe electro-magnetic brake shall be provided for instantaneous stopping.	
4.3.5	Gear-Box	<ul style="list-style-type: none"> a. The gearbox casing shall be fabricated out of steel plates. b. The housing shall be stress relieved after fabrication to eliminate the internal stresses developed during welding and also to maintain the dimensional accuracy in service. c. The housing shall be of split design to facilitate easy assembly & maintenance d. The mating joint faces shall be of accurate finish, blue matched & lapped together to ensure leak proof joint. e. The gears shall be made out of alloy steel forging. f. The gear tooth size and face width shall be ample design with adequate factor of safety for severe shocks while in service during stall condition of motor as while braking under load. 	

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4.3.6	Wheel and Axle	<ul style="list-style-type: none"> a. Cast steel wheels as per IS 2707 Gr II of defect free and finish machined on running tread, flange and bore shall be provided. b. The tread shall be induction hardened to 300 to 350 BHN. c. Axles shall be of forged steel. 	
4.4.0	CONTROL SYSTEM	<ul style="list-style-type: none"> a. DC Motor shall be used with resistance for speed and torque control. b. The resistance value shall be selected so that the motor delivers required torque while starting and current is kept within the permissible safe limit. c. Heavy-duty electro magnetic contactors shall be used to include and remove the resistance in the circuit. d. The control shall be by push buttons mounted in the control console. e. The driver console shall be provided with cover and lock and key to avoid unauthorized operation. 	
4.4.1	Main Control	Master controller with Dead-Man handle mounted at the driver's platform at one end of the trolley.	
4.4.2	Remote Control	Pendant type hand held Remote Control Unit with 5 mtr. long cable with quick-fix end connectors.	
4.5.0	BATTERY	<ul style="list-style-type: none"> a. Battery shall be accommodated in the transfer car suitably for easy maintenance, charging & replacement. b. Battery shall be Iron clad, heat sealed polypropylene classic motive power battery and assembled in steel trays duly FRP lined, including inter cell connectors, terminal take off, charging socket and harness, complete with all components, conforming to IS: 5154 of 1980 & Amendment-1. 	
4.5.1	Battery Charging	Supplier shall charge the battery at site. Sufficient quantity of electrolyte and suitable Charger shall also be supplied along with the battery.	
4.5.2	Battery Power Rating	36V DC, 300 AH 5 Hr rating Storage Type, Traction Duty, Ni-Cd maintenance free Battery	
4.5.3	Battery Make	Storage Battery shall be of internationally reputed make only. BIDDER has to specify make & power rating of the Battery.	

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4.6.0	BATTERY CHARGER	Suitable for 36 V, 300 AH Ni-Cd maintenance free Battery. Charger shall have the following features : a. Constant current equalizing facility with auto cut-off. b. Protection for reverse battery, over current and short circuit. c. Free standing, self – compensating, and 100% automatic charging. d. Charging current and charging voltage indication. e. On delay start.	
4.6.1	Input Electric Power	The battery charger shall be suitable for input electric supply through a 415VAC \pm 10%, 50Hz \pm 3% from 3 Phase, 3 Wire System. [No neutral conductor]	
4.6.2	Power Cable	10 mtr. long charging cable of adequate size, with end connectors, shall be supplied	
4.7.0	SAFETY PROTECTIONS	The following safety protections shall be compulsorily provided: 1. Overload Protection. 2. Short Circuit Protection. 3. Dead Man Control. 4. Key Switch. 5. Hooter. 6. Charger Isolation. 7. Reverse Interlock. 8. Over Speed Protection. 9. Emergency Stop.	
4.8.0	SURFACE CLEANING	All the fabricated parts shall be de-rusted and degreased (by shot blasting or chemical treatment for surface cleaning), after completion of all operations but prior to painting.	
4.9.0	PAINTING	The Steel fabricated parts are to be painted as follows : a. One coat of Primer with 25 microns of DFT (Dry Film Thickness) and 48 hours of compulsory curing after painting. b. Two coats of Enamel Paint (Colour – Golden Yellow) each with a DFT of 25 microns and intermittent curing of minimum 16 hours. c. The front and rear portions shall be painted yellow and black strips.	

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5.0.0	SPARES	The BIDDER has to compulsorily list down the Mechanical, Electrical and Electronic Spares with Unit Rate, which are to be procured for three years of continuous operation of the Transfer Car with the Remote Control Unit.	
6.0.0	DOCUMENTS/DETAILS for APPROVAL	The following documents and details are to be submitted for BHEL Approval, prior to taking up the manufacture of the Transfer Car.	
6.1.0	Drawings and Documents	<ul style="list-style-type: none"> a. GA Drawing of the Transfer Car / Trolley. b. Trolley Dimensional Drawing. c. Sub-Assembly Drawing for Wheel & Axles, Gear Boxes, etc. d. Calculations for Selection of Electric Motor and Gear-Box. e. Electrical Drawings. f. Schematic Drawing of Trolley Controls. g. Battery Charger Schematic Drawing. h. Total Weight of the Transfer Car including all Electrical Equipment. 	
7.0.0	O & M MANUALS	<p>Each Transfer Car shall be provided with</p> <ul style="list-style-type: none"> a. Complete set of Tools required for Operational Maintenance, b. 3 Copies of Operation & Maintenance Manual hard copy & one soft copy in CD, [containing the following technical details, given under Clause Sl. No. 7.1.0] 	
7.1.0	Drawings & Details	<ul style="list-style-type: none"> a. Trolley General Arrangement Drawing b. Assembly Drawing for Wheel & Axle, Gear-Box Assembly, etc. c. Electric Wiring Schematics d. Detailed Wiring Diagram for Sub-Systems / Control Panels e. Battery Charger Schematic Drawing. f. Specifications / Ratings of All Bought-Out Items g. Warranty / Guarantee Card for all the Bought-Out Items h. Trouble Shooting Chart for all Systems i. List of Spares – both Mechanical and Electrical 	

S.No.	PARTICULARS	BHEL SPECIFICATIONS	VENDOR's OFFER
8.0.0	INSPECTION	<p>Schedule of Inspection at supplier's works:</p> <ul style="list-style-type: none"> a. Verification of Test Certificate for Raw Materials used for fabrication. b. Verification of X-Ray Report of Butt-Joints and Random Testing of the Welds, by physical examination. c. Verification of Transfer Car Dimensions, Checking of Wheel Alignment, Mechanical Assemblies and Total Alignment. d. Speed / Traverse Motion Testing without load <p>Schedule of Inspection at BHEL:</p> <ul style="list-style-type: none"> a. Full / Rated Load Test. b. 10% OVER-LOAD Carrying Ability Check. 	
9.0.0	ERECTION & COMMISSIONING		
9.1.0	Mechanical Erection / Assembly	Erection / Assembly of the Transfer Car has to be done by the Representative of the Supplier, at BHEL Works	
9.2.0	Commissioning	Commissioning of the Transfer Car and Performance Prove -Out for the Trolley's Capacity and Smooth Running (at BHEL Works) shall be the RESPONSIBILITY of the supplier.	
9.3.0	Guarantee	Vendor shall provide a guarantee for a period of 12 months from the date of commissioning of the equipment or 18 months from the date of dispatch, whichever is earlier	