Bharat Heavy Electricals Limited

(High Pressure Boiler Plant**)**
Tiruchirappalli – 620014, TAMIL NADU, INDIA
An ISO 9001 Company
CAPITAL PURCHASE / MATERIALS MANAGEMENT / MANUFACTURING

ENQUIRY	Phone: +91 431 257 79 38 Fax : +91 431 252 07 19 Email : tvenkat@bheltry.co.in Web : www.bhel.com

	Enquiry Number:	**Enquiry Date:**	**Due date for submission of quotation:**
	2620700046	**28.07.2007**	**13.09.2007**
Your are requested to quote the Enquiry number date and due date in all your correspondences. This is only a request for quotation and not an order			

Item	**Description**	**Quantity**	**Delivery Schedule**
10	20 Ton Battery Operated Heavy Duty Buggey for Press Shop as per the technical specification & commercial conditions applicable (to be downloaded from web site www.bhel.com or http://tenders.gov.in)	1 No.	30.11.2008

BHEL commercial terms & conditions with Price Bid and Bank Guarantee formats along with technical specifications 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 "2620700046".

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 Manager / Capital Purchase / MM / Manufacturing

PART A

TECHNICAL QUALIFYING CRITERIA

SECTION – I:

The BIDDER / VENDOR (OEM) has to meet the following requirements to get qualified for submitting an offer for 20 Ton Battery Operated Fork Lift Truck.

S. No.	REQUIREMENTS	VENDOR's RESPONSE
1	The Bidder / Vendor (OEM) shall have minimum FIVE Years of Continuous Experience in the field of Design, Manufacture and Supply of Heavy Duty Battery Operated Fork Lift Truck capacity above 15 Metric Tonnes.	
2	The Bidder / Vendor shall have supplied and commissioned at least ONE number of 16 Ton or Above Capacity Battery Operated Fork Lift Truck in the past TEN years. [If supplied recently, such equipment shall be working satisfactorily for more than one year, after commissioning].	
3	If such an equipment has been supplied to BHEL (any one manufacturing UNIT of BHEL), then the same must be currently working satisfactorily for not less than six months (as on date of Tender Opening) from the date of commissioning and acceptance. Details on the supply shall be furnished with the Technical Offer.	
4	The Performance Certificate (minimum one number) from the Customers regarding the satisfactory performance of such an equipment supplied to them, to be given (in the attached format) with the Technical Offer.	
5	BHEL reserves the right to verify the information provided by the BIDDER. In case, the information provided by Bidder is found to be false / incorrect, the Offer shall get rejected.	

SECTION – II

The BIDDER/ VENDOR (OEM) is requested to furnish the following information:

S.No.	PARTICULARS	VENDOR's RESPONSE
6	Profile of the Company bringing-out the years of Experience of the BIDDER in the field of design, manufacture and supply of Heavy Duty Battery Operated Fork Lift Truck.	
7	Number of Heavy Duty Battery Operated Fork Lift Trucks (with Capacity more than 15 Metric Tonnes) supplied & commissioned till date (with details on type / model, capacity / configuration, customer and quantity)	
8	Details on International Standards / Design Process Codes followed in the Design and Manufacture of the Equipment.	
9	Details on SERVICE-AFTER-SALES Set-Up in India including the Addresses of Agents / Service Centers in India, are to be provided.	

SECTION – III

The BIDDER/ VENDOR (OEM) shall note the following:

S.No.	REQUIREMENTS	VENDOR's COMPLIANCE
10	The BIDDER shall submit the offer in TWO PARTS - Technical **[with PART A & PART B]** & Commercial and Price Bid.	
11	The Technical Offer shall be supported by Product Catalogues & Technical Literature in ORIGINAL.	
12	The Offer shall contain a comparative statement of Technical Specifications given by BHEL. [A mere 'CONFIRMED' or 'COMPLIES' or 'YES' or 'NO-DEVIATION' or 'ACCEPTED' or similar words in the technical comparative statement may lead to disqualification of the OFFER.]	
13	The Commercial Offer (given with the Technical Offer) shall contain the Scope of Supply and the Un-Priced Part of the Price-Bid, for confirmation of the inclusion of all the accessories / attachments, auxiliary parts, spares, consumables, etc. with the main / basic equipment, to meet the technical specification requirements.	
14	BIDDER / VENDOR (OEM) has to indicate the Country of Origin for the supply of equipment.	

PERFORMANCE CERTIFICATE – [SAMPLE FORMAT]

(On Customer's Letter Head)

1. Supplier of the Fork Lift Truck :

2. Make & Model of the Equipment :

3. Month & Year of Commissioning :

4. Application for which Fork Lift is used :

5. a. Equipment Serial Number :

   b. Capacity of Fork Lift Truck in Metric Tons :

6. Performance of the Machine (with reasons for recommendation) : Best in the market / Satisfactory / Good / Average / Not Satisfactory

7. Any other Remarks :

Date:

Signature & Seal of the Authority
Issuing the Performance Certificate

PART B

TECHNICAL SPECIFICATIONS FOR BATTERY OPERATED HEAVY DUTY FORK LIFT TRUCK - 20 T

1.0 APPLICATION / PURPOSE :

S.No.	DESCRIPTION / SPECIFICATIONS	BIDDER's OFFER
1.1	The proposed Fork Lift Truck is meant to be employed in a Heavy Forge Shop with continuos duty cycle.	BIDDER to confirm with technical details
1.2	The equipment has to work in an environment, where the ambient temperature is of the order of 60°C and equipment will be exposed to heat-radiations from furnaces with working temperature in the order of 1200°C.	BIDDER to confirm with technical details
1.3	The truck has to handle, using its forks, hot plates, pipes and fittings from the furnaces and position the hot jobs in the Hydraulic Operated Forge/Forming Press for further operation. This sequence has to be carried out by the equipment at a fast rate. The equipment shall also be capable of quick turning in stationary position for change of direction during operation.	BIDDER to confirm with technical details
1.4	The truck also has to load raw material into the furnaces and also adjust / remove the hot jobs from the Forging / Forming Press, after pressing operation to storage area.	BIDDER to confirm with technical details

2.0 TECHNICAL SPECIFICATIONS :

S. No.	PARAMETERS	SPECIFICATION	BIDDER's OFFER [with technical details]
2.1	**CAPACITY**		
2.1.1	Maximum Weight of Job that has to be handled, using Forks	22000 kgs (50000 Lbs.) at 30" Load Center (or) 20400 kgs (45000 Lbs.) at 36" Load Center	
2.2	**DESIRED SPEEDS** – Upper Limits (Figures in brackets relate to those with load)		
2.2.1	Travel	Not less than 5 MPH [4MPH]	MPH – Miles / Hour
2.2.2	Lift	Around 24 FPM [12 FPM]	FPM – Feet / Minute
2.2.3	Lower	Around 16 FPM [20 FPM]	

S. No.	PARAMETERS	SPECIFICATION	BIDDER's OFFER [with technical details]
2.3	**TRUCK DIMENSIONS**		
2.3.1	Wheel Base	Around 95"	
2.3.2	Width (across wheel guard)	Around 88"	
2.3.3	Width across Frame	Around 80"	
2.3.4	Length (less Forks)	Around 160 "	
2.3.5	Over all Height (with Mast)	Around 160 "	
2.3.6	Overall Height (with Guard)	Around 140"	
2.3.7	Lift Height	Around 80"	
2.4	**TYRES**		
2.4.1	Drive Side	4 Nos. of size 36" x 16" Polyurethane	
2.4.2	Trail Side	4 Nos. of size 22" x 10" Polyurethane	
2.4.3	Turning Radius	Around 144"	
2.5	**POWER**		
2.5.1	Powersource	Battery Powered	
2.5.2	Type	EC Connector	
2.5.3	Capacity	72 Volt, 88 kWh	
2.5.4	Battery Compartment	Vendor to Specify	
2.6	**ACCESSORIES**		
2.6.1	Long Forks	4 ½" **x** 10" **x** 72" - 1 Pair 4 ½ " **x** 11" **x** 100" - 1 Pair 4 ½ " **x** 11" **x** 120" - 1 Pair	
2.6.2	Flexi Glass Heat Shield	1 Set	
2.6.3	Overhead Guard	1 No.	
2.6.4	'SCR' G.E. Controls	1 Set	
2.6.5	Follow Thru' Steering	Vendor to Specify	
2.6.6	Tiller Handle – Dual	Vendor to Specify	
2.6.7	High Pressure Lubrication system for Steering Arrangement & Gear Drives	Vendor to Specify	
2.6.8	Electric Horn & Siren for Reverse Travel	Vendor to Specify	
2.6.9	Warning Signal (Red Lamp) and Left & Right Indicators	Vendor to Specify	
2.6.10	Battery Charger with Cables & Spare Connectors	Vendor to specify details	
2.6.11	Battery Charge - Level Indicator to be provided in the Dash Board Panel	Vendor to confirm	
2.6.12	Extra charging cable from battery to charger and connectors to be provided	Vendor to confirm	

S. No.	PARAMETERS	SPECIFICATION	BIDDER's OFFER [with technical details]
3.0	**OPERATING CONTROLS:**		
3.1	Dual Drive, Hoist and Power Steering Controls for operation from either side of the Truck.	Vendor to confirm	
3.2	Hydraulic Power Steering for easy manoeuvring ; Indicator to show position of Steering Wheel for the Operator.		
3.3	Full width Safety Pedal and Step Down Brake Bar with 2 stage (hydraulic and mechanical) Braking System to be provided.	Vendor to confirm	
3.4	Single-Throw main line knife switch and on-off key switch to be provided.		
3.5	Electric and Brake Controls are to be interlocked to cut off power and apply brakes automatically when the Operator leaves the Truck.	Vendor to confirm	

4.0 DRIVE UNIT:

S. No.	PARAMETERS	SPECIFICATION	BIDDER's OFFER [with technical details]
4.1	**DUAL MOTORS**		
4.1.1	Horizontally mounted inside frame for maximum protection. Motors (high starting torque type) are to be series wound with class H insulation, silver cadmium welded commutator and glass banding. Motors are to be equipped with fan and precision ball bearings.	Vendor to confirm	
4.2	**DUAL DRIVES**		
4.2.1	Drive units, articulating independently around steel shafts ensuring constant floor contact for stability and safety. Design shall be to ensure elimination of over hanging forces on bearing points and to increase drive unit life	Vendor to confirm	

S. No.	PARAMETERS	SPECIFICATION	BIDDER's OFFER [with technical details]
4.2.2	Drive unit power shall be transmitted by two individual drive unit assemblies, each consisting of motor, gearing and brake assembly. Double reduction gears of Chromium nickel alloy steel, mounted on ball bearings to provide maximum torque for the drive wheel.	Vendor to confirm	
4.2.3	SCR-Solid State Control to provide stepless acceleration, infinitely variable speed control and smooth reversing, aiding tight quarter maneuvering and conserve battery power.	Vendor to confirm	
4.3	**STEERING**		
4.3.1	Power Steering System employing independent motor driven pump and double acting hydraulic cylinder for easy control of trail axle. Design also has to ensure road shock from being transmitted to steering controls	Vendor to confirm	
4.3.2	The Steering Unit shall articulate along the centerline of the truck assuring constant floor control.	Vendor to confirm	
4.4	**TRAIL AXLE**		
4.4.1	Dual Caster type mounted on tapered roller bearing. Articulated design to compensate for uneven floors. Twin Pairs of Trail Wheels to be mounted on roller bearings and rotate independent of each other, to minimize scuffing when wheels are turned with truck stationary.	Vendor to confirm	

S. No.	PARAMETERS	SPECIFICATION	BIDDER's OFFER [with technical details]
4.5	**BRAKING**		
4.5.0	A fail proof 2 STAGE Braking System has to be provided and the technical details shall be specified clearly in the offer with sketches	Vendor to Specify	
4.5.1	**SERVICE BRAKES**		
4.5.1.1	Hydraulic Power type internal expanding brakes, mounted within each drive wheel and directly over the wheel bearings. Brakes are to be hydraulically power operated by individual external brake cylinders. Each lining shall be minimum 200 sq. inches totalling 800 sq. inches for the 4 brakes.	Vendor to confirm	
4.5.2	**DUAL MECHANICAL PARKING BRAKES**		
4.5.2.1	Heavy duty external contracting shoes to operate against drums on each motor output shafts. Mechanism will be spring applied, mechanically released and automatically set for safety when the operator is not available. be minimum 80 sq. inches per brake	Vendor to confirm	
4.5.2.2	Automatic release of the brake to mechanical linkage thro' brake shoes when the operator applies foot pressure.	Vendor to confirm	
4.5.2.3	Along with Hydraulic and Mechanical breaking system Dynamic breaking system also shall be provided	Vendor to confirm	

S. No.	PARAMETERS	SPECIFICATION	BIDDER's OFFER [with technical details]
5.0	**HYDRAULIC COMPONENTS:**		
5.1	Steer/Brake Pump - Dual outlet motor driven vane type	Vendor to confirm	
5.2	Hoist Pump - Precision-built motor driven vane type, designed to maximum working pressure of 2500 psi	Vendor to confirm	
5.3	Hoist Unit: Multi-stage direct lift displacement type cylinders with chrome plated rods.	Vendor to confirm	
5.4	Control Valve- Precision honed spool valve to provide smooth operation and load spotting sensitivity for all functions.	Vendor to confirm	
5.5	Lowering Control Valve- to control lowering speed for preventing load dropping in the event of loss of hydraulic pressures.	Vendor to confirm	
5.6	**RELIEF VALVE**		
5.6.1	Built into control valve to protect hydraulic system against excessive pressures from overloading.	Vendor to confirm	
5.6.2	Hydraulic Reservoir to provide a large volume of oil for the system, and to reduce oil heating and to allow higher system efficiency. visual oil level gauge, heavy-duty breather filler screen and removable suction screen to be part of the system.	Vendor to confirm	

S. No.	PARAMETERS	SPECIFICATION	BIDDER's OFFER [with technical details]
6.0	**SPECIAL FEATURES:**		
6.1	**FRAME AND MAST**		
6.1.1	Frame and Mast shall be of thick steel side plates and rear members welded into box-type structure with heavy cross bracing and inner members supporting uprights. High carbon steel uprights are to be specially rolled and machined. Frame and uprights shall be welded as a unit structure for strength and resistance to impact and torsional loads. Fork fixing/resting plate length required is 79" for handling big size dies	Vendor to confirm	
6.1.2	Truck shall be available with straight ram, hydraulically operated split ram or forks. Forks and Ram are to be proportioned for bottom taper for maximum strength.	Vendor to confirm	
6.1.3	Swing out hinged compartment side covers for easy access to electric and hydraulic controls, steer pump and motor.	Vendor to confirm	
6.1.4	Hinged tenders for easy access to tires, wheels and universal drive shaft. Side doors for ready access to swing out drive motors.	Vendor to confirm	
6.1.5	Externally mounted wheel brake cylinders	Vendor to confirm	
6.1.6	Provision for clear visibility all around to the operator who will be standing in the control panel high from the floor. Provision shall also ensure visibility thro' mast and accurate load spotting.	Vendor to confirm	
6.2	**SAFETY**		
6.2.1	Shall meet the Safety Standards as per ANSI B 56.1 - 175 for powered industrial trucks.	Vendor to confirm	
6.2.2	Acid and water should not drain over equipments	Vendor to confirm	

S. No.	PARAMETERS	SPECIFICATION	BIDDER's OFFER [with technical details]
6.3	**PAINTING SCHEME :**		
6.3.1	Tractor Orange (2 coats)	Vendor to confirm	
7.0	**GENERAL NOTES**		
7.1	**SPARES (to be recommended by the vendor)**		
7.1.1	Itemized break-up of mechanical, hydraulic, electrical and electronic spares used on the machine in sufficient quantity as per recommendation of Vendor for 2 years of trouble free operation on three shifts continuous running basis should be offered by vendor. The list to include following, in addition to other recommended spares: (Unit Price of each item of spare should be offered)		
7.1.2	Essential Spares 1. Traction motors----------2 nos. 2. Steering pump motor----------1no 3. Hoist motor-1no 4. Steering pump assy----------1 no 5. Hydraulic pump (Hoist and tilting)--1 no 6. Contactor assembly----------5 nos 7. Stationary contact tips----------5 nos 8. Moving contact tips----------—5 nos		
7.1.3	All types of spares for total machine and accessories should be available for at least ten years after supply of the machine. If machine or control is likely to become obsolete in this period, the vendor should inform BHEL sufficiently in advance and provide drawings of parts / details of spares & suppliers to enable BHEL to procure these in advance, if required		
7.1.4	Vendor to confirm that complete list of spares for machine and accessories, along with item part no / specification / type / model, and name & address of the spare supplier shall be furnished along with documentation to be supplied with the machine		
7.2	Offer shall indicate the list of standard accessories that will be supplied along with the machine		
7.3	Other special accessories shall be quoted separately as optional items		
7.4	All controls and other operating systems shall be located in a convenient place for easy operation		
7.5	Hydraulic elements shall be of Vickers/Rexroth make		
7.6	All motors shall be from M/s Siemens/ ABB or any other reputed make conforming to IEC standard.		
7.7	All electrical devices like contactors, relays and limit switches, push buttons etc. shall be from Siemens / Alstom/Cuttler Hammer / Telemechanique.		
7.8	All components/devices/terminals are to be incorporated with ferrules.		
7.9	The battery charger shall be suitable for an electric input through a 415V with fluctuation of ± 10%, 50 Hz ± 3%, 3 Phase AC, 3 wire system		

S. No.	PARAMETERS	SPECIFICATION	BIDDER's OFFER [with technical details]
7.10	**DOCUMENTATION :**		
	The following Documents in English shall be supplied		
7.10.1	a) Operation & Maintenance Manuals (Maintenance manual shall include all Electrical & Hydraulic Circuits with BOM) **CD Media : 1 No** **Hard copy Original: 3 Nos.**		
7.10.2	b) Detailed spare parts specification for the electrical, electronics, mechanical, hydraulics (and pneumatic if any) to be furnished for items made by the supplier and for the items bought out and assembled by the supplier. **Hard copy Original: 3 Nos.**		
7.11	**TRAINING**		
7.11.1	The supplier shall train Two BHEL's Engineers in Operation and Maintenance of the Machine at supplier's works for a period of 5 working days. (Quote should be on man days basis)		
7.11.2	The supplier shall impart training to BHEL's Machine Operators and Maintenance crew in Operation and Maintenance (Mechanical, Electrical/ Electronics and CNC System) after the commissioning of the Machine at BHEL works for not less than 10 working days.		
7.12	**ACCEPTANCE & COMMISSIONING**		
7.12.1	The Machine shall be offered for inspection by BHEL Engineers and prove out trials for the maximum lifting capacity at supplier's works before despatch.		
7.12.2	The supplier shall depute his engineer(s) for supervising the commissioning of the machine at BHEL. (Quote should be on man days basis)		