



An ISO 9001
Company

Bharat Heavy Electricals Limited

(High Pressure Boiler Plant)

Tiruchirappalli – 620014, TAMIL NADU, INDIA

MATERIALS MANAGEMENT / CAPITAL EQUIPMENT

ENQUIRY

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Enquiry Number:	Enquiry Date:	Due date for submission of quotation:
2620900024	21.01.2009	21.02.2009

You 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 (Item required at BHEL on)
10	200 Ton Capacity Job Rotator with Self Powered Trolley as per the technical specification & commercial conditions applicable (to be downloaded from web site www.bhel.com or http://tenders.gov.in)	01 No.	25.08.2009

BHEL commercial terms & conditions with Price Bid and Bank Guarantee formats 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 “2620900024”.

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 / MM / Capital Equipment

PART A.**QUALIFYING CRITERIA FOR THE SUPPLY OF
ROTATOR WITH TRAVEL CARRIAGE****SECTION – I**

The BIDDER is expected to give complete details against each clause in the table given below and wherever necessary an additional sheet may be attached (giving clear reference number) to cover the required details :

S.No.	PARTICULARS	VENDOR's RESPONSE
1.0	Number of Years of Experience of the BIDDER / OEM in the field of Design, Manufacture & Supply of ROTATORS for Heavy Fabrication Industries	
2.0	Number of ROTATORS supplied till date in the following category (Classification based on CAPACITY) : a) Upto 100 Tons b) 100 to 200 Tons c) Above 200 Tons	
3.0	Number of ROTATORS supplied till date for the following category of CUSTOMERS a) Heavy Fabrication Industries outside INDIA b) Heavy Fabrication Industries within INDIA	
4.0	Details of Design Set-Up, with experience of Design Engineers & Technology Support Owned by the BIDDER	
5.0	Details on International Standards or Codes followed in Design of Rotators	
6.0	Details of Manufacturing Facilities for Rotator & Travel Carriage Components : a) Fabrication Facilities b) Machining Facilities c) Assembly & Testing Facilities	
7.0	Details on Heat-Treatment Facilities	
8.0	Details on Production Shopfloor Facilities with List of Heavy Machinery & Tools	
9.0	Details of Quality System followed for Fabrication and Non-Destructive Testing of Weldments [Details of NDT Facilities – like X Ray, MPI and Ultrasonic Testing]	

S.No.	PARTICULARS	VENDOR's RESPONSE
10.0	Details on Stages of Internal Inspection and Inspection by External Agencies [other than Customer Inspection]	
11.0	Details of Electrical/Electronic Control Panel Manufacturing and Testing Facilities	
12.0	The Areas of Sub-Contracting Works and the Percentage of Sub-Contracting Works	
13.0	Type of Quality Audit and Routine Inspection Procedures for jobs loaded on the Sub-Contractors	
14.0	Details on AFTER-SALES-SERVICE Set-Up in India for Erection & Commissioning, Post Warranty Service Support	

SECTION – II

The BIDDER / VENDOR has to compulsorily meet the following requirements to get qualified for submitting an offer for the ROTATOR with TRAVEL CARRIAGE :

S.No.	REQUIREMENTS	VENDOR's COMMENTS
15.0	The BIDDER / VENDOR shall have a minimum of TEN Years of Continuous Experience of in the Field of Design, Manufacture & Supply of Heavy Duty Variable Speed Rotators	
16.0	The BIDDER / VENDOR might have supplied atleast two numbers of ROTATORS with 250 Ton and above Capacity.	
17.0	Reference List of Customers and Performance Certificate from CUSTOMERS (minimum 2 Customers) with details of CONTACT PERSON, for whom ROTATORS of Capacity 150 Tons and above have been supplied	
18.0	The BIDDER / VENDOR should have sound financial position and should furnish the Finance Statements (Summary of P & L Statement and Balance Sheet) for the immediate past three years.	
19.0	In case of short listing by the Purchaser, the BIDDER / VENDOR has to co-ordinate for the visit of Assessing Team (if found necessary) , to the WORKS of the BIDDER / VENDOR with a notice period of 10 Days.	

SECTION – III

The BIDDER / VENDOR has to comply with the following, for accepting the Technical Offer for scrutiny by the Purchaser :

S.No.	REQUIREMENTS	VENDOR's COMPLIANCE
20.0	The BIDDER / VENDOR shall submit the offer in TWO PARTS - Technical & Commercial and Price Bid. The Technical Offer shall be in line with the BHEL Technical Specifications and the Guidelines or Annexures mentioned, wherever applicable.	
21.0	The Technical Offer shall contain a comparative statement of Technical Specifications given by BHEL and the Offer Details submitted by the Bidder, against each clause of the specifications.	
22.0	A just 'CONFIRMED' or 'COMPLIES' or 'YES' or 'NO-DEVIATION' or similar words in the technical comparative statement may lead to disqualification of the Technical Offer .	
23.0	The Technical Offer shall be supported by Product Catalogue and Data Sheets in ORIGINAL and complete technical details of 'Bought-Out-Items' with copies of Product Catalogue	
24.0	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 adherence to the specification requirements	
25.0	The reference List of Customers shall be accompanied with the details (Phone Number/E-Mail ID) of the CONTACT PERSON for cross reference by BHEL, as part of Offer/Tender Evaluation	

PART B

TECHNICAL SPECIFICATIONS for 200 TON CAPACITY JOB ROTATOR with SELF-POWERED TROLLEY

1.0 PURPOSE

The Job Rotator with Self-Powered Trolley is meant for the movement of large diameter cylindrical pressure vessels from one workcentre to another with the help of self-powered trolley on broad-gauge rails (90 lbs/yard) embedded in the shop floor and help rotate the job by the Drive and Idler Rolls positioned on the trolleys .

2.0 JOB DETAILS

The jobs shall be plain cylindrical vessel shells or multiple shells welded in line and provided with hemi-spherical end-covers at the free-ends. The plain shells have bi-thickness configuration across the cross-section (refer the sketches given in ANNEXURE – A, Detail-A) and finished shells have nozzles/stubs/attachments welded to the outer periphery of the shells (as indicated in the Cross-Sectional View).

Sl. No.	DESCRIPTION	PARAMETERS
2.1	Minimum diameter of the job	900 mm
2.2	Maximum diameter of the job	3,000 mm
2.3	Minimum length of the job	5,000 mm
2.4	Maximum length of the job	24, 000 mm
2.5	Minimum weight of the job	10 Tons.
2.6	Maximum weight of the job	200 Tons.
2.7	Eccentric loading level	10 % of job weight

3.0 EQUIPMENT SPECIFICATIONS

Sl. No.	DESCRIPTION	PARAMETERS
3.0	JOB DRIVE ROTATOR & IDLER	
3.1	Drive unit to support (considering over-loading)	150 Tons
3.2	Idler unit to support	100 Tons
3.3	Drive unit to rotate	200 Tons
3.4	Eccentric Loading	10 % of job weight
3.5	Length of the Job rotator (across rail axis)	Not to exceed 4500 mm
3.6	Width of the Job rotator (along rail line)	Not to exceed 1300 mm
3.7	Rotator wheel diameter	Around 1000 mm
3.8	Rotator wheel width	150 mm
3.9	Thickness of Hard Rubber Lining on Wheel	30 mm (minimum)
3.10	Height of the Job rotator	Around 1800 mm including trolley height (i.e., floor to top of rotator wheel)

Sl. No.	DESCRIPTION	PARAMETERS
3.11	Surface speed (Constant)	600 to 750 mm / min.
3.12	Drive AC Motor Capacity for one wheel	5.5 kW (minimum)
3.13	Number of drive wheels	Two numbers for drive rotator.
3.14	Number of wheels for Idler	Two numbers
3.15	Rotator wheel axles	Forged steel axles and duly heat treated
3.16	Track Gauge	Broad Gauge -1676 mm
3.17	Trolley Traverse Speed (variable)	2.0 to 24.0 meters/min.
3.18	Trolley travel length	60 Meters
3.19	Cable Length in Reel Drum	50 Metres
3.20	Trolley Traverse Motor Capacity	Bidder to specify
3.21	Trolley wheels	Forged steel wheels with the single flange construction, duly hardened and to suit rail profile.
3.22	Trolley axles	Forged steel axles (duly heat treated).
3.23	Trolley Wheel Diameter	Supplier to specify
3.24	Clearance of rotator base to floor level	200 mm (minimum)

4.0 DESIGN & CONSTRUCTIONAL FEATURES

Sl. No.	SPECIFICATIONS	OFFER
4.1	The design and construction of the traversing trolleys and the drive & idler rotators shall be rigid and sturdy enough to take the vibrations due to job rotation and traversing on rails.	Bidder to Confirm & Specify
4.2	Each wheel shall be of high quality steel type EN19 Forgings, duly heat-treated	
4.3	The wheels are to be supported on heavy duty roller bearings and high grade steel axles	
4.4	Both wheels of the drive rotator are to be provided with individual AC Drive Motor	
4.5	Drive Trolley Unit shall be provided with suitable electro-mechanical brake.	
4.6	The drive provided for the long traverse shall be thyristor controlled.	
4.7	The hard rubber lining provided on the rotator wheel shall be able to withstand damage due to impact loading, job temperature upto 150 ° C.	
4.8	All motors shall be of reputed make like NGEF/GEC/Bharat Bijlee/ABB/Indramat/Siemens. Single phase preventers shall be incorporated for all the motors.	
4.9	The Gear box shall be of Radicon, Elecon or Allryod make only.	
4.10	The electrics shall be of Siemens/L&T/Telemecanique GEC make.	

Sl. No.	SPECIFICATIONS	OFFER
4.11	Control panel / operator's panel shall be provided at an easily accessible location for carrying out all operations without hindering the job placed on the job rotator.	
4.12	Operator's panel shall consist of emergency stop push button, forward, stop & reverse push buttons for rotator and trolley IN & OUT, trolley stop push buttons.	
4.13	Cable reel drum suitable to accommodate cable for 50 metres of traverse of trolley to be provided, with self-retracting facility.	
4.14	A low voltage (24 V /42 V) for controls	
4.15	Two numbers of 24 V tapping points for hand lamp to be provided in the main control cabin	
4.16	A pendant control unit with 15 metre long control cable (provided with protective sheathing) with controls for drive rotator clockwise & anti-clockwise rotation, inching mode for drive rotator, trolley traverse forward & reverse, trolley traverse speed variator (stepless), emergency stop, etc.	
4.17	The offered equipment shall be suitable for an electrical power input through a 415V \pm 10% , 50 Hz \pm 3%, 3 Phase, 3 wire system.	
4.18	The equipment shall be designed and manufactured for continuous operations at an ambient temperature of 45° C (maximum) and a relative humidity of 95 % (maximum), but both do not occur simultaneously.	
4.19	Provision for locking of trolley wheels in one position to avoid movement and interlock for release, prior to the start of trolley movement/traverse.	
4.20	The trolley for traverse has to be integral with the rotator base and shall not give away in no circumstances.	
4.21	Suitable provisions shall be provided for lubricating/greasing the bearings and gears.	
4.22	Each section (i.e., drive rotator and idler rotator) shall be supported on a minimum of six steel wheels and two pairs of which (on either side) shall be pivotted so that the load is equally shared in case of any rail-track mis-alignment.	
4.23	Provision for manual adjustment and locking of rotator wheel bases to accommodate various job diameters	
4.24	Inching facility for the Job Rotator and the Trolley also shall be provided in the control panel and remote pendant unit.	
4.25	Motors to have Class "F" insulation	
4.26	Electrical enclosures to conform to IP 54 dust-proof regulations	
4.27	OPTIONAL FEATURE : A lead-screw arrangement for both the drive and idler sections to adjust the wheel bases and locking facility, so as to accommodate jobs of various diameters	

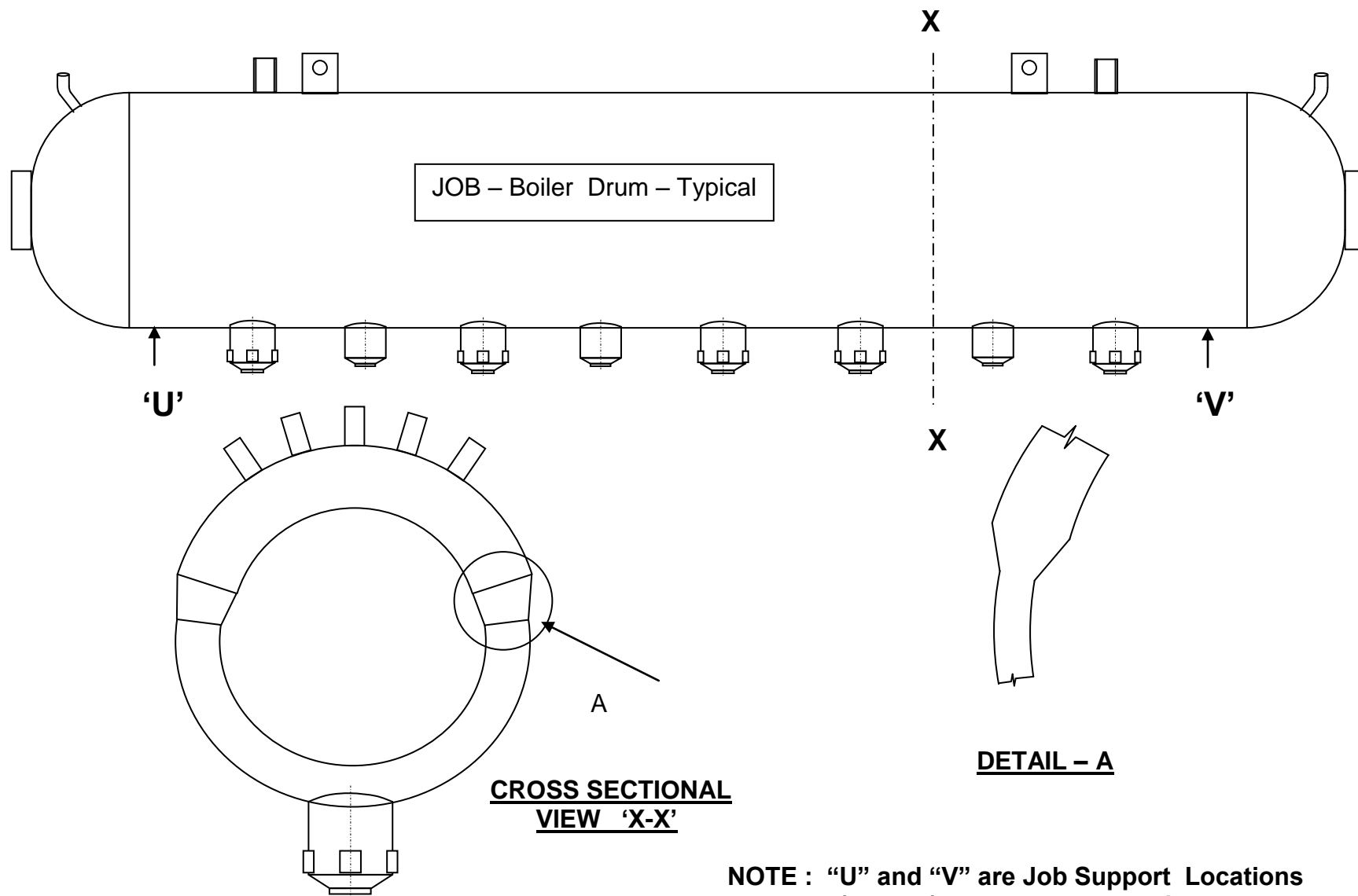
5.0 GENERAL INSTRUCTIONS

Sl. No.	SPECIFICATIONS
5.1	General arrangement drawings showing the positions of Cable reel drum, control panel, drive motor, mechanism, brake unit, Design calculation for the power to the trolley & rotator etc., shall be furnished by the supplier along with the offer.
5.2	The supplier shall submit the GA drawing showing all the component details, wiring diagram to BHEL for approval before manufacture.
5.3	Spares for Electrical & Mechanical Components for two years of normal operation shall be quoted with item-wise break-up.
5.4	All wires, cables shall be terminated at components/devices/terminals using Suitable number ferrules.
5.5	Three sets of the following manuals in English shall be supplied :
5.5.1	Operation & Maintenance manuals. (Maintenance manual shall include all electrical circuits, gear box assembly with component details, brake unit).
5.5.2	Detailed spare parts specification for electrical, mechanical to be furnished for items made by the supplier and for the items bought out and assembled by the supplier.
5.5.3	Electrical interconnecting drawings.
5.6	The equipment shall be guaranteed for performance and construction for a period of 24 months from the date of commissioning and acceptance at BHEL Works.
5.7	The Job rotator and the trolley shall be offered for inspection in operation & load test by BHEL Engineers before despatch at supplier's works.
5.8	The supplier shall depute his engineer(s) for supervising the erection and commissioning and prove-out of the Job Rotator at BHEL.

6.0 IMPORTANT NOTES

Sl. No.	SPECIFICATIONS
6.1	The supplier shall give point by point confirmation with reference to the above specification.
6.2	Deviation statement shall be given along with the offer
6.3	Offers for machine made at China, Korea, Taiwan, etc. will not be considered
6.4	Price bid shall contain price , item-wise for each item of scope of supply.
6.5	The un-priced bid indicating clearly the items shall be enclosed along with the technical offer.
6.6	Offers incomplete with respect to the above are liable for rejection

ENCLOSURE : ANNEXURE – A



**NOTE : "U" and "V" are Job Support Locations
(wheels) on the proposed job rotator**