



An ISO 9001  
Company

## Bharat Heavy Electricals Limited

(High Pressure Boiler Plant)

Tiruchirappalli – 620014, TAMIL NADU, INDIA

MATERIALS MANAGEMENT / CAPITAL EQUIPMENT

### ENQUIRY NOTICE INVITING TENDER

Phone: +91 431 257 7653  
Fax : +91 431 252 0719  
Email : [skaruna@bheltry.co.in](mailto:skaruna@bheltry.co.in)  
Web : [www.bhel.com](http://www.bhel.com)

#### TWO PART BID

Tender to be submitted in Two  
Parts

Enquiry  
Number:

2711100025

Enquiry  
Date:

16.09.2011

Due date for submission of  
quotation :

17.10.2011

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

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 No.	Item Description	Quantity
10	Mandrel Bar Lubrication System for CPE as per the technical Specification & commercial conditions applicable (to be downloaded from web site <a href="http://www.bhel.com">www.bhel.com</a> or <a href="http://tenders.gov.in">http://tenders.gov.in</a> )	01 Set.

#### Important Points to be taken care during the submission of offer:-

1. Delivery required 6 months from the date of purchase order
2. Check list to be filled and enclosed along with the offer failing which, the offer will not be considered for evaluation.

BHEL's General guidelines /instructions including bank guarantee formats and list of consortium banks, commercial terms checklist 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) Tender Enquiry reference "2711100025"

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 / MM / Capital Equipment

S.KARUNANIDHI  
Manager  
MM / Capital Equipment  
BHEL- TRICHY-620 014





## Specification for Mandrel bar Lubrication system for Hot Mill – SSTP

MOD:SSTP:HM:0107 / 00 Dt. 21/07/2011

**1. GENERAL:**

- 1.1 The equipment under this specification is required for hot rolling Mill in Seamless Steel Plant in BHEL, Tiruchirappalli, for lubricating mandrels used in push bench for hot rolling of tubes from hollow billets.
- 1.2 Bidders have to submit the offers as below by filling in the "Vendor's response" column with relevant information against each point in the respective sections below by providing information on model no, parameters etc. The technical requirements shall also be confirmed for each clause.
- 1.3 Note: A just 'CONFIRMED' or 'COMPLIED' or 'YES' or 'NO-DEVIATION' or similar words in the "Vendor's response" column is not acceptable and may lead to disqualification of the Technical Offer.
- 1.4 Brand and model No. of the items offered must be indicated in the offer
- 1.5 The offer shall Consist of Sections:
- 1.5.1 Part A:
- a. General Requirements
  - b. Technical offer with comparison statement of this specification requirement and offer
  - c. Commercial terms and conditions
  - d. Un-priced Price bid as per Part B (i.e. Price bid as per list shown in Part B of this Specification with the price value blanked )
- 1.6 The supplier may visit SSTP and understand the requirements before bidding.
- 1.6.1 List of spares with part identification no. (Mechanical, Electrical & Electronics) to be maintained for ensuring continuous operation with least delay time shall be provided in the offer with price.

**2. QUALIFYING CRITERIA FOR THE SUPPLY**

- 2.1. The VENDOR has to compulsorily meet the following requirements to get qualified for submitting an offer for this test system. Confirmation against each clause is to be indicated in the space provided.

Sl. No.	REQUIREMENTS	Vendor's confirmation and ref. to detail enclosed
1.0	The VENDOR shall have a minimum of 2 Years of Continuous Experience in the Design, Manufacture & Supply of equipments and systems for spray coating of materials in automated production lines preferably in hot metal working environment. Indicate the actual experience.	



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2.0	The VENDOR shall have supplied at least 1 number of the equipment in offered model / Technology, within the last five years. The equipment shall be working satisfactorily at least for the past 1 year. Indicate the number of equipment (of quoted model / Technology) sold in India & Other Countries.	
3.0	<u>Performance Certificate from CUSTOMER</u> for satisfactory working of the equipment for the past 1 year with full contact details of CONTACT PERSON for cross reference by BHEL shall be submitted with the offer. Please confirm if attached or not.	

- 2.2 The VENDOR has to necessarily provide the following details, for making an assessment of the firm's capability and competency: [The VENDOR is required 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]

Sl. No.	PARTICULARS	Vendor's response with ref. cl. No. of detailed offer.
4.0	Number of Years of Experience of the VENDOR in the field of design, manufacture and supply of the subject equipment for similar applications.	
5.0	Details of Design Set-Up and Technology Back-Up if any for the PRINCIPAL Equipment Maker	
6.0	Details on National / International Standards followed in Design of the Equipment.	
7.0	Confirmation to performance testing requirement of the equipment indicated in the technical part of this document prior to dispatch from supplier's end	
8.0	Details of Quality System followed (Kindly furnish the salient aspects of the QA system followed)	
9.0	Details on SERVICE-after-SALES set-up in India including the addresses of Agents/Service Centers in India and Asia	
10.0	Any Additional Data to supplement the manufacturing capability of the VENDOR	

- 2.3 The VENDOR has to comply with the following, for accepting the Technical Offer for scrutiny by the Purchaser. Confirmation against each clause is to be indicated in the space provided.



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Sl. No.	REQUIREMENTS	Vendor's confirmation and ref. to detail enclosed
11.0	The Technical Offer shall be supported by Product Catalogue and Data Sheets in ORIGINAL and complete technical details.	
12.0	The Commercial Offer (given with the Technical Offer – Part I) shall contain the Scope of Supply and the Un-Priced Part of the Price-Bid, for confirmation of Scope of Supply.	
13.0	The Vendor shall provide a complete list of out sourced / Bought-Out-Items: electrical, electronic and mechanical components with Source name, Model no., Specification, catalog and drawings. Pl. confirm.	

**3. Job Description:**

- 3.1.** The mandrel in hot condition at about 450 deg. C is being transported over a roller conveyor which will be inserted in to a hot shell for further drawing the shell into a long shell under pressure against a set of rollers. Before inserting the mandrel into the shells the long mandrels need be coated with lubricant chemical like phosphotherm or ferrous sulphate powder mixed in water. This is to enable smooth flow of metal of the shell over the mandrel during the deformation process and also to enable the easy removal of the mandrel after the deformation process is completed.
- 3.2.** The parameter of the material to be processed in the equipment are tabulated below:
- |   |                                      |
|---|--------------------------------------|
| Mandrel bar diameter -                    | min. 116 mm/ max. 118 mm             |
| Temperature                               | 400 °C – 450 °C                      |
| Mandrel bar length                        | up to approx. 16.7 M                 |
| Spraying length                           | approx. 16.0 M                       |
| mandrel bar transportation speed v: max.: | approx. 1,5 m/s                      |
| Cycle time for mandrel transport:         | 120 mandrels / h, means approx. 30 s |
| Operation voltage:                        | 415 V $\pm$ 10 % – 50 Hz $\pm$ 3 %   |
- 3.3** Vendor shall indicate the following in their offer
- velocity/jet pressure at which spraying is done
  - spraying/coating thickness

**4 Technical description of Spray system****4.1** The scope of supply shall essentially consist of the following:

- Mixing cum storage tank of approximately 2000 L capacity suitable for spraying for about 8 hrs.
- Fluid Transfer Pump with Suction pipe and Delivery Hose.
- Spray chamber of sufficient length (say 1 M) and shape to cover the mandrel and the spray system and shall consist of spillage prevention and drain connection facilities
- Recirculation line for collection and re-depositing to the storage tank for re-use of the excess mixture.
- Automatic Spray guns arranged on a circular path perpendicular to the mandrel axis.
- Filters, flow regulators, Gauges, Stirrer Piping Clamps etc.
- PLC Based Control system and Electricals.
- Measurement systems for flow, pressure, etc.

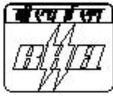
The mixture is to be prepared in the storage tank using the stirrer. The mixture is to be sprayed by a set of spray guns/nozzles arranged around the mandrel inside the chamber. The spraying shall occur when the mandrel is being transported on the roller conveyor. The excess mixture is to be collected at the bottom of the chamber which shall be returned back to the storage tank through a piping system. The start and stop of the spray shall be automatically controlled using necessary sensor to detect entry and exit of mandrels at the spray area.

**4.2** The Total system shall be in compliance to permitted emission levels (Eg.: CE).**5 DOCUMENTATION****5.1** The documentation shall be supplied one-set on paper and on CD-Rom

General description of equipment  
Operation & Maintenance instructions  
Lubrication instructions  
Electric circuit diagram  
Hydraulic circuit diagram  
Assembly drawing, part lists and wear part list  
Foundation drawings, erection manual

**5.2** The documentation supplied on CD-Rom shall be in the following format

Documents and lists in PDF format  
Drawings in DWG format  
Layout and foundation plan in DWG format

**6 INSTALLATION, PERFORMANCE & ACCEPTANCE OF THE SYSTEM:**

- 6.1 The system shall be installed and commissioned by the manufacturer of the system.
- 6.2 The system performance shall be checked on a set of mandrels, which will be provided by BHEL.
- 6.3 Testing methods and acceptance norms for each subsystem for tests at Suppliers works and after installation shall be detailed out in the offer.
- 6.4 Production Run shall be tested for 24 Hrs continuously. The rated output shall be demonstrated for 8 hours shift.
- 6.5 Service shall be provided by the supplier during guarantee period and also later through AMC. The system supplied must be supported by way of spares, availability and service for a minimum period of 15 years.
- 6.6 Guarantee for the trouble free performance of the system shall be provided for 1 year for 3 shift operation.

**7.0 The Following commercial points also may be confirmed.**

S.No.	Description	Requirement	Vendor Response
1	Delivery	6 Months from the date of Purchase order / Letter-of-Intent	
2	Inspection	Will be carried out at Vendor's Works by BHEL.	
3	Performance Guarantee	The equipment shall be Guaranteed for a Period of 12 months from Commissioning or 18 Months from the date of dispatch whichever is earlier.	