



An ISO 9001  
Company

## Bharat Heavy Electricals Limited

(High Pressure Boiler Plant)

Tiruchirappalli – 620014, TAMIL NADU, INDIA

CAPITAL EQUIPMENT / MATERIALS MANAGEMENT

### ENQUIRY

### NOTICE INVITING TENDER

Phone: +91 431 257 76 53

Email : [skaruna@bheltry.co.in](mailto:skaruna@bheltry.co.in)

Web : [www.bhel.com](http://www.bhel.com)

| TWO PART BID                        | Enquiry Number:   | Enquiry Date:     | Due date for submission of quotation: |
|-------------------------------------|-------------------|-------------------|---------------------------------------|
| Tender to be submitted in two Parts | <b>2631600081</b> | <b>13.10.2016</b> | <b>11.11.2016</b>                     |

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 should be submitted online on or before 14.00 Hrs(IST) on the Date of tender opening. Tenders received after 14.00Hrs (IST) will not be considered for evaluation.

| Item | Description                                                                 | Quantity              | (Indigenous Vendors)<br>Matl. Will be Delivered to                    |
|------|-----------------------------------------------------------------------------|-----------------------|-----------------------------------------------------------------------|
| 10   | Hand Held Electrically Operated Tube End Bevelling Equipment – Angular Type | <b>11.00<br/>Nos.</b> | FOR, BHEL, Stores, High Pressure Boiler Plant, Trichirappali - 620014 |

#### Important points to be taken care during submission of offer

- 1) Material shall be delivered to: Indigenous vendors: As stated above.
- 2) Foreign Vendors: CFR Chennai Seaport / Airport
- 3) Delivery required 3 months from the date of purchase order.
- 4) Erection & Commissioning period required 3 Weeks from the date of intimation by BHEL to vendor for deputation of their Engineers for E&C.
- 5) EMD for this Tender will be ( INR ) : 1,00,000.00
- 6) Checklist No. TRY/IMP/02 & TRY/IND/02A to be filled and enclosed along with the offer failing which, the offer will not be considered for evaluation.
- 7) 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 / EPROC / GENL / 001 - EMD) including bank guarantee formats and list of consortium banks, commercial terms check-list can be downloaded from <https://bheleps.buyjunction.in> or 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 "2631600081".

Tenders should be submitted online at our above indicated web portal before 14.00Hrs (IST) on the due date  
Tenders will be opened online at 14:30 hours on the due date

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

  
DGM / Capital Equipment / MM

**S. KARUNANIDHY**  
Dy. General Manager  
Capital Equipment / MM  
BHEL, Tiruchirappalli - 620 014.

## HAND HELD ELECTRICALLY OPERATED TUBE END BEVELING EQUIPMENT

**ANGULAR TYPE**

| S.No       | BHEL Specification                                                                                                                                                                                                                                                                                                                                                                                                                                                  | Vendor's Offer |
|------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------|
| <b>1.0</b> | <b>QUALIFYING CRITERIA</b>                                                                                                                                                                                                                                                                                                                                                                                                                                          |                |
| 1.1        | The BIDDER / VENDOR (OEM) shall have a minimum of FIVE Years of Experience in the Design, Manufacture & Supply of Special Purpose / Custom Built electrically operated Handheld machines for metal chamfering operations.                                                                                                                                                                                                                                           |                |
| 1.2        | Only those vendors ( <b>OEMs</b> ), who have supplied and commissioned <b>atleast ONE number of electrically operated hand held type tube end chamfering machines</b> similar to the machine specified under Part B, in the last ten years [as on date of this tender opening(first date)] should quote                                                                                                                                                             |                |
| 1.3        | Vendor has to submit atleast ONE Performance Certificate from their customers, for satisfactory performance of <b>electrically operated hand held type tube end chamfering machines specified in clause 1.2</b> supplied to them and such equipment is working satisfactorily for a minimum period of one year [as on date of this tender opening(first date)].<br>For obtaining the Performance certificate, a suggestive format is provided at the end of part-A. |                |
| 1.4        | BHEL reserves the right to verify the information provided by the Vendor. In case the information provided by vendor is found to be false/ incorrect, the offer shall be rejected.                                                                                                                                                                                                                                                                                  |                |

|            |                                                                                                                                                                                                  |  |
|------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|
| <b>2.0</b> | <b>INFORMATION TO BE PROVIDED BY VENDOR</b>                                                                                                                                                      |  |
| 2.1        | Vendor shall provide contact details(phone no & email id) including the address of his Agents / Service Centres in India                                                                         |  |
| 2.2        | Number of "Electrically operated Hand held type tube end chamfering machines " supplied and commissioned till date (to quote the chamfering equipment supplied during the last three years only) |  |
| 2.3        | The BIDDER/VENDOR to furnish Reference List of Customers(max 10 customers) including Contact details(phone no & email id).                                                                       |  |

Suggestive Format of Performance Certificate:

The performance certificate should be produced **on Customer's Letter Head.**

**PERFORMANCE CERTIFICATE**

- |   |                                                                        |                                 |
|---|------------------------------------------------------------------------|---------------------------------|
| 1 | Supplier of the machine                                                |                                 |
| 2 | Make & Model of the M/C                                                |                                 |
| 3 | Month & Year of Commissioning                                          |                                 |
| 4 | Electrically operated                                                  | Yes/No                          |
| 5 | Approx weight of the machine in kg                                     |                                 |
| 6 | Application for which M/C is used                                      |                                 |
| 7 | Performance of the Machine<br>(Strike off whichever is not applicable) | Satisfactory / Not Satisfactory |
| 8 | After sales service<br>(Strike off whichever is not applicable)        | Satisfactory / Not Satisfactory |
| 9 | Any Other remarks                                                      |                                 |

Performance certificate issued date:

Signature & Seal of the Authority  
Issuing the Performance Certificate

Contact details of issuing authority

Name & Designation:

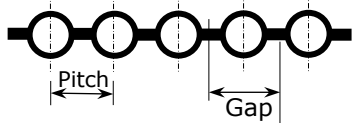
Office No/ Mobile no:

Email ID:

# HAND-HELD ELECTRICALLY OPERATED TUBE - END BEVELING EQUIPMENT

## TECHNCAL SPECIFICATION PART-B

### ANGULAR TYPE

| S.No. | FEATURE          | BHEL SPECIFICATION                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | VENDOR'S OFFER<br>(with complete Technical Details) |
|-------|------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------|
| 1.0   | PURPOSE/FUNCTION | <p>The equipment is used for the edge preparation of Alloy Steel / Stainless Steel TUBE Ends for butt-joint fit-up and welding. The tubes are part of membrane wall Panels or Tubular Coils of Super Critical Boilers. The equipment is also used for the edge preparation of rough flame-cut TUBE Ends in constrained areas of tubular panels/coils of High Pressure Boilers. The machine should be of compact size to allow machining of Spiral Wall Tube Panels for tube and pitch dimensions given below.</p> <p>Tube dia. 38.1mm, thk-3.6 to 12.5mm and Pitch 50.8mm,<br/>           Tube dia. 41.3mm, thk-4.0 to 8.2mm and Pitch 54mm in tubular panel (Pitch: between center of tubes)</p>  <p>Minimum gap : 61 mm</p> |                                                     |
| 1.1   | O.D.Chamfering   | Outside Beveling to 37.5° angle or 'J' style edge preparation. All styles with a land of 1.0 mm to 2.0 mm.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |                                                     |
| 1.2   | Facing           | End Facing of Tubes.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |                                                     |

|            |                          |                                                                                                                                                                                                                                                                                                                                                                                                                     |  |
|------------|--------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|
| 1.3        | ID Boring                | ID straight boring up to 20mm in depth.<br><b>min bore dia is 13.1mm</b><br>{Dia 38.1- [2x 12.5(max thk)]=13.1mm}                                                                                                                                                                                                                                                                                                   |  |
| 1.4        | Machining Mode           | Tool holder to be suitable for any two operations among OD chamfering/ Facing/ ID boring are to be done simultaneously.                                                                                                                                                                                                                                                                                             |  |
| <b>2.0</b> | <b>MACHINE OPERATION</b> | Electrically Operated                                                                                                                                                                                                                                                                                                                                                                                               |  |
| 2.1        | Power Supply             | 230 +/- 10% V, 50 +/-3 Hz, Single Phase AC Supply, through a 3-Wire System. [3rd wire for protective earthing]                                                                                                                                                                                                                                                                                                      |  |
| 2.2        | Input Power Cable        | The input heavy duty power cable shall be of 15 meters length with suitable end connector for 3-Pin Socket (Indian standard).                                                                                                                                                                                                                                                                                       |  |
| 2.3        | Noise Level              | Not more than 85 dB, at a distance of one meter from the work spot.                                                                                                                                                                                                                                                                                                                                                 |  |
| <b>3.0</b> | <b>JOB DETAILS</b>       |                                                                                                                                                                                                                                                                                                                                                                                                                     |  |
| 3.1        | Tube dimensions          | Tube OD: <b>38.1</b> x Th. 3.6 to 12.5<br>Tube OD: 41.3 x Th. 4.0 to 8.2<br>Tube OD: 42.4 x Th. 4.0 to 8.6<br>Tube OD: 44.5 x Th. 4.0 to 8.7<br>Tube OD :47.63 x Th 4.0 to 10.0<br>Tube OD: 51.0 x Th. 4.0 to 11.0<br>Tube OD: 54.0 x Th. <b>3.6</b> to 12.5<br>Tube OD: 57.0 x Th. 7.0 to 11.0<br>Tube OD: 63.5 x Th. 4.0 to 7.1<br>Tube OD: 69.85x Th 4.0.to <b>15.09</b><br>Tube OD: <b>76.1</b> x Th 4.0 to 8.0 |  |
| 3.2        | Material                 | i) CARBON STEEL : SA 192, SA 209 Gr. T1, SA 210 Gr.A1/ Gr.C (ASTM)<br>ii) ALLOY STEEL: SA 213 Gr.T2, T11, T12, T22, T91,T92 (ASTM)<br>iii) STAINLESS STEEL: SA 213 304H, 316L, 347H (ASTM)                                                                                                                                                                                                                          |  |

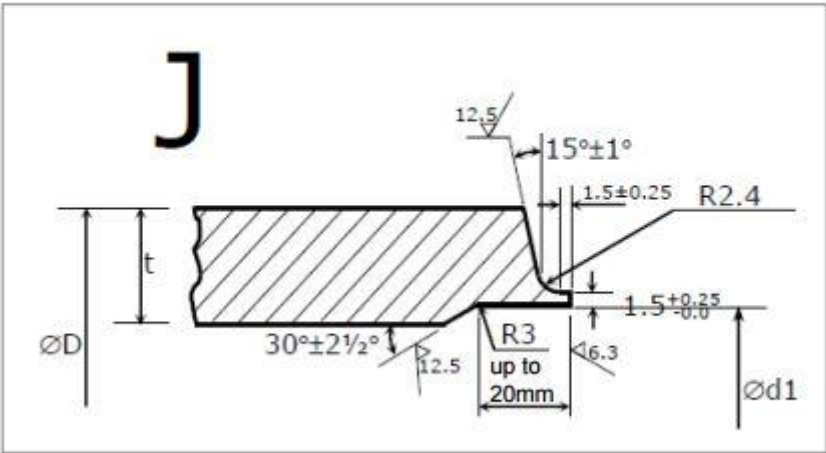
|      |                                              |                                                                                                               |  |
|------|----------------------------------------------|---------------------------------------------------------------------------------------------------------------|--|
| 4.0  | <b>MACHINE CONFIGURATION</b>                 | Compact Design, Portable, Handheld and Angular Type.<br>(Motor axis to be perpendicular to the spindle axis). |  |
| 4.1  | Weight                                       | Around 10 kg. Vendor to specify the weight.                                                                   |  |
| 4.2  | Overall dimensions of head(For angular type) | Width – Not more than 60mm<br>Height – Vendor to specify<br>Length – Not to exceed 360mm                      |  |
| 4.3  | Job Clamping                                 | O.D. Clamping with a Locking Lever .Suitable Jaws for the above mentioned job diameters to be provided.       |  |
| 4.4  | Electric Motor Output Power                  | Not less than 1500 W. Vendor to specify the offered Motor power                                               |  |
| 4.5  | Electric Motor Output Torque                 | Vendor to Specify                                                                                             |  |
| 4.6  | Tool holder RPM                              | Variable RPM to be provided. Vendor to Specify the range of RPM.                                              |  |
| 4.7  | Cutting speed                                | 18 to 30 m/min. with HSS Tools                                                                                |  |
| 4.8  | Spindle stroke(Manual)                       | Minimum 25 mm. Vendor to Specify.                                                                             |  |
| 4.9  | Wheel for feeding                            | Vendor must provide a metallic wheel for giving smooth feed.                                                  |  |
| 4.10 | Tool advancement                             | Tool advancement shall be preferably less than 0.4mm per revolution of the Feed wheel                         |  |
| 4.11 | Construction                                 | The equipment shall be made of impact resistant and corrosion resistant metal alloys with suitable coatings.  |  |
| 4.12 | Hook for suspension                          | Machine shall be provided with a metallic hook to suspend. Vendor to confirm.                                 |  |

|            |                                                                    |                                                                                                                                                                                                                                           |  |
|------------|--------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|
| <b>5.0</b> | <b>TOOLINGS</b>                                                    |                                                                                                                                                                                                                                           |  |
| 5.1        | O D Clamping Bases<br>(to clamp on to the outer diameter of tubes) | The machine should be capable of clamping tubes with OD38.1mm/41.3mm /42.4mm / 44.5mm / 47.63mm/51.0mm/54.0mm/57 mm /63.5mm/69.85/76.1mm (Total : 11 sizes)<br>Vendor to provide 1 Set for each equipment.                                |  |
| 5.2        | Cutting Tool                                                       | HSS 3 (HSS with COBALT inclusion)                                                                                                                                                                                                         |  |
| 5.3        | Cutters and Tool Bits                                              | The vendor shall supply the tools for following operations.<br>1) 37.5° for O.D. Beveling - 22 Nos<br>2) Facing - 22 Nos<br>3) 'J' style for weld EP - 22 Nos<br>4) ID Boring - 22 Nos                                                    |  |
| <b>6.0</b> | <b>SPARES, Consumables and accessories</b>                         |                                                                                                                                                                                                                                           |  |
| 6.1        | Main Equipment                                                     | Complete List of Spares including Motor - Armature, Bearings, Contactors, Bushes, etc. to be <b>LISTED ITEMWISE</b> with quantity.                                                                                                        |  |
| 6.2        | Consumables                                                        | Vendor to indicate the consumables like carbon brushes, brush holders and approximate quantity required for one year considering around 7000 ends per year                                                                                |  |
| <b>7.0</b> | <b>MANUALS</b>                                                     |                                                                                                                                                                                                                                           |  |
| 7.1        | No of Copies                                                       | 2 (Two) for Each Machine                                                                                                                                                                                                                  |  |
| 7.2        | Language                                                           | English                                                                                                                                                                                                                                   |  |
| 7.3        | Operation & Maintenance Manual Details                             | Manual shall contain BLOW-UP details on assembly / dismantling, part numbers with part description for Maintenance, Safety Instructions while using, and Operating Sequence for using the equipment for Beveling, Trouble Shooting Chart. |  |
| <b>8.0</b> | <b>GENERAL</b>                                                     |                                                                                                                                                                                                                                           |  |
| 8.1        | Pre-Inspection/Testing                                             | The equipment shall be inspected and tested for performance evaluation prior to dispatch. Test Certificate shall be submitted to BHEL prior to dispatch.                                                                                  |  |
| 8.2        | Commissioning                                                      | The vendor must take full responsibility in demonstrating the performance of the equipment at BHEL Trichy works for commissioning                                                                                                         |  |

|            |                                                                                                                                                                               |                                                                                                                                                                                                                                                                |  |
|------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|
| 8.3        | Prove-Out                                                                                                                                                                     | Tube size x thk :OD 38.1x 5.5 mm<br>Tube Material: Alloy steel-T12<br>Tube edges: Smooth Gas cut edges<br>OD Chamfering/Bevelling style:37.5 Deg<br>Stock to be removed:5mm<br>No.of tubes to be proved in 60 minutes: 10 tubes with bearable heating of motor |  |
| 8.4        | Guarantee                                                                                                                                                                     | The equipment shall be guaranteed for a minimum of twelve months from the date of commissioning or eighteen months from the date of dispatch whichever is earlier                                                                                              |  |
| 8.5        | Catalogue                                                                                                                                                                     | The offer shall be accompanied with ORIGINAL Catalogues of the offered equipment.                                                                                                                                                                              |  |
| <b>9.0</b> | <b>Catalogues/Drawings to be provided along with the offer-<br/>The vendor must provide the following catalogues and drawings in order to completely evaluate their offer</b> |                                                                                                                                                                                                                                                                |  |
| 9.1        | Blow-Up drawing                                                                                                                                                               | Blow up Drawing of the complete equipment clearly indication the part no/description                                                                                                                                                                           |  |
| 9.2        | Tool Holder                                                                                                                                                                   | Drawing of tool holder clearly indicating its features to be provided                                                                                                                                                                                          |  |
| 9.3        | Insert Holder (if insert type)                                                                                                                                                | Insert holder drawing indicating its features to be provided                                                                                                                                                                                                   |  |
| 9.4        | Tool Drawing                                                                                                                                                                  | Tool drawing (J style, 37.5°,Facing and ID boring) with their dimensions to be provided.                                                                                                                                                                       |  |

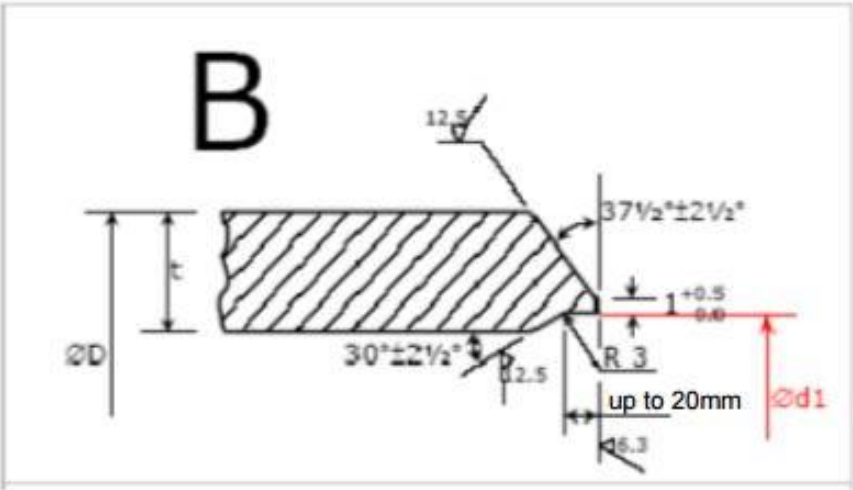
**Enclosure:Annexure-1: J style, 37 ½ degree OD chamfering and ID boring profile**

# OD chamfering and ID boring Profiles



D: Tube outer Dia  
T: Tube Thickness and  
D1: Bore ID

J style OD chamfering and ID bore Profile



37 ½ degree OD chamfering and ID bore Profile