



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 4237/ 7421

Email : spsy@bhel.in, vkarna@bhel.in

Web : www.bhel.com

TWO PART BID

Tender to be submitted in two Parts

Enquiry
Number:

2631900025

Enquiry Date:

15.06.2019

Due date for submission of
quotation:

08.07.2019

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
10	Hand Held Electrically Operated Tube End Bevelling Equipment – Angular Type as per the technical specification & commercial conditions applicable (to be downloaded from web site www.bhel.com or https://eprocure.gov.in/epublish/app)	4 Nos.

Important points to be taken care during submission of offer

1. Delivery terms shall be FOR BHEL Stores, Trichy
2. Compliance Form MM/ CE/ TRY/ IMP/ 03 & MM/ CE/ TRY/ IND/ 03A to be filled and enclosed along with the offer failing which, the offer will not be considered for evaluation.
3. Delivery period required is 3 months from the date of Purchase Order.
4. Erection and commissioning activities shall be done by the supplier, at BHEL, Trichy works.
5. Time period required for Erection and Commissioning activities shall be 4 weeks from the date of intimation by BHEL
6. EMD applicable for this Enquiry is INR 40,000/-
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/001- EMD), compliance form and technical specification can be downloaded from BHEL web site <http://www.bhel.com> or from <https://eprocure.gov.in/epublish/app> under Enquiry reference "2631900025".

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

S.PARTHASARATHY
MANAGER
CAPITAL EQUIPMENT / MM
BHEL, TRICHY-620014

Manager / Capital Equipment / MM

HAND HELD ELECTRICALLY OPERATED TUBE END BEVELING EQUIPMENT

ANGULAR TYPE

S.No	BHEL Specification	Vendor's Offer
1.0	QUALIFYING CRITERIA	
1.1	The BIDDER / VENDOR (OEM) must have Manufactured and supplied minimum FOUR electrically operated Handheld machines for metal chamfering operations in the last ten years . Vendor to Provide Purchase order copies for documentary proof	
1.2	Only those vendors (OEMs), who have supplied and commissioned at least ONE number of electrically operated hand held type tube end chamfering machines similar to the machine specified under Part B, in the last FIVE years [as on date of this tender opening(first date)] should quote	
1.3	Vendor has to submit at least ONE Performance Certificate from their customer, for satisfactory performance of electrically operated hand held type tube end chamfering machines specified in clause 1.2 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)]. 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.	

2.0	INFORMATION TO BE PROVIDED BY VENDOR	
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
(Strike off whichever is not applicable) | Satisfactory / Not Satisfactory |
| 8 | After sales service
(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

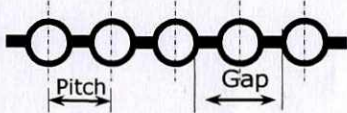
Name & Designation:

Office No/ Mobile no:

Email ID:

HAND-HELD ELECTRICALLY OPERATED TUBE - END BEVELING EQUIPMENT

TECHNICAL SPECIFICATION PART-BANGULAR TYPE

S.No.	FEATURE	BHEL SPECIFICATION	VENDOR'S OFFER (with complete Technical Details)
1.0	PURPOSE/FUNCTION	The equipment is used for 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. Minimum gap (distance between two consecutive fins-refer below drg) is 48mm.  Minimum gap: 48 mm.	
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 20 mm in depth with a merging taper of 30 Deg $\pm$ 2.5 Deg with radius R3 as indicated in Annexure-1. Minimum bore dia of tubes (D-2t) shall be assumed as 19mm for designing ID boring tool.	
1.4	Machining Mode	Tool holder to be suitable for any two operations among OD chamfering/ Facing/ ID boring are to be done simultaneously.	

2.0	MACHINE OPERATION	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).In case the entire motor body is plastic/double insulated, 2-wire system to be provided.	
2.3	Noise Level	Not more than 85 dB, at a distance of one meter from the work spot.	
3.0	JOB DETAILS		
3.1	Tube dimensions in mm	Tube OD: 38.1 x Th. 3.6 to 12.5 Tube OD: 41.3 x Th. 4.0 to 8.2 Tube OD: 42.4 x Th. 4.0 to 8.6 Tube OD: 44.5 x Th. 4.0 to 8.7 Tube OD :47.63 x Th 4.0 to 10.0 Tube OD: 51.0 x Th. 4.0 to 11.0 Tube OD: 54.0 x Th. 3.6 to 12.5 Tube OD: 57.0 x Th. 7.0 to 15.0 Tube OD: 63.5 x Th. 4.0 to 7.1	
3.2	Material	i) CARBON STEEL : SA 192, SA 209 Gr. T1, SA 210 Gr.A1/ Gr.C (ASTM) ii) ALLOY STEEL: SA 213 Gr.T2, T11, T12, T22, T91,T92 (ASTM) iii) STAINLESS STEEL: SA 213 304H, 316L, 347H (ASTM),Super 304H	
4.0	MACHINE CONFIGURATION	Compact Design, Portable, Handheld and Angular Type. (Motor axis to be perpendicular to the spindle axis).	
4.1	Weight	Less than 12 kg. Vendor to specify the weight.	
4.2	Overall dimensions of head(For angular type)	Width of the body – Not more than 55 mm Height – Vendor to specify Length of the head – Not to exceed 360 mm	
4.3	Job Clamping	O.D. Clamping with a Locking Lever. Suitable Jaws for the above mentioned job diameters to be provided.	

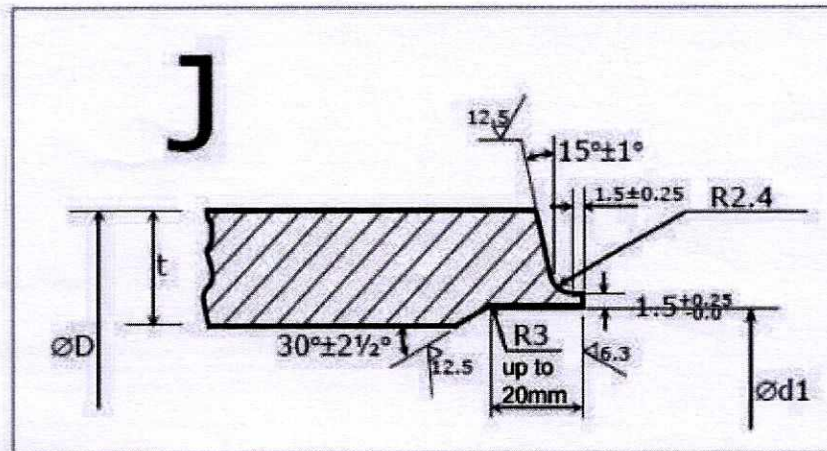
4.4	Electric Motor input Power	Not less than 1500 W. Vendor to specify the offered Motor power	
4.5	Electric Motor Output Torque	Vendor to Specify	
4.6	Tool Holders	Per Equipment-Two tool holders to be provided. Details as follows: a) Small tool holder of dia less than 48mm (preferably 46mm dia) so that it can be inserted and chamfered even in the minimum gap location. All projecting parts from the tool holder like locking nuts for tools/inserts must be well with in this 48mm dia inorder to avoid any interference with the fins during chamfering. b) Bigger tool holder to cover the entire range of tubes up to 63.5mm. Tool holder dia should not be more than 60mm. All projecting parts from the tool holder like locking nuts for tools/inserts must be well with in this 60mm dia inorder to avoid any interference with the fins during chamfering	
4.6.1	Tool holder RPM	Variable RPM to be provided. Vendor to Specify the range of RPM.	
4.7	Cutting speed	Around 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 0.4 mm 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. All the rotating shafts shall be mounted with suitable bearing for taking radial and axial loads	
4.12	Handle for Holding	Machine shall be provided with a handle to hold. Vendor to confirm.	
5.0 TOOLINGS			
5.1	O D Clamping Bases (to clamp on to the outer diameter of tubes)	The machine should be capable of clamping tubes with OD 38.1 mm/41.3 mm /42.4 mm / 44.5 mm / 47.63 mm/51.0 mm/54.0 mm/57 mm /63.5 mm (Total : 9 sizes) Vendor to provide 1 Set for each equipment. These clamping bases should be designed in such a way that the contact area with the tube	

		should be maximum. Also knurling to be provided on them for better gripping.	
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. 1) 37.5° for O.D. Beveling - 8 Nos 2) Facing - 8 Nos 3) 'J' style for weld EP - 8 sets 4) ID Boring - 8 Nos	
6.0 SPARES, Consumables and accessories			
6.1	Spares and Consumables	- Carbon brushes- 4 set per machine. - Conical gears (Engaging motor shaft to main spindle) - 1 set per machine. - Electric armature used in motor- 1 no. - Grub screw/locking nuts used in tool holders- 1set per machine (1 set means total screws/nuts used in both the tool holders) - Insert holders-1 No in each variant per machine - Motor on/off switch-1 No per machine - Gear/pinion connecting the motor armature and reduction gear box- 2 nos per machine - Main Spindle- 2 nos	
7.0 MANUALS			
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. Complete list all bought out items to be provided with Make & Model number	
8.0 GENERAL			
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 Tube Material: Alloy steel-T12 Tube edges: Smooth Gas cut edges OD Chamfering/Beveling style:37.5 Deg Stock to be removed:5mm No. of tube ends to be proved in 60 minutes: 10 tube ends 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.	
9.0	Catalogues/Drawings to be provided along with the offer- The vendor must provide the following catalogues and drawings in order to completely evaluate their offer		
9.1	Blow-Up drawing	Blow up Drawing of the complete equipment clearly indicating 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.	
9.5	J style tool drg with tool holder	Vendor to provide the drg of J tool with tool holder to confirm no interference with machine head.	

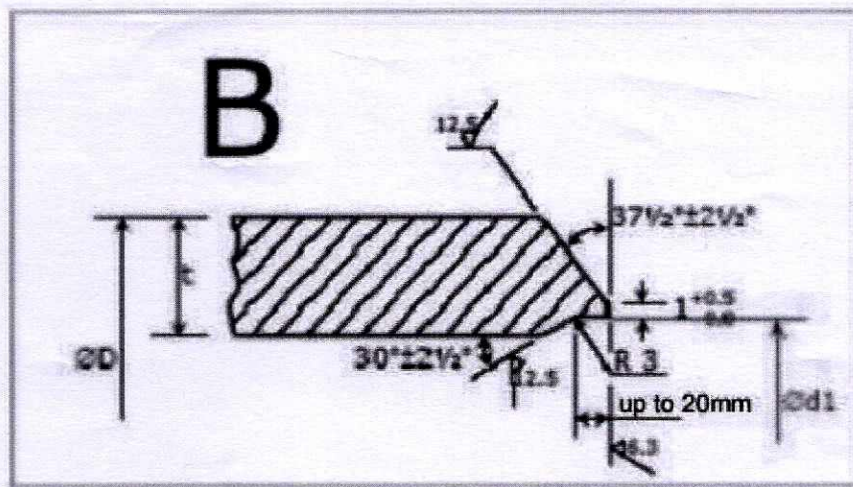
Enclosure: Annexure-1: J style, 37 ½ degree OD chamfering and ID boring profile

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