



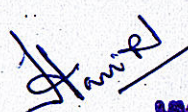
An ISO 9001  
Company

# Bharat Heavy Electricals Limited

(High Pressure Boiler Plant)

Tiruchirappalli – 620014, TAMIL NADU, INDIA

CAPITAL EQUIPMENT / MATERIALS MANAGEMENT

|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |                                                                                                                                                                                                                                                                                  |                                                                                                                                                                                                                                                                          |                                              |
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| <b>ENQUIRY</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |                                                                                                                                                                                                                                                                                  | Phone: +91 431 257 7421/ 7297<br>Email : <a href="mailto:vkarna@bhel.in">vkarna@bhel.in</a> , <a href="mailto:hari.r@bhel.in">hari.r@bhel.in</a><br>Web : <a href="http://www.bhel.com">www.bhel.com</a>                                                                 |                                              |
| <b>NOTICE INVITING TENDER</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |                                                                                                                                                                                                                                                                                  |                                                                                                                                                                                                                                                                          |                                              |
| <b>TWO PART BID</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | <b>Enquiry Number:</b>                                                                                                                                                                                                                                                           | <b>Enquiry Date:</b>                                                                                                                                                                                                                                                     | <b>Due date for submission of quotation:</b> |
| Tender to be submitted in two Parts                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | <b>2622000026</b>                                                                                                                                                                                                                                                                | <b>24.12.2020</b>                                                                                                                                                                                                                                                        | <b>20.01.2021</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 is reaching physically our office before 14:00 hrs on the Date of tender opening.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |                                                                                                                                                                                                                                                                                  |                                                                                                                                                                                                                                                                          |                                              |
| <b>Item</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | <b>Description</b>                                                                                                                                                                                                                                                               |                                                                                                                                                                                                                                                                          | <b>Quantity</b>                              |
| 10                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | Portable SAW Buttering Machine 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="https://eprocure.gov.in/epublish/app">https://eprocure.gov.in/epublish/app</a> ) |                                                                                                                                                                                                                                                                          | 2 Nos.                                       |
| <b>Important points to be taken care during submission of offer</b> <ol style="list-style-type: none"> <li>1. Delivery terms shall be FOR, BHEL, Stores, High Pressure Boiler Plant, Tiruchirappalli - 620014.</li> <li>2. Compliance Form TRY/ IND/ 02A to be filled and enclosed along with the offer failing which, the offer will not be considered for evaluation.</li> <li>3. Delivery period required is 4 months from the date of Purchase Order.</li> <li>4. Erection and commissioning activities shall be done by the supplier, at BHEL, Trichy works.</li> <li>5. EMD for this Tender will be (INR): 2,00,000.00</li> <li>6. Time period required for Erection and Commissioning activities shall be 3 weeks from the date of intimation by BHEL</li> <li>7. Procurement of the item through this NIT will be as per Public Procurement (Preference to Make in India), Order 2017 dated 04.06.2020 by DPIIT (DPIIT Order No. P-45021/2/2017-PP (BE-II) dated 04.06.2020), to encourage 'Make in India ' and promote manufacturing and production of goods and services in India.</li> <li>8. Supplier should submit the Self Certification regarding the Local Content in line with Government public procurement order Number P-45021/2/2017-PP (B.E-II) dated 04.06.2020</li> <li>9. 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.</li> </ol> <p>BHEL's General guidelines / instructions (refer MM/CE/GENL/001- EMD), compliance form and technical specification can be downloaded from BHEL web site <a href="http://www.bhel.com">http://www.bhel.com</a> or from <a href="https://eprocure.gov.in/epublish/app">https://eprocure.gov.in/epublish/app</a> under Enquiry reference "2622000026".</p> |                                                                                                                                                                                                                                                                                  |                                                                                                                                                                                                                                                                          |                                              |
| Tenders should reach us before 14:00 hours on the due date<br>Tenders will be opened at 14:30 hours on the due date<br>Tenders would be opened in presence of the tenderers who have submitted their offers and who may like to be present                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |                                                                                                                                                                                                                                                                                  | Yours faithfully,<br>For BHARAT HEAVY ELECTRICALS LIMITED<br><br><b>R. HARI</b><br>Engineer<br>MM / Capital Equipment<br>BHEL, TRICHY - 620 014<br>Engineer / MM/ Capital Equipment |                                              |



## PORTABLE SAW BUTTERING MACHINE, Qty. – 2 nos.

### PART A

#### Section 1: Qualifying Criteria

The BIDDER has to compulsorily meet the following qualifying requirements in order to consider their offer for technical evaluation:

| S. NO. | PARTICULARS                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | BIDDER's RESPONSE |
|--------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------|
| 1.1    | Only those Bidders / OEMs, who have supplied and commissioned at least 1 number of Submerged Arc Welding machine with controlled linear movement of welding torch, in the last 10 years (as on the first date of tender opening). are eligible to quote.                                                                                                                                                                                                                                              |                   |
| 1.2    | Bidder has to submit at least ONE Performance Certificate from their customer, for satisfactory performance of the equipment specified in 1.1 and meeting the following conditions:<br>a) The Equipment must have been supplied within the last 10 years (as on the first date of tender opening)<br>b) The Equipment must have performed satisfactorily for at least one year during this period.<br>For obtaining the Performance certificate, a suggestive format is provided in <b>Annexure</b> . |                   |
| 1.3    | BHEL reserves the right to verify the information provided by the Bidder. In case the information provided is found to be false/ incorrect, the offer is liable for rejection.                                                                                                                                                                                                                                                                                                                        |                   |

#### Section 2: Information to be provided by the bidder:-

| S. NO. | PARTICULARS                                                                                                        | BIDDER's RESPONSE |
|--------|--------------------------------------------------------------------------------------------------------------------|-------------------|
| 2.1    | The BIDDER to furnish Reference List of Customers with Complete contact details where similar machine is supplied. |                   |
| 2.2    | Details of similar Equipment supplied to BHEL units, if any. (Year of commissioning, Application, Type)            |                   |
| 2.3    | Details on SERVICE-AFTER-SALES Set-Up in India including the Address of Agents / Service Centers in India.         |                   |
| 2.4    | Any Additional Data to supplement the manufacturing capability of the BIDDER for the subject equipment.            |                   |

**Section 3:** The BIDDER to note:

| <b>S.<br/>NO.</b> | <b>PARTICULARS</b>                                                                                                                                                    | <b>BIDDER's RESPONSE</b> |
|-------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------|
| 3.1               | The BIDDER / VENDOR shall submit the offer in TWO PARTS.<br>1. Technical Offer [with PART A & PART B] & commercial offer<br>2. Price Bid.                             |                          |
| 3.2               | The Bidder's offer against each clause in PART A & B of the offer should be filled by the BIDDER compulsorily with complete details.                                  |                          |
| 3.3               | The BIDDER shall assure a continuous support for Spares and Service for Ten Years, from the date of commissioning of the equipment at BHEL Works.                     |                          |
| 3.4               | The Technical Offer shall be supported by Product Catalogue and Data Sheets in original and complete technical details / literature on the quoted model of equipment. |                          |
| 3.5               | 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.                    |                          |

Suggestive Format of Performance Certificate:

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

### PERFORMANCE CERTIFICATE

|                                                                                                                                                                                                                     |                                 |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------|
| 1. Description of the machine                                                                                                                                                                                       |                                 |
| 2. Make & Model of the M/C                                                                                                                                                                                          |                                 |
| 3. Month & Year of Commissioning                                                                                                                                                                                    |                                 |
| 4. Type of jobs for which m/c is used                                                                                                                                                                               |                                 |
| 5. Performance of the Machine<br>(Strike off whichever is not applicable)                                                                                                                                           | Satisfactory / Not Satisfactory |
| 6. After sales service<br>(Strike off whichever is not applicable)                                                                                                                                                  | Satisfactory / Not Satisfactory |
| 7. Any Other remarks                                                                                                                                                                                                |                                 |
| <div style="display: flex; justify-content: space-between; align-items: flex-end; padding: 10px;"> <div>Date:</div> <div>Signature &amp; Seal of the Authority<br/>Issuing the Performance Certificate</div> </div> |                                 |

## PORTABLE SAW BUTTERING MACHINE, Qty. – 2 nos.

### Part B - Technical specification

| S NO | BHEL REQUIREMENT                                                                                                                                                                                              |                                                                                                                                                                                                                     |                            | BIDDER'S OFFER<br>(with technical details) |
|------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------|--------------------------------------------|
| 1    | <b>Purpose</b>                                                                                                                                                                                                | The equipment is intended for depositing of buttering by SAW (Submerged Arc Welding) process at various location in the ID and on the OD of cylindrical Shells in multiple passes. The equipment shall be Portable. | Bidder to note and confirm |                                            |
| 2    | <b>Job Details</b>                                                                                                                                                                                            |                                                                                                                                                                                                                     |                            |                                            |
| 2.1  | Cylindrical Shell sizes:<br>Shell 1:- OD: 2573 mm & ID: 2453 mm<br>Shell 2:- OD: 3493 mm & ID: 3350 mm<br>Length of shell:- 5 to 12 m<br>(A sketch given in Annexure)                                         |                                                                                                                                                                                                                     | Bidder to note             |                                            |
| 2.2  | Buttering sizes:<br>The buttering sizes varies from 76 x 320 mm to 190 x 190 mm in Shell ID<br>The buttering sizes varies from 60 x 200 mm to 600 x 800 mm on Shell OD<br>Buttering thickness (T): 12 – 14 mm |                                                                                                                                                                                                                     | Bidder to note             |                                            |
| 2.3  | Welding/buttering Process                                                                                                                                                                                     | Buttering by Submerged Arc welding (SAW)                                                                                                                                                                            | Bidder to note             |                                            |
| 2.4  | SAW wire details                                                                                                                                                                                              | Wire size: 4 / 5 mm and<br>Specification: F48A0/F43P0-EL8/12                                                                                                                                                        | Bidder to note             |                                            |
| 2.5  | Welding position                                                                                                                                                                                              | Buttering to be carried out in 1G position only.                                                                                                                                                                    | Bidder to note and confirm |                                            |

| S NO | BHEL REQUIREMENT                                                                                                                                                                        |                                                                                                                                                                                                                                                                                                                                          |                                                                                | BIDDER'S OFFER<br>(with technical details) |
|------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------|--------------------------------------------|
| 2.6  | Weld Quality Inspection                                                                                                                                                                 | Weld shall be subjected to MT and UT as per ASME Sec III NB standards                                                                                                                                                                                                                                                                    | Bidder to note                                                                 |                                            |
| 3    | <b>Equipment configuration</b>                                                                                                                                                          | The SAW welding head assembly shall be mounted and moving on a support frame comprising of legs for seating on the ID and OD of the shells for buttering.<br>A tentative sketch is given in annexure only for understanding the job requirement. Bidder may design and suggest the equipment configuration based on the job requirement. | Bidder to provide details with sketch.                                         |                                            |
| 3.1  | The Support Frame shall be suitable to carry the SAW head assembly with flux hopper, filler wire spool moving on track.                                                                 |                                                                                                                                                                                                                                                                                                                                          | Bidder to confirm and provide details                                          |                                            |
| 3.2  | This frame shall house suitable guide ways for movement of the SAW welding head in the welding and transverse direction (Refer Annexure).                                               |                                                                                                                                                                                                                                                                                                                                          | Bidder to confirm and provide details                                          |                                            |
| 3.3  | The frame structure and assembly shall be suitably designed keeping in view the visibility of welding, accessibility for Wire tip cutting, flux recovering, de-slagging operations etc. |                                                                                                                                                                                                                                                                                                                                          | Bidder to confirm                                                              |                                            |
| 3.4  | The frame size and track dimensions shall be designed in order to cater to the buttering requirement in 1G position and to seat on the shell mentioned as per this specification.       |                                                                                                                                                                                                                                                                                                                                          | Bidder to confirm and provide details along with drawings                      |                                            |
| 3.5  | Positioning of the equipment on the cylindrical shell (job) for buttering                                                                                                               | 1) The cylindrical shell (job) shall be placed on job rotators/ roller positioners during the entire operation.<br>2) For buttering on the OD of the cylindrical shell, the area marked on                                                                                                                                               | Bidder to note and provide their conceptual drawing along with the explanation |                                            |

| S NO       | BHEL REQUIREMENT                           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |                                                                                                                                                                                                                                                                      | BIDDER'S OFFER<br>(with technical details) |
|------------|--------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------|
|            |                                            | <p>the shell for buttering is brought to the topmost point of the shell by rotation for 1G position welding (refer annexure).</p> <p>3) For buttering on the ID of the cylindrical shell, the area marked on the shell for buttering is brought to the bottommost point of the shell (Refer annexure).</p> <p>4) The equipment shall be seated in vertical position for all butterings.</p> <p>5) Rotation of the job (shells) for bringing to 1G Position for buttering will be done at the job rotator at BHEL.</p> |                                                                                                                                                                                                                                                                      |                                            |
| <b>3.6</b> | <b>Positioning of equipment on the job</b> |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |                                                                                                                                                                                                                                                                      |                                            |
| 3.6.1      | Positioning of equipment on OD of shell    | <p>The proper seating of the equipment on the OD of the shell without slippage is very crucial. Hence the bidder may offer a suitable mechanism to ensure safe seating of the equipment for the buttering on the OD of the shell. Alternatively, it is suggested to provide a supporting gantry structure bridging over the shell (job) on which the entire equipment will be supported during buttering i.e. the equipment shall be seated on the gantry without touching</p>                                        | <p>Bidder to provide details along with the Bidder to provide the constructional features such as L x W and height (H) of the frame, details of the track movement etc. along with a drawing. It is preferred that the Job has to be rotated without the need of</p> |                                            |

| S NO  | BHEL REQUIREMENT                                  |                                                                                                                                                                                                                                                                                              |                                                                                                | BIDDER'S OFFER<br>(with technical details) |
|-------|---------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------|--------------------------------------------|
|       |                                                   | the shell (job). Legs of the gantry structure shall rest on the shop floor and shall be of suitable height for the following shells.<br>Max. height of Top of Shell 1 (OD: 2573 mm): around 5 m from floor level<br>Max. height of Top of Shell 2 (OD: 3493 mm): around 6 m from floor level | disturbing / relocating the buttering equipment every time during buttering on the OD of shell |                                            |
| 3.6.2 | Positioning of equipment in ID of shell           | The equipment shall be seated on the ID of the shell itself. The placement of the equipment on the desired location shall be in BHEL scope                                                                                                                                                   | Bidder to note                                                                                 |                                            |
| 3.7   | Motorised movement of welding head                | Movement of welding head during buttering operation shall be motorised and synchronized with wire feeding system.<br>Welding shall be done both in forward and reverse direction of weld head movement.                                                                                      | Bidder to confirm                                                                              |                                            |
| 3.7.1 | Motor kW rating                                   |                                                                                                                                                                                                                                                                                              | Bidder to specify                                                                              |                                            |
| 3.7.2 | Motor shall be of reputed make acceptable to BHEL |                                                                                                                                                                                                                                                                                              | Bidder to provide details                                                                      |                                            |
| 3.7.3 | Welding speed                                     | The speed of the motorised movement of the head shall match to the welding speed of 150 to 600 mm/min                                                                                                                                                                                        | Bidder to confirm                                                                              |                                            |
| 3.7.4 | Pitch adjustment of the track                     | Bead to bead overlap of buttering shall be at least 50%. To achieve this the movement of the track along the width                                                                                                                                                                           | Bidder to provide details of the mechanism offered                                             |                                            |



| S NO       | BHEL REQUIREMENT                                                                                                                           |                                                                                                                                                          |                                                    | BIDDER'S OFFER<br>(with technical details) |
|------------|--------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------|--------------------------------------------|
|            |                                                                                                                                            | of the frame shall be manually adjustable by suitable mechanism. (refer sketch)                                                                          | for manual adjustment along with the pitch details |                                            |
| 3.8        | Flux hopper shall be of minimum 5 kg flux holding capacity                                                                                 |                                                                                                                                                          | Bidder to confirm                                  |                                            |
| 3.9        | The equipment and its accessories shall be suitable to withstand the Job Pre heat temperature of 150 to 200 Deg C temp during SAW welding. |                                                                                                                                                          | Bidder to confirm                                  |                                            |
| 3.10       | Provision for lifting by crane                                                                                                             | Suitable provisions to lift the frame along with the weld head assembly for handling by shop crane shall be provided on suitable locations of the frame. | Bidder to confirm                                  |                                            |
| 3.11       | Self-weight of the entire unit shall be mentioned in the a Tag plate / stencilled legibly.                                                 |                                                                                                                                                          | Bidder to confirm                                  |                                            |
| <b>4.0</b> | <b>Welding Power source</b>                                                                                                                |                                                                                                                                                          |                                                    |                                            |
| 4.1        | Power source Type                                                                                                                          | DC type and Thyristorised based.                                                                                                                         | Bidder to provide details                          |                                            |
| 4.2        | Power source make                                                                                                                          | Shall be of ESAB / LINCOLN or any other reputed make acceptable to BHEL                                                                                  | Bidder to confirm and provide details              |                                            |
| 4.3        | Max. Welding current                                                                                                                       | 800 A or above                                                                                                                                           | Bidder to confirm and provide details              |                                            |
| 4.4        | Current rating                                                                                                                             | 800 A @ 60 % duty cycle or better                                                                                                                        | Bidder to confirm and provide details              |                                            |
| 4.5        | Open circuit voltage                                                                                                                       | 60 - 80 V.                                                                                                                                               | Bidder to confirm and provide details              |                                            |
| 4.6        | Welding voltage                                                                                                                            | 28 – 40 V.                                                                                                                                               | Bidder to confirm and provide details              |                                            |

| S NO       | BHEL REQUIREMENT                                                           |                                                                                                                                                    |                                                            | BIDDER'S OFFER<br>(with technical details) |
|------------|----------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------|--------------------------------------------|
| 4.7        | Ingress protection class                                                   | IP 23 or better.                                                                                                                                   | Bidder to confirm and provide details                      |                                            |
| 4.8        | Insulation class                                                           | Class H or better.                                                                                                                                 | Bidder to confirm and provide details                      |                                            |
| <b>5.0</b> | <b>Wire Feed Unit &amp; SAW Head</b>                                       |                                                                                                                                                    |                                                            |                                            |
| 5.1        | Wire feeding                                                               | Wire feeding module to suit wire sizes mentioned in S no 2.4 with suitable wire straightener roller sets and wire feeding rollers sets separately. | Bidder to confirm                                          |                                            |
| 5.2        | Wire feed controller and feeding unit                                      | Shall be of reputed make acceptable to BHEL                                                                                                        | Bidder to specify                                          |                                            |
| 5.3        | Wire feed motor rating in kW                                               |                                                                                                                                                    | Bidder to provide the details along with technical catalog |                                            |
| 5.4        | Wire feed rate                                                             | To match the SAW welding speed as per clause 3.7.3                                                                                                 | Bidder to specify                                          |                                            |
| 5.5        | Wire feeder shall be capable to handle 25kgs wire spool.                   |                                                                                                                                                    | Bidder to specify                                          |                                            |
| 5.6        | The SAW nozzle details viz. thread size, pitch details etc. to be provided |                                                                                                                                                    | Bidder to specify                                          |                                            |
| 5.7        | The wire spool shall have the facility for adjusting brake on wire coil.   |                                                                                                                                                    | Bidder to specify                                          |                                            |
| 6.0        | Input Power supply cable                                                   | Input power cable with a length of around 10 m to be supplied along with the equipment.                                                            | Bidder to specify                                          |                                            |
| 7.0        | Electrical Panel                                                           | The machine shall have a common electrical panel (placed at ground level) to accommodate the required switchgears, relays, contactors, VFD (if     | Bidder to confirm                                          |                                            |

| S NO | BHEL REQUIREMENT                                          |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |                   | BIDDER'S OFFER<br>(with technical details) |
|------|-----------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------|--------------------------------------------|
|      |                                                           | used for trolley's traverse motor). The panel shall have IP56 ingress protection.                                                                                                                                                                                                                                                                                                                                                                                                                                                         |                   |                                            |
| 8.0  | Length of welding cables and control cables               | The length of the welding cable (positive / negative) & control cable from power source (placed at ground) to the wire feed controller box of the equipment placed on the job shall be around 20m.                                                                                                                                                                                                                                                                                                                                        | Bidder to confirm |                                            |
| 9.0  | Cable length from Wire feed controller to wire feed motor |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | Bidder to specify |                                            |
| 10.0 | Operator pendant with cable                               | <p>An operator pendant with required length of cable shall be located near to the weld head assembly and shall have the following controls and provisions:-</p> <ul style="list-style-type: none"> <li>a) Motorised weld head traverse movement (Forward, backward, ON/OFF, speed range selector etc.)</li> <li>b) Weld ON/OFF</li> <li>c) Wire Feed ON/OFF, speed range selector etc.</li> <li>d) Amperage selector</li> <li>e) Bidder to specify the controls to be provided</li> <li>f) Control voltage shall be 24 V AC/DC</li> </ul> | Bidder to specify |                                            |
| 11.0 | Machine light                                             | At least TWO 24V LED type machine task light shall be supplied and fitted near the weld head assembly for sufficient illumination during welding                                                                                                                                                                                                                                                                                                                                                                                          | Bidder to confirm |                                            |

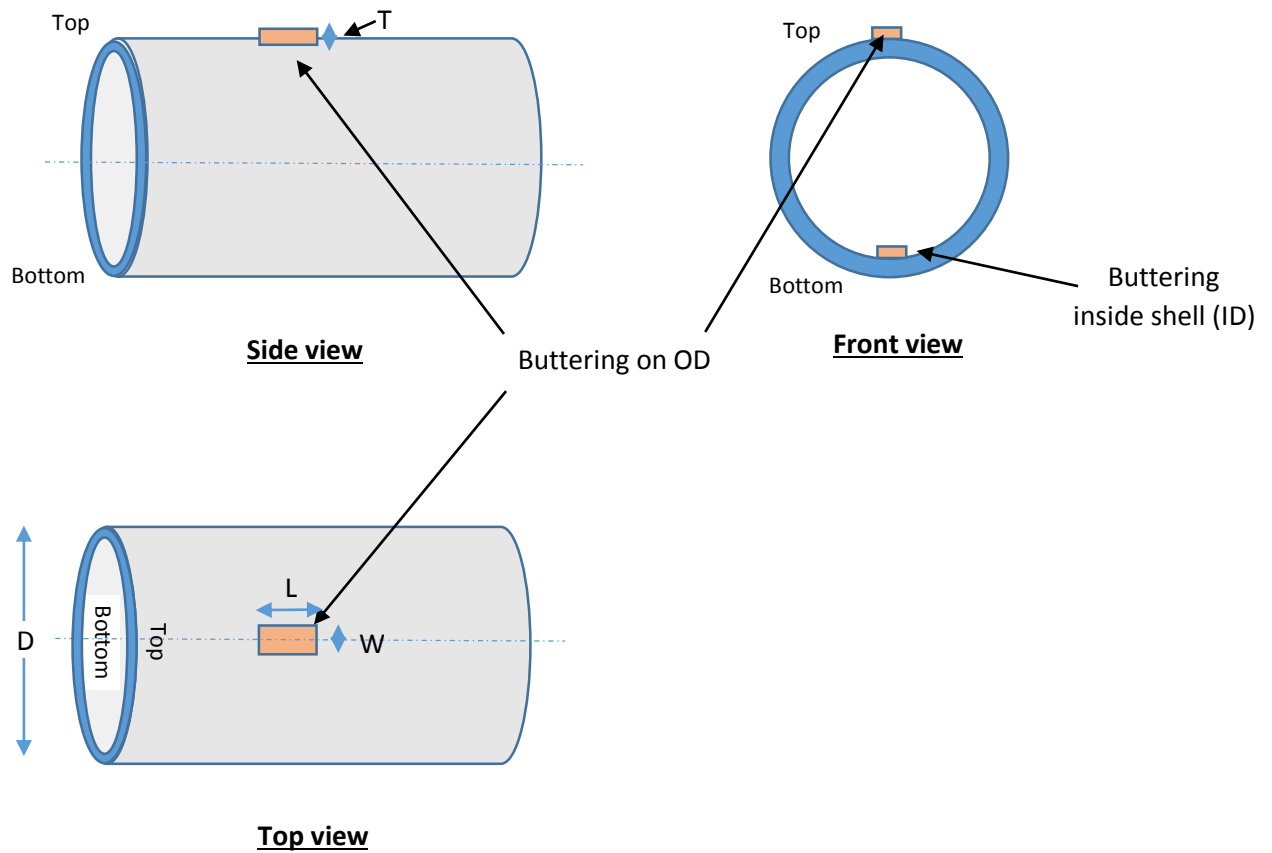
| S NO | BHEL REQUIREMENT                                                                                                                                                                                              |                                                                                                                                                                                                                                                               | BIDDER'S OFFER<br>(with technical details) |
|------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------|
| 12.0 | All the control and power cables (Except welding cables) connecting different parts of the system shall be connected through suitable Plug & sockets for easy connection / disconnection                      |                                                                                                                                                                                                                                                               | Bidder to confirm                          |
| 13.0 | Weight of the equipment                                                                                                                                                                                       |                                                                                                                                                                                                                                                               | Bidder to specify                          |
| 14.0 | Overall Dimensions of the equipment                                                                                                                                                                           |                                                                                                                                                                                                                                                               | Bidder to specify                          |
| 15.0 | Input power supply                                                                                                                                                                                            | 415V, 50 Hz, 3 phase AC supply will be provided at one point by BHEL                                                                                                                                                                                          | Bidder to note                             |
| 16.0 | Spares, accessories and consumables                                                                                                                                                                           | Bidder to quote for critical spares, accessories and consumables for the equipment                                                                                                                                                                            | Bidder to provide details                  |
| 17.0 | Operation and Maintenance Manuals                                                                                                                                                                             | Hard copy – 3 sets<br>Soft copy – 1 no. in CD                                                                                                                                                                                                                 | Bidder to confirm                          |
| 18.0 | The bidder shall submit the GA drawings with major dimensions, Electrical circuit with BOM for BHEL approval within 1 month from date of receipt of PO. BHEL shall approve the drawings within 2 weeks' time. |                                                                                                                                                                                                                                                               | Bidder to confirm                          |
| 19.0 | <b>Pre-despatch Inspection</b>                                                                                                                                                                                | The equipment shall be offered for pre-despatch inspection (PDI) by BHEL at vendor's works prior to despatch. The vendor shall make suitable arrangements for trial weld during PDI                                                                           | Bidder to confirm                          |
| 20.0 | <b>Commissioning, trials and Training</b>                                                                                                                                                                     | The installation and trials of the equipment at BHEL works shall be the responsibility of the vendor's representative. 6 Nos. of Buttering shall be carried out with the equipment during commissioning. The butterings shall pass the inspection test as per | Bidder to confirm                          |



| S NO        | BHEL REQUIREMENT             |                                                                                                                                                                                                                                         |                   | BIDDER'S OFFER<br>(with technical details) |
|-------------|------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------|--------------------------------------------|
|             |                              | <p>clause 2.6 for successful commissioning and prove out of equipment.</p> <p>The vendor's representative shall impart training on operation and maintenance of the equipment to BHEL personnel during commissioning at BHEL works.</p> |                   |                                            |
| <b>21.0</b> | <b>Performance Guarantee</b> | The performance of the equipment shall be guaranteed for a period of 12 months from the date of commissioning or 18 months from the date of despatch whichever is earlier.                                                              | Bidder to confirm |                                            |

**Note:** - Bidders are advised to make a visit to BHEL Trichy works to study the above requirements before submission of their technical offer.

# Portable Saw Machine for Buttering On Cylindrical Shells



## Tentative sketch of Intended portable SAW machine

