

**Retrofitting of Cold Mill NDT support structures & conveyor**

**Scope of supply:**

- I Study, design, manufacture, supply and installation of support structures & conveyors as per documents shown in Cl.13 below.
- 1) Loading table to a length of 30m with polyamide liner on top of the surface with clamping plates.  
The structure should be of fabricated design as existing type or UC beam to be used to withstand the load.
  - 2) On the loading side, bend trough to be provided to segregate the bend tubes. It should have a open able lever type arms operated by pneumatic cylinder and a tube stopper mechanism linked with tie rod.
  - 3) The loading table should have a slope of 3 deg. for easy rolling of tubes from the end to conveyor roller and a singling mechanism to adjust the tube dia. for serving to the conveyor roller, one tube at a time through cam, tie rod, double reduction gear box with hand wheel for adjusting the dia of tube. Also tube loading flap tie rod, turn buckle, pneumatic cylinder shall be provided for placing the Tube on the tube conveyor.
  - 4) The roller pass line at 1130 mm height to be matched with the height of the loading table to minimize the fall height of the tube and to minimize the noise level in the shop floor.
  - 5) Air washer arrangement to be provided at the UT test head to remove the water particle during UT testing by means of air knife by using compressed air. Air knife to be provided at 120° apart 3 nos. in a single location. Provision to adjust the clearance between air knife and tube depending on diameter of tube to be provided. Refer attached catalogue for details of air knife to be procured. A suitable fixture shall be made for positioning the same in the UT system.
  - 6) After the tube is tested for UT, EC, Dimensional check, this has to be segregated at the outlet in the exit table.
    - a) The table should be of 24m in length and the overall width 11.4 m Max (including ok, rej trough and conveyor of test line and grinding line )with uniform distance support structures of UC section or fabricated design. The table shall be lined with polyamide.
    - b) For OK side 2 nos. collecting trough to be provided with run over arm and 1 set of pneumatically open able & closable arms with cylinders and valve mechanism and one set of movable arm for the Rigger to go in for lifting the bundle during crane handling.
  - 7) At the rejection side 3nos. of rejected tube collection troughs to a width of 400mm each with 3 sets of run over arms, movable arms and open able arms with pneumatic Cylinder (Veljan/Rexroth/Parker) valves of (Parker -Speed king valvair) make to be provided.

- 8) The salvageable tubes can be rolled at the end of the Rejection Side table and then put into the conveyor roller by means of lifting flap mechanism with tie rod, turn buckle connected to the pneumatic Cylinder and valves ( above said makes) and tube singling mechanism for external belt grinding
  - a) Belt grinding m/c :Design manufacture/procurement, supply and erection to be done as that of the existing one with easy belt changing mechanism by layman with dust suction hood at the bottom and at the side.
  - b) Grinding Dust collector will be procured by BHEL and the same to be erected by the contractor along with other structural .
- 9) The grinding line should have conveyor roller of Cast iron type at 1 M interval and drive geared motor of IC Bauer make of 0.75 kw at a spacing of 3 M to transport the tubes back to the testing entry side table. Near the belt grinding m/c bottom side double pneumatic rollers with pneumatic cylinder lifting mechanism to support and rotate the tube during belt grinding of the defect at 4 locations.
 

During belt grinding the tube to be rotated for the purpose of grinding for which 4 nos. of pinch roll arrangement with roller, drive geared motor and up down actuation pneumatic cylinder with necessary valves.
- 10) The salvaged or ground tube to be lifted to the retesting table by means of lifting flap mechanism with tie rod and pneumatic cylinder with necessary valves.
- 11) The retesting table should also have singling facility to adjust the lifting of tube one by one according to the dia of tube and a loading flap tie rod, cylinder valve mechanism to facilitate the retesting of salvaged tubes back in to the test bench.
- 12) The supplier should visit SSTP/BHEL for making the study of the existing arrangement and can witness the testing of m/c during working. Maintenance, Production, QC will explain the testing sequence and the problems faced in the structural and transporting system. The new design should over come all the problem in consultation with end user and SSTP design dept.
- 13) REFERENCE DRAWING ,Catalogue, Budgetary offer copy of components are enclosed for new designing and price calculation purpose. This can form as basis for new design.
  - 1) Layout of UT M/c 3-7-0100-00-04885 Rev.00 for space availability 61500 long x 11400 width indicating control room size and UT M/c space and the tube line.
  - 2) MAC Proposal BHEL  
5264 – 0001E
  - 3) Foundation drg. By MAC  
5264 – 0002 A
  - 4) Over all arrangement drg. CMM/NDT / CMM:047 Dt13-10-08
  - 5) SILENT AIR KNIFE  
KJN ENTERPRISES  
CATALOGUE

- 6) Budgetary offer, Dt. 27/03/08  
By Infinite Vision Indian, Coimbatore for the above
- II. All the following new drawing to be made in Auto cad 2008 version as per BHEL/SSTP layers specification.
  - 1) over all arrangement design based on our new lay out.
  - 2) foundation pockets drg. for making necessary foundation by Civil/SSTP along with loading pattern to be submitted by the supplier (including dynamic loading).
  - 3) sub assembly drawings
  - 4) part drawings
 Before starting the manufacture all the drgs. to be got approved from SSTP/BHEL.

#### **Submission of documents**

- a) 1 set tracing
- b) 3 sets of Xerox / ammonia print
- c) 1 soft copy in CD.

- 5) Supplier should prepare quality plan and submit for the manufacturing activities.
- 6) Inspection will be carried out at suppliers work during manufacture in stage and also at final before dispatch by SSTP/BHEL inspector.
- 7) Supplier shall provide list of bought out items with model no. and maker along with offer.

### **III Erection:**

The supplier has to erect the structural components supplied by them and main machine procured by SSTP/BHEL from MAC (both as total and complete machine) The arrangement drg for the testing unit will be obtained from MAC and given to the erection group.

During erection the supplier has to follow the safety rules and regulations of BHEL.

Working group should be engaged in A,B, G shift timings

Work should be preceded as per our schedule and sequence.

Contractor side 1 technical person as site in charge per shift to be posted during the whole erection period and he has to interact with the dept officials for the action and course correction.

1. During the erection of all the work, any fabrication, cutting, welding work required is to be done by the contractor in order to complete all the jobs as per the production requirement.
2. For all the erection work – leveling and all co-ordination work with Civil/SSTP for grouting and basement finishing to be done by the contractor.
3. Fabrication, dismantling if any and erection work to be done as per the site-condition and production official requirement.
4. Payment will be made to the contractor on pro-rata basis.
5. Raw material collection and movement of raw material from Raw Material Stores to be done by the contractor.
6. Wherever fabrication, gas cutting, welding work occurs – surface preparation and cleaning for the painting work to be done by the contractor.

7. Wire ropes, chain pulley block, lifting tackles, manila rope for handling the structures, trolley for movement of materials, etc. to be provided by SSTP/BHEL.
8. The contractor has to arrange the necessary man power and activities for fabrication, dismantling and erection, etc. to be done after receiving 2 Days advance information From Maintenance department.
9. For completing the erection work, cutting, welding and fabrication and modification work in this connection – repair / rectification work at suit at site condition to be done by the contractor.
10. Welding machine and accessories will be supplied by SSTP/BHEL.
11. Gas cutting set and accessories will be supplied by SSTP/BHEL
12. The contractor must be willing to work round the clock including Sundays and holidays to complete the job as per the shut down.
13. Anticipated fabrication and erection of components for doing the above work if required To suit at site condition to be done by the contractor.
14. Lifting facility (CRANE) will be arranged by SSTP/BHEL while erection.
15. Portable grinding machine, drilling machine and fitters standard tool box to be arranged by the contractor for fabrication and erection work.
16. All the above items mentioned in the job description may be finalized to award the contractor on single package basis to the over all L1 party.

IV) Format for supplier to quote:

| S.No | Particulars   | Qty  | Amount |
|------|---|--|--------|
| 01   | <p>Group – 1</p> <p>a)Tube Charging table with bend segregation trough, tube transfer arm with tie rod for level adjustment.<br/>( Pipe Loading High rise platform structure built with using fabricated section, channels, Angles and plates<br/>Material: M.S )</p> <p>c) Manually operated Gear Box for adjusting as per the diameter of the tube.</p> <p>d) Pneumatic systems for tube charging mechanism</p>   | <p>1 set<br/>(30m)</p> <p>1 nos.</p> <p>1 sets</p>   |        |
| 02   | <p>Group – 2</p> <p>a)Acceptance side roll over table and 2 collection trough for OK side<br/>( Pipe Loading Platforms structure built with using fabricated section, channels, angles and plates. Material : M.S.).</p> <p>d) Pneumatic cylinder and system for collecting trough arm open and close</p>   | <p>1 sets<br/>(24m)</p> <p>1 sets</p>  |        |
| 03   | <p>Group – 3</p> <p>Run over table with 3 collection trough and closing arms at rejection side<br/>( Pipe Loading Platforms structure built with using fabricated section, channels, angles and plates ,Material : M.S).</p> <p>e) Pneumatic cylinders and system for collection trough arms</p> <p>f) Pneumatic cylinder- tube in feed to grinding m/c</p>   | <p>1 set<br/>(24m)</p> <p>3 sets</p> <p>1 set</p>  |        |
| 04   | <p>Group - 4 IN BETWEEN FEEDER AND RECEIVING END</p> <p>a) Emery belt grinding m/c as that of the existing model and principal with motor and pneumatic cylinder. Complete.</p> <p>b)supported with pneumatic pinch roll system and.<br/>Support Structure.</p> <p>c) Conveyor system with Plumber block and rollers(24 m)</p> <p>d) Conveyor roller support structure</p> <p>e) Motorised Gear Boxes coupled serially</p> <p>f) Pneumatic systems for creating upward Thrust to tubes while the polishing is in process with pneumatic cylinder.</p> <p>g) Dust Extractor to suit the requirement.(2000 cu.m/hr)</p> | <p>1 no</p> <p>4 nos</p> <p>15 sets</p> <p>15 nos.</p> <p>15 sets</p> <p>5 sets</p> <p>1</p> |        |

|    |  |  |  |
|----|--|--|--|
| 05 | <p>Group – 5 (Tube Polishing Mechanism – in Receiving end)<br/>Retesting table with singling mechanism, tube transfer arm with tie rod for level adjustment.<br/>( Pipe Loading High rise platform structure built with using fabricated section, channels, Angles and plates<br/>Material: M.S )</p> <p>c) Manually operated Gear Box for adjusting as per the diameter of the tube.</p> <p>d) Pneumatic systems for tube charging mechanism</p> <p>e) Pneumatic system for tube testing line</p> | <p>1 set<br/>(30 m)</p> <p>1 set</p> <p>1 set</p> <p>1 set</p> |  |
| 06 | Air washer & fixing arrangement for drying the tube after testing by using compressed air  | 1 set  |  |
| 07 | P.L.C .Electrical control panel board for grinding section   | 1 no   |  |
| 08 | Erection charges for the suppliers item  | complete   |  |
| 09 | Erection of UT m/c with conveyors system (25t aprox) procured by SSTP from MAC   | 1 set  |  |
| 10 | Complete painting of the fabricated item 1 coat finishing layer. Any touchup painting of MAC supply- in case of scratch , peal off.<br>Paint procurement is supplier scope   |  |  |
|    | Total  |  |  |

**PART A****ANNEXURE-B**

## RETROFITTING OF CNDT SUPPORT STRUCTURES & CONVEYOR SYSTEMS

**SECTION – I: QUALIFYING CRITERIA**

The BIDDER has to compulsorily meet the following requirements to get qualified for considering the technical offer for the CNDT support structures and Conveyors.

| S. No.  | REQUIREMENTS  | Vendor's Response |
|---|---|-------------------|
| 1   | <p>Only those vendors who have designed, manufactured and commissioned at least one <b>Conveyor system</b></p> <p><b>1. Conveyor for tube testing</b></p> <p><b>2. Conveyor for tubes or panel welding</b></p> <p><b>3. Conveyor system for tube colour coding</b></p> <p><b>4. Order value &gt;1 cr for the above tube handling system</b></p> <p><b>5. Conveyor system for tube making Hot Mill Process</b></p> <p>in the past ten years and such machine should be working satisfactorily for a minimum period of one year after commissioning, as on the date of opening of this Tender are eligible to quote.</p> <p><i>(However, if such machine is already supplied to BHEL, then that machine should be working satisfactorily for a minimum period of six months after commissioning, as on the date of opening of this Tender.)</i></p> |                   |
| <b>The vendor should submit the following information where similar machine has been supplied, for qualification of this offer.</b> |   |                   |
| 1.1   | Name and postal address of the customer or company where similar machine is installed.  |                   |
| 1.2   | Name and designation of the contact person of the customer.   |                   |
| 1.3   | Phone, FAX no and email address of the contact person of the customer.  |                   |
| 1.4   | Month and Year of commissioning of the machine.   |                   |
| 1.5   | Parameters of machine supplied, viz. Table length, Tube dia, Tube thickness, and the application for which the machine is supplied.   |                   |

|     |  |  |
|-----|--|--|
|     |  |  |
| 1.6 | Along with the Technical offer, the Vendor should submit one Performance certificate from the customer for the satisfactory performance of the machine supplied to them. For obtaining the Performance certificate, a suggestive format is provided in <b>SECTION – IV</b> . |  |
| 2.0 | BHEL reserves the right to verify the information provided by vendor. In case the information provided by vendor is found to be false/ incorrect, the offer shall be rejected.   |  |

## **SECTION – II**

The BIDDER / VENDOR is requested to provide the following information:

| <b>S. No.</b> | <b>REQUIREMENTS</b>   | <b>Vendor's Response</b> |
|---------------|---|--------------------------|
| 3.0           | The BIDDER/VENDOR to furnish Reference List of Customers, with full address, details of contact person, where Conveyor system for on line tube testing machine or conveyor system for any special machine with PLC controls have been supplied in the past.   |                          |
| 4.0           | Details of conveyor system for CNDT on-line Tube Testing Machine or conveyor system for any other special machine with on line tube handling hydraulic system with PLC controls supplied to other BHEL units, if any. (Year of commissioning, loading and unloading table length, tube dia and tube thickness). |                          |
| 5.0           | Details on SERVICE-AFTER-SALES Set-Up in India including the Address of Agents / Service Centers in South India.  |                          |
| 6.0           | Any Additional Data to supplement the manufacturing capability of the BIDDER for the subject equipment.   |                          |



**SECTION – III**

The BIDDER to note:

| S. No. | PARTICULARS   | Vendor's Response |
|--------|---|-------------------|
| 7.0    | The BIDDER / VENDOR shall submit the offer in TWO PARTS.<br>1. Technical Offer [with PART A & PART B] and Commercial offer(without price)<br>2. Price Bid.  |                   |
| 8.0    | The Technical Offer shall contain a comparative statement of Technical <b>Specifications demanded by BHEL</b> and <b>Offer Details submitted by the Bidder</b> , against each clause.<br>A just 'CONFIRMED' or 'COMPLIED' or 'YES' or 'NO-DEVIATION' or similar words in the technical comparative statement may lead to disqualification of the Technical Offer. |                   |
| 9.0    | The Technical Offer shall be supported by product Catalogues & Data Sheets and also technical details of Bought-Out-Items with copies of Product Catalogue to the extent possible.  |                   |
| 10.0   | The Commercial Offer (given with the Technical Offer) shall contain the Scope of Supply and the <b>Un-Priced Part</b> of the Price-Bid, for confirmation.   |                   |

**SECTION – IV**

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. Application for which M/C is used  |   |                           |
| 5   | a) Table length<br>b) Tube size -OD<br>c) Tube wall thickness |                           |
| 6. Performance of the Equipment<br>(Tick whichever is <b>applicable</b> )   |   | <b>Best in the market</b> |
|   |   | <b>Satisfactory</b>       |
|   |   | <b>Good</b>               |
|   |   | <b>Average</b>            |
|   |   | <b>Not Satisfactory</b>   |
| 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> |   |                           |



An ISO 9001 Company

Bharat Heavy Electricals Limited  
(Seamless Steel Tube Plant)  
Tiruchirappalli-620014, Tamil Nadu, India

## **ANNEXURE-C**

### **COMMERCIAL TERMS AND CONDITIONS APPLICABLE FOR OPEN TENDER**

#### **INSTRUCTIONS TO THE BIDDERS:**

##### **1.0 QUOTATIONS**

Bidders shall submit the offer in **TWO INNER ENVELOPES** as indicated below which shall be sealed in one outer envelope.

**Envelope I** This sealed envelope should contain all the copies of technical bid together with un-priced commercial bid. This envelope should be clearly marked **“Part I - Technical and Un-priced commercial bid”**, indicating Tender No., Due Date and Address & Reference of the Bidder.

**Envelope II** This sealed envelope should contain **price details**. This envelope should be clearly marked **“Part II - Price bid”**, indicating Tender No., Due Date and Address & Reference of the Bidder.

Both the envelopes (Part I & II) shall be put in one cover, duly sealed, superscribing as Part I and Part II of Tender No., due date of opening and the address and reference of the Bidder.

The above offer should reach this office on or before the due date by 14.00 Hrs (IST).

Tender should not be addressed to any Individual's name but only by designation to:

**DGM / PURCHASE & CONTRACTS  
BHARAT HEAVY ELECTRICALS LIMITED  
SEAMLESS STEEL TUBE PLANT  
TIRUCHIRAPALLI - 620 014  
TAMIL NADU, INDIA**

Tenders should be free from **CORRECTION AND ERASURES**, Corrections if any, must be attested. All amounts shall be indicated both in words as well as in figures. Where there is difference between amount quoted in words and figures, amount quoted in words shall prevail.

Offers should be in **ENGLISH** and accompanied by detailed technical literature, catalogue and detailed dimensional drawings in **ENGLISH** or otherwise, the offers will not be considered.

##### **2.0 PART I (TECHNICAL & UN-PRICED COMMERCIAL BID)**

###### **2.1 Technical**

This part shall include / indicate the following:

- 2.1.1. Offer should contain complete scope of supply with all technical details, specifications, delivery and other commercial terms and conditions.

- 2.1.2. Point by point confirmation for the Technical Specification enclosed is to be provided. If there are any deviations, the same should be clearly specified. Offers received without confirmation to our specification will be rejected.
- 2.1.3. List of customers to whom same or similar equipment have been supplied along with performance certificates to be enclosed.
- 2.1.4. Relevant catalogues to be attached
- 2.1.5. List of spares parts (with part numbers) for two years operation and maintenance should be attached.
- 2.1.6. Information on shipping weight and cubage (length, width & height) to be provided.
- 2.1.7. Offers shall be submitted by the Original Equipment Manufacturer. In case of foreign bidder, the Principal's offer should be enclosed.**

## **2.2 Un-Priced Commercial**

This part shall include / indicate the following:

- 2.2.1. Acceptance of commercial terms and conditions by the bidders
- 2.2.2. Port of shipment / Station of despatch
- 2.2.3. Terms of payment
- 2.2.4. CFR price upto Chennai port (for foreign bidders).
- 2.2.5. FOR /BHEL, Tiruchy price along with freight charges upto BHEL, Tiruchy  
Indicated separately (for Indian bidders)
- 2.2.6. Taxes, Service tax & duties including cess applicable.
- 2.2.7. Delivery Schedule
- 2.2.8. Offer validity
- 2.2.9. Country of origin
- 2.2.10. Percentage of agency commission if any along with a copy of Agency agreement.  
The CFR prices quoted shall include the agency commission.
- 2.2.11. A copy of "Un-Priced Part II" i.e., a copy of the Price Bid **without the price details** to be enclosed.

## **3.0 PART II (PRICE- BID)**

This part should contain the schedule of price particulars and to be co-related to the technical details provided in Part I.

## **4.0 OPENING OF TENDERS**

The Part I - Technical & Un-priced commercial bid alone would be opened on the Tender opening date.

The Part II - Price bid of Technically suitable Bidders alone would be opened. The Technically suitable Bidders would be informed about the Price Bid opening date. Clarifications if any required by BHEL for Technical evaluation / commercial evaluation would be sought from Bidders before opening of Part II - price bid.

## **5.0 GENERAL**

- 5.1. Equipment offered shall be "New". Re-built / Re-conditioned / Used equipments will not be accepted. Incomplete offers will not be considered for further processing.
- 5.2. **Fixed price:** Prices quoted by the bidder shall be fixed and not subject to any escalation whatsoever during the period of bid validity and execution of the Purchase Order. A bid submitted with an adjustable price will be treated as non-responsive and rejected. Prices shall be written in words and figures. In the event of difference, the price in words shall be valid and binding. Unit prices shall be considered correct in the event of any discrepancy with regard to total price.

- 5.3. **Bid currency:** Indian bidders should submit the prices only in Indian Rupees. Foreign bidders may submit their bid in their home currency, which should be clearly indicated in the un-priced commercial bid as well as in the price bid.
- 5.4. **Terms of Delivery:** Bidders are required to quote their best delivery period. Foreign Bidders should submit their offer for net **CFR / Chennai Seaport / Airport**. Freight charges upto Chennai port to be indicated separately. Indian Bidders should submit their offer for **FOR/ BHEL, Tiruchy basis**. Freight charges from Supplier works to BHEL, Tiruchy to be indicated separately. Delivery from the date of Letter of Intent / Purchase Order to be mentioned in the offer.
- 5.5. **Taxes and Duties :** All Taxes and Duties payable as extra to the quoted price should be specifically stated in offers along with CST & TIN No / Tariff No. etc., failing which the purchaser will not be liable for payment of such Taxes and Duties. Our TIN No. 33243560005, TNGST No. 3560005, CST. No. 239383 Dt. 11-06-1991 & BHEL ECC No. AAACB4146PXM012, Assessment circle Tiruverambur
- 5.6. **Validity :** The offers for main equipment and spares shall be kept open for acceptance for a period of **180 days (one hundred and eighty days)** from the date of opening of the tender (Part I).
- 5.7. The bidder to provide Business Information Report incorporating the rating of the company by international credit rating agencies, viz., **DUNS** number of M/s DUN & Bradstreet (D&B) etc., along with your technical offer.
- 5.8. **Indian Agent & Agency commission:** An Indian Agent can represent only one Foreign Manufacturer against a particular Tender. The CFR price quoted by the Foreign bidder shall include the agency commission however, the agency commission component payable to their Indian Agents shall be shown separately in the Offer. This will be paid by BHEL in Indian Rupees, on satisfactory commissioning & acceptance of the equipment. The bidder shall furnish authenticated copy of the Agency Agreement detailing the precise relationship between them and their mutual interest in the business so as to consider the offer of the Indian Agent for the indigenous portion of the supply. For the main equipment, the offer should be from Principal / Original Equipment Manufacturer. The supplier to furnish original Authorization Letter for the Indian Agent along with the offer.
- 5.9. **Short shipment / Warranty replacement:** In case of any short shipment in the main equipment / spares, customs duty levied on such supplies, shall be borne by the supplier. Any warranty replacement during the warrantee period shall be on FOR/ BHEL, Tiruchirappalli, basis.
- 5.10. **Inspection & Testing:** All goods shall be subject to inspection by BHEL or its authorized representatives at supplier's works or at BHEL stores. The supplier will not charge for the facilities provided for inspection of goods. In case of machine tools, the machine would be inspected and proved at supplier's works prior to dispatch however; final inspection and acceptance of the machine will be carried after installation of the machine at BHEL, Tiruchirappalli.

- 5.11. **Cenvat & VAT credit** : (for Indigenous Bidders only) The quotation must indicate Tariff item number and rate of Excise Duty applicable. The original Excise Duty Gate Pass will be required to be furnished in case it is charged to BHEL. If the bidder is availing Cenvat credit for his input materials, the effect of proforma credit should be passed on to the purchaser.
- 5.12. **Packing**: The Supplier shall arrange for packing suitably in all respects considering the peculiarity of the material involved for normal transport by sea / air / rail / road and suitably protected against effect of tropical salt laden atmosphere in the event of shipment being delayed at ports.
- 5.13. **Salient points of HSE** (Health Safety & Environment) that are to be considered while submission of offer are:
- Consumption benchmarks related to output shall be provided wherever applicable for key input resources (energy/fuel/chemicals)
  - Competency requirements for operation, maintenance and calibration, if any, shall be communicated
  - If any hazardous chemicals as per MSIHC (Manufacturing, Storage and import of Hazardous Chemicals) Rules 1989/94/2000 are used, the MSDS shall be provided, along with On site & Off site emergency plan (as applicable)
  - The noise level at operator level shall be within 90 dBA
  - OH&S (Occupational Health and Safety) control measures for safe working of machine as applicable shall be specified.
  - The machine / equipment shall be fitted with guard for rolling and moving parts and shall comply with applicable OH&S legislations and Factories Act 1948
  - The supplier shall submit the layout drawing of operating controls, displays etc. and operating instructions to enable ergonomics evaluation and approval
  - The recommended PPE (Personal Protective Equipment) for the equipment shall be furnished
  - Alarm system (both visual and audible) and Automatic switch off of the equipment shall be provided for any intrusion, overloading, short circuiting or any malfunctioning of the equipment
  - Details of all hazardous / harmful substances discharged as by-products / wastes during operations of the machine / equipment, such as fumes, gases, dust particles, aerosols UV/IR (Ultra violet / infra red) radiations, etc. shall be furnished, along with their concentrations and their TLV, (Threshold Limit Value).
  - Appropriate pollution control measures shall be proposed to keep the emissions from the machinery / processes within the prescribed limit as stated in Environment Protection Rules 1986.
  - All furnaces, process units, DG sets, paint booths, shot blasting chambers, etc shall be provided with stack(s) of sufficient height as per guidelines laid down in the Environment Protection Rules 1986.
  - Wherever industry specific standards are not available for control of pollutants, general emission standards shall be used
  - Chemicals banned due to their negative impact on the environment shall not be used in the process
  - Fuels with sulphur content less than 0.05% shall be proposed

- Details regarding nature of waste generated and appropriate disposal practices available shall be provided, along with the operation procedure of the plant / process. Hazardous chemicals and flammable substances shall be transported only through authorized transporters and all safety practices as laid down in applicable legislative requirements such as Central Motor Vehicle Rules, Manufacture, Storage and Import of Hazardous Chemical 1989, etc. shall be followed
  - Primary materials used in the equipment shall be specified and they shall be eco – friendly
- 5.14. Evaluation of offers shall be on the basis of delivered cost (Net cash outflow to BHEL).
- 5.15. BHEL also reserve its right to allow to the Public Sector Enterprises ordering and price preference facilities as admissible under the existing policy.
- 5.16. BHEL reserves its right to reject a tender due to unsatisfactory past performance in the execution of a contract at any of BHEL projects / units.
- 5.17. BHEL shall be at liberty to reject or accept any tender, part or in full, at their own discretion and any such action is not liable for any question or claim against BHEL.
- 5.18. **BHEL reserves the right to go for a Reverse Auction (RA)** instead of Opening the submitted sealed bid, which will be decided after technical evaluation. Information and general terms and conditions governing RA are given below.

#### GENERAL TERMS AND CONDITIONS OF RA

Against this enquiry for the subject item/system with detailed scope of supply as per enquiry specifications, BHEL may resort to “REVERSE AUCTION PROCEDURE” i.e., ON LINE BIDDING ON INTERNET.

1. For the proposed reverse auction, technically and commercially acceptable bidders only shall be eligible to participate.
2. BHEL will engage the services of a service provider who will provide all necessary training and assistance before commencement of on line bidding on internet.
3. BHEL will inform the vendor in writing in case of reverse auction, the details of Service Provider to enable them to contact & get trained.
4. Business rules like event date, time, Start price, bid decrement, extensions etc. also will be communicated through service provider for compliance.
5. Vendors have to fax the Compliance form in the prescribed format (provided by Service provider) before start of Reverse auction. Without this, the vendor will not be eligible to Participate in the event.
6. BHEL will provide the calculation sheet (e.g., EXCEL sheet) which will help to arrive at “Total Cost to BHEL” like Packing & forwarding charges, Taxes and Duties, Freight charges, Insurance, Service Tax for Services and loading factors (for non-compliance to BHEL standard Commercial terms &

conditions) for each of the vendor to enable them to fill-in the price and keep it ready for keying in during the Auction.

7. Reverse auction will be conducted on scheduled date & time.
  8. At the end of Reverse Auction event, the lowest bidder value will be known on the network.
  9. The lowest bidder has to Fax the duly signed Filled-in prescribed format as provided on case-to-case basis to BHEL through Service provider within 24 hours of Auction without fail.
  10. Any variation between the on-line bid value and the signed document will be considered as sabotaging the tender process and will invite disqualification of vendor to conduct business with BHEL as per prevailing procedure.
  11. In case BHEL decides not to go for Reverse Auction procedure for this tender enquiry, the Price bids and price impacts, if any, already submitted and available with BHEL shall be opened as per BHEL's standard practice.
- 5.19. **Force Majeure clause:** If at any time during the continuance of this contract the performance in whole or in part by either party of any obligations under this contract shall be prevented or delayed by reason, of any war, hostilities, acts of the public enemy, civil commotion, sabotage, fires, explosions, epidemics, quarantine, restrictions or acts of GOD (hereinafter referred to as events) then provided notice of happening of any such events is given by either party to other within twenty one days from the date of occurrence thereof neither party shall reason of such events be entitled to terminate this contract nor shall either party have any such non performance and delay is resumed as soon as practicable after such events has come to an end or ceased to exist. If the performance in whole or part of any obligation under this contract is prevented or delayed by reason or any such event claims for extension of time shall be granted for period considered reasonable by the purchaser subject to prompt notification by the seller to the purchaser of the particulars of the events and supply to the purchaser if required of any supporting evidence. Any waiver of time in respect of partial instalment shall not be deemed to be a waiver of time in respect of remaining deliveries.
- 5.27 The correspondence exchanged against the tender from both tenderer and BHEL through email are considered as valid document legally though it is not signed. It is treated as valid confirmations made on behalf of the respective company and very much comes under the legal ambit of the business transaction and hence it is binding on both the parties to the business.
- 5.28 Any transaction pertaining to the tender from both the parties of business done round the clock irrespective of the office or business hours of the companies, are valid legally and binding on both the parties. This applies to the extent only in such cases where deadline time for transaction is not specifically declared by either or both the parties to the business.
- 5.29 In case Letter of Intent (LOI) is issued through email, the PC generated time and date of mail shall be construed as the official time and date of release of LOI. In as much as this date is within the last date of validity given by the bidder the LOI is said to have been issued within the validity period and shall be binding on both the parties to the business.



- 5.30 Bidders participating in the tender should declare in their technical bid that whether they have been black-listed / kept on hold for a specified period / given Business holiday for a specified period by any Public sector undertaking or Government departments. The reasons for such action with details and the current status of such hold shall be clearly furnished to BHEL. If no such details are mentioned in the offer then it will be construed that the subject bidder is not under any such hold. But at a later date if it comes to the notice of BHEL about any such hold under enforcement on the subject bidder, BHEL will have every right to reject the offer of such vendors at any point of time and also under any stage of the finalisation of the subject tender irrespective of the status of the subject bidder in that tender. Such bidders will not be permitted to participate in the further tender proceedings and will be communicated suitably. They will not be also considered for any on going tenders even if participated till the hold is officially lifted and confirmed in writing.
- 5.31 **Guarantee:** The equipment shall be guaranteed for a period of 24 months from the date of commissioning and acceptance.
- 5.32 **Contract Execution Bank Guarantee (CEBG):** The successful tenderer shall furnish a Bank Guarantee, from an Indian Bank approved by BHEL in the format enclosed, for 5% of the Letter of Intent value (FOR Dispatching station value – Excluding taxes, duties, freight & Bharat Heavy Electricals Limited TIRUCHIRAPPALLI CAPITAL PURCHASE insurance – for Indian bidders) & (FOB/FCA value – Excluding freight & insurance – for foreign bidders) confirming that the order will be executed as per the terms and conditions and this should be valid till final dispatch date (LR/GR/BL/AWB) with additional 2 months claim period. Purchase Order & Letter of Credit will be processed only after receipt of CEBG. The CEBG is to be furnished within 3 weeks from the date of Letter of Intent.
- 5.33 **Performance Bank Guarantee (PBG):** The supplier shall furnish a Bank Guarantee, from an Indian Bank approved by BHEL in the format enclosed, for 10% of the Purchase Order value (FOR Dispatching station value – Excluding taxes, duties, freight & insurance – for Indian bidders) & (FOB/FCA value – Excluding freight & insurance – for foreign bidders) valid for period of 24 months from the date of commissioning & acceptance of the equipment at BHEL, Tiruchirappalli, with additional claim period of 2 months.

**Formats for execution of Bank Guarantees:**

***Important Note:- The formats for execution of Bank Guarantees (both CEBG & PBG) shall be kept valid to cover the period of BG plus an additional claim period of two months. The Bank Guarantee bonds (BG) are to be submitted on non-judicial stamp paper of Rs. 100/- and should be only from any one of the below mentioned Banks,***

***(1) State Bank of India, 2) State Bank of Hyderabad, 3) State Bank of Travancore, 4) Canara Bank, 5) Bank of Baroda, 6) Punjab National Bank, 7) Deutsche Bank AG, 8) HDFC Bank Ltd, 9) Standard Chartered Bank, 10) CITI Bank N.A., 11) ABN AMRO Bank N.V. 12) ICICI Bank Ltd. 13) IDBI Ltd. 14) The Hongkong and Shanghai Banking Corporation Ltd. 15) Syndicate Bank. 16) State Bank of Mysore. 17) State Bank of Maharastra. 18) UCO Bank. 19) Allahabad Bank. 20) Andhra Bank. 21) Corporation Bank. 22) Dena Bank 23) Union Bank of India. 24) United Bank of India. 25) Vijaya Bank. 26) Axis Bank (Unit Trust of India). 27) Bank of Maharastra. 28) Bharat Overseas Bank. 29) Bank of India. 30) Indian Bank. 31) Indian Overseas Bank. 32) Oriental Bank of Commerce. 33) Central Bank of India. 34) State Bank of Patiala. 35) Punjab & Sind Bank. 36) State Bank of Bikner & Jaipur***

**A. CONTRACT EXECUTION BANK GUARANTEE (CEBG)**

**This** deed of guarantee made this ..... day of ..... 200.. by the ..... in favour of **Bharat Heavy Electricals Limited, Tiruchirapalli** having its registered Office at New Delhi with its Unit Office at Tiruchirapalli (Hereafter called the first party) where as M/s..... having its registered office at ..... (hereafter called the contractor) have entered in to contract with the first party for the supply of ..... vide Letter of Intent No ..... dated .....

**And** whereas the contractor M/s ..... have approached the ..... for a guarantee and at their request and in consideration of the arrangement arrived at between the contractor and the BHEL Tiruchirappalli the said ..... has agreed to give such guarantee as herein after mentioned to the aforesaid first party.

**Now** therefore, these present witness that we the ..... do hereby undertake to the first party a sum of Rs ..... (Rupees ..... only) without demur/on demand being made by the said first party and to keep the first party indemnified to the extent of Rs ..... (Rupees ..... only) by virtue of this guarantee against any breach in execution of contract without giving prior information to the party of the same (the decision in this respect being solely the discretion of the first party). We further undertake to pay ..... the aforesaid amount in the lump sum on demand without demur or such part thereof as the first party may demand from time to time, irrespective of the fact whether the said contractor admits or denies such claim or questions its correctness in any court tribunal of arbitration proceedings or before any authority.

**The** aforesaid guarantee will remain in full force and we shall be liable under the same irrespective of any concession for time being granted by the said first party to contractor M/s ..... in or for fulfilling the said agreement between the contractor M/s ..... and the first party and the guarantee will remain in full force till ..... irrespective of any change of terms, conditions or stipulation or any variations in the terms of said agreement irrespective of whether notice of such change or variation is given to us or not and claim to receive such notice of any change and/or variation of the terms and/or conditions of the said agreement is hereby specifically waived by us.

**Further** we shall not be released from this guarantee by any forbearance or the exercise or non exercise of any of the power or rights under the said agreement by the said first party against the contractor irrespective of whether notice of such forbearance enforcement or non-enforcement of any power or rights, modifications or changes made in the said agreement or concessions shown to contractor M/s ..... by the first party is given to us or not.

**The guarantee** herein contained shall not be determined or affected by the liquidation of winding up or insolvency of or change in the constitution of the contractor M./s ..... but shall in all respects and for all purposes binding and operative until all payments of all moneys dues or that may hereafter becomes due to the said first party is paid in respect of any liability or obligation for the contractor under this guarantee subject to however that the first party shall have no right under this guarantee after expiry of six months from the date of completion of the contract unless this guarantee is extended by mutual agreement.

**And** lastly we ..... undertake not to revoke this guarantee during its currency except with the previous consent of the first party in writing. The ..... hereby declares that it has power to issue this guarantee under the Company's memorandum and article of association and the undersigned has full power to do so on its behalf under the power of attorney dated ..... granted to him by the proper authorities of the Company.

**Notwithstanding** anything contained here in before, our liability under this guarantee is restricted to Rs ..... (Rupees ..... only). Our guarantee shall remain in force till ..... unless a claim in writing is presented to us and if unpaid a suit or action to enforce such claim is filed against within 6 months from the date, all your rights under this guarantee shall be forfeited and we shall be released and discharged from all liability there under.

**Dated** ..... the ..... by its constituted attorney.

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**B. PERFORMANCE BANK GUARANTEE (PBG)**

1. In accordance of M/s Bharat Heavy Electricals Limited (A Government of India undertaking, a Company incorporated under the Companies Act 1956 having its Registered Office at 'BHEL House", SIRI Fort, New Delhi 110 049) through its High Pressure Boiler Plant Division located at Tiruverumbur, Tiruchirappalli 620014 (hereinafter called "the Company") having entered into a contract with ..... hereinafter called "the said contractor" which term includes 'suppliers' for the purpose of this Bond and under the terms and conditions of the Contract No: ..... dated ..... between BHEL, Tiruchirappalli and as per the contract, the contractor/supplier is to furnish a Performance Bank Guarantee for Rs ..... for the due performance of the equipment to be supplied under the above referred contract and for the fulfilment of all the terms and conditions of the contract. We ..... (indicate the name of the Bank) (herein after referred to as the Bank) at the request of ..... (contractor(s)) do hereby undertake to pay the Company an amount not exceeding Rs ..... against any loss or damage caused to or suffered or would be

caused to or suffered by the Company by reason of any breach by the said contractor (s) of any of the terms and conditions contained in the said agreement.

2. We ..... (indicate the name of the Bank with full address), do hereby undertake to pay the amounts due and payable under this guarantee without any demur, merely on a demand from the Company stating that the amount claimed is due by way of loss or damage caused to or would be caused to or suffered by the Company by reason of breach by the said Contractor(s) of any of the terms and conditions contained in the said Agreement or by the reason of the contractor(s) 'failure to perform' the said Agreement. Any such demand made on the Bank shall be conclusive as regards the amount due and payable by the Bank under this guarantee. However, our liability under this guarantee shall be restricted to an amount not exceeding Rs .....
3. We undertake to pay unconditionally to the Company any money so demanded notwithstanding any dispute(s) raised by the Contractor in any suit, or proceedings pending before any Court or Tribunal or Arbitration or before any other authority relating thereto our liability under this present being absolute and unequivocal. The payment under this guarantee would not wait till the disputes have been decided by any Court or Tribunal or in the arbitration proceedings or by any other authority. The payment so made by us under this Bond shall be a valid discharge of liability for payment there under and the Contractor (s) shall have no claim against us for making such payment.
4. We ..... (indicate the name of Bank), further agree that the guarantee herein contained shall remain in full force and effect during the period that would betaken for the performance of the said Agreement and that it shall continue to be enforceable till all the dues of the Company under or by virtue of the said Agreement have been fully paid and its claim satisfied or discharged or till ..... Office/Department/Division of the Company certifies that the terms and conditions of the said Agreement have been fully and properly carried out by the said Contractor(s) and accordingly discharges this guarantee.
5. (i) Unless a demand or claim under this guarantee is made on us in writing on or before the ..... we shall be discharged from all the liability under this guarantee thereafter. But where such claim or demand has been preferred by the Company with the Bank before the expiry of the said date, the claim shall be enforceable notwithstanding the fact that the said enforcement is effected after the said date.  
  
(ii) For the purpose of this clause, any letter making demand on the Bank by M/s BHEL will be dispatched by Registered Post with Ack. Due or by Telegram or by any Electronic media addressed to the above mentioned address of the Bank shall be deemed to be the claim/demand in writing referred to above irrespective of the fact as to whether and when the said letter reaches the Bank, as also any letter containing the said demand or claim is lodged with the Bank personally.
6. We ..... (indicate the name of the Bank), further agree with the Company that the Company shall have the fullest liberty without our consent and without affecting in any manner our obligations hereunder to vary any of the terms and conditions of the said agreement or to extend time of performance by the said Contractor(s) from time to time or to postpone for any time of from time to time any of the powers exercisable by the Company against the said Contractor (s) and to forbear or enforce any of the terms and conditions relating to the said Agreement

and we shall not be relieved from our liability by any reason of any such variation or extension being granted to the said contractor(s) or for any forbearance, act or omission on the part of the Company or any indulgence by the Company to the said Contractor(s) or by any such matter or thing whatsoever which under the law relating would, but for this provision, have effect of not so relieving us.

7. This guarantee will not be discharged due to the change in the constitution of the Bank or the Contractor(s)
8. It shall not be necessary for the Company to proceed against the contractor before proceeding against the guarantor–Bank and the guarantee herein contained shall be enforceable against them notwithstanding any security, which the Company may have obtained or obtain from the Contractor shall, at the time when proceedings are taken against the guarantor hereunder be outstanding or unrealised.
9. Any claim or dispute arising under the terms of this document shall only be enforced or settled in the Courts at Tiruchirappalli.
10. The guarantor hereby declare that it has power to execute this guarantee and the executant has full powers to do so on its behalf under the proper authority granted to him/them by the guarantor
11. We ..... (indicate the name of Bank) lastly undertake not to revoke this guarantee during its currency except with the previous consent of the Company in writing.

In witness whereof we ..... (indicate the name of Bank) have hereunto set out Bank Seal the ..... Day ..... month 200.

**ACCEPTANCE OF COMMERCIAL TERMS AND CONDITIONS BY THE BIDDERS**

|                                      |  |
|--------------------------------------|--|
| <b>Description of the Equipment:</b> |  |
| <b>BHEL Tender No. &amp; Date</b>    |  |

| <b>Sl No.</b> | <b>Description</b>  | <b>Vendor's confirmation</b> |
|---------------|---|------------------------------|
| 1             | <p><b>Payment terms:</b><br/>100% payment, within 45 to 90 days, after successful commissioning &amp; acceptance of equipment at BHEL, Tiruchy, against submission of 10% Performance Bank Guarantee.</p> <p>or</p> <p>80% of the material cost to be paid against delivery / dispatch documents within 45 to 90 days. Balance 20% of the material cost along with Erection &amp; Commissioning charges, if any, will be paid after successful commissioning &amp; acceptance of equipment at BHEL, Tiruchy, against submission of 10% Performance Bank Guarantee.<br/>(options of "through Bank" for indigenous and "through L/C" in case of import are available)</p> <p>In case of import, an Irrevocable unconfirmed Letter of Credit shall be established for 80% of material cost 1½ months prior to shipment with a validity of 3 months (including the document negotiation period). This L/C will be negotiable against shipping documents.<br/>For the balance 20% of material cost along with Erection &amp; Commissioning charges, if any, an Irrevocable unconfirmed Letter of Credit shall be established 1 month prior to visit of the foreign technician (for commissioning) validity of 3 months (including the document negotiation period). This L/C will be negotiable against acceptance certificate and 10% Performance Bank Guarantee.</p> <p>All LC opening charges in India and outside India will be to the supplier's account.</p> <p><b>Loading for deviation on payment terms if the above is not agreed by vendor will be @ 1.5% per month.</b></p> <p><b>Note:</b><br/>In case any bidder does not accept for payment of 20% payment after successful commissioning &amp; acceptance of equipment at BHEL, Tiruchy and submission of Performance Bank Guarantee for 10%, their offer is likely to be rejected and the technical bid not processed.</p> |                              |

|   |   |  |
|---|---|--|
| 2 | <p><b>Currency of payment:</b><br/>In case of foreign bidders please indicate the currency like Euro / US\$ / GBP etc.<br/>For indigenous bidders the currency shall be Indian Rupees</p>   |  |
| 3 | <p><b>Taxes &amp; Duties:</b><br/>All Taxes, Duties, Service Taxes etc. payable as extra to the quoted price should be specifically stated in offers along with CST &amp; TIN No / Tariff No. etc., failing which the purchaser will not be liable for payment of such Taxes and Duties. Our TIN No. 33243560005, TNGST No. 3560005, CST. No. 239383 Dt. 11-06-1991 &amp; BHEL ECC No. AAACB4146PXM012, Assessment circle Tiruverambur</p> <p><b>Income Tax applicable.</b><br/>Any service charges payable towards supervision of E&amp;C, training, performance prove-out etc., will be released after deduction of Income Tax as per Indian Income Tax Act / as per the Govt. of India rules. The TDS certificate will be issued by BHEL.</p>  |  |
| 4 | <p><b>Contract Execution Bank Guarantee:</b><br/>The successful bidder shall furnish a Contract Execution Bank Guarantee (CEBG) equal to 5% in the format enclosed and from one of the banks mentioned therein. In case of import, the foreign vendor shall arrange to give a counter guarantee to State Bank of India (SBI), Kailasapuram and SBI will provide the CEBG to BHEL in the format enclosed.<br/>The CEBG shall be executed valid for the delivery period (FOR dispatching station for indigenous / FOB delivery for import) with additional 2 months as claim period.<br/>The CEBG shall be furnished within 1 month from the date of Letter of Intent.<br/>In case any bidder does not accept for submission of Contract Execution Bank Guarantee (CEBG), their offer is likely to be rejected and the technical bid not processed.</p> |  |
| 5 | <p><b>Performance Bank Guarantee:</b><br/>Performance Bank Guarantee (PBG) for 10% of the total order value covering the agreed Guarantee period (with additional 2 months as claim period) has to be furnished. In case of indigenous bidder the PBG shall be in the format enclosed and from one of the banks mentioned therein. In case of import, the foreign vendor shall arrange to give a counter guarantee to State Bank of India (SBI), Kailasapuram and SBI will provide the PBG to</p>   |  |

|   |  |  |
|---|--|--|
|   | <p>BHEL in the format enclosed.</p> <p>In case any bidder does not accept for submission of Performance Bank Guarantee (PBG), their offer is likely to be rejected and the technical bid not processed.</p>  |  |
| 6 | <p><b>Liquidated damages:</b></p> <p>Delivery of the goods specified in the purchase order should be made within the time prescribed. Failure to dispatch the materials in the time as per the delivery quoted in our Purchase Order would make the supplier liable to an un-conditional penalty at the rate of <b>½% of the value of goods for each week of delay subject to a maximum of 15%</b> of the Purchase Order value. If any vendor does not accept LD <b>½% of the value of goods for each week of delay subject to a maximum of 5%</b>, their offer is likely to be rejected by BHEL and the technical bid not processed. Bidders accepting for maximum LD percentages in between 5% to 15% <b>will be loaded @ %age deviation from 15% and their accepted %age</b>. Eg. If a bidder accepts for a max of 7% LD, their offer would be loaded @ 8% (15 – 7 = 8). As regards LD, the delivery date (FOR dispatching station for indigenous / FOB delivery for import) shall be considered.</p> |  |
| 7 | <p><b>Risk purchase:</b></p> <p>If the supplier fails to deliver the goods within the delivery specified in the Purchase Order, BHEL will be entitled to terminate the contract and to purchase elsewhere at the risk and cost of the seller either the whole of the goods or any part which the supplier has failed to deliver or despatch within the delivery period mentioned in the Purchase Order.</p>  |  |
| 8 | <p><b>Delivery:</b></p> <p>Bidder shall indicate the delivery period required for the following activities.</p> <p>(a) Firm Time period, from the date of Letter of Intent (LoI), required for delivery of the equipment, (FOR dispatching station for indigenous / FOB delivery for import) to be indicated.</p> <p>(b) Commissioning, Prove-out and handing over of complete system to be indicated.</p> <p>Note: The above delivery periods indicated will not have bearing on activities such as submission of CEBG, drawing approval etc. It shall be the bidder's responsibility to have all technical clarifications sorted out before submission of price bid / participating in the RA. The Purchase Order (to be release after receipt of CEBG) will carry the above-indicated delivery period.</p>  |  |



|    |   |  |
|----|---|--|
| 9  | <b>Agency Commission:</b><br>Please specify the %age agency commissioning, if applicable or else please mention "not-applicable"                                      |  |
| 10 | <b>Validity:</b><br>Validity of the offer should be 180 days from the date of tender opening.   |  |
| 11 | <b>Contacts:</b><br>Details of contact person's name, designation, department with complete postal and email address along with phone and fax numbers to be mentioned |  |
| 12 | <b>Port of loading:</b>   |  |
| 13 | <b>Country of origin:</b>   |  |
| 14 | <b>Weight:</b><br>Approximate Net weight of the total consignment<br>Approximate Gross weight of the total consignment  |  |

**Date:**

**Signature:**

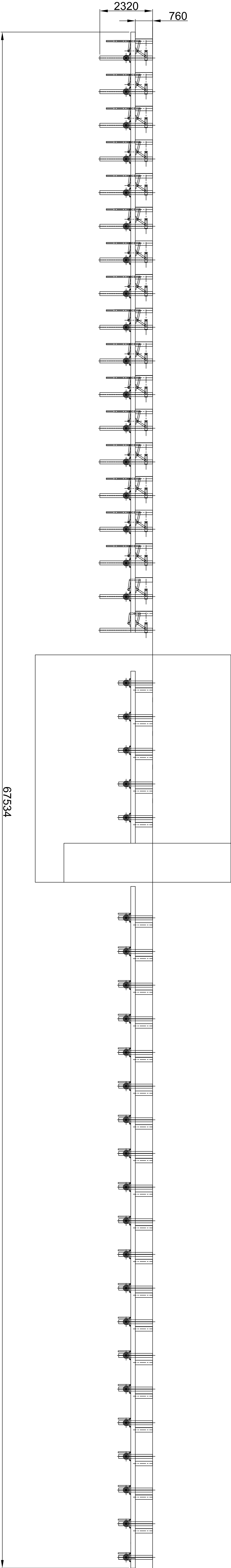
**Name:**

**Designation:**

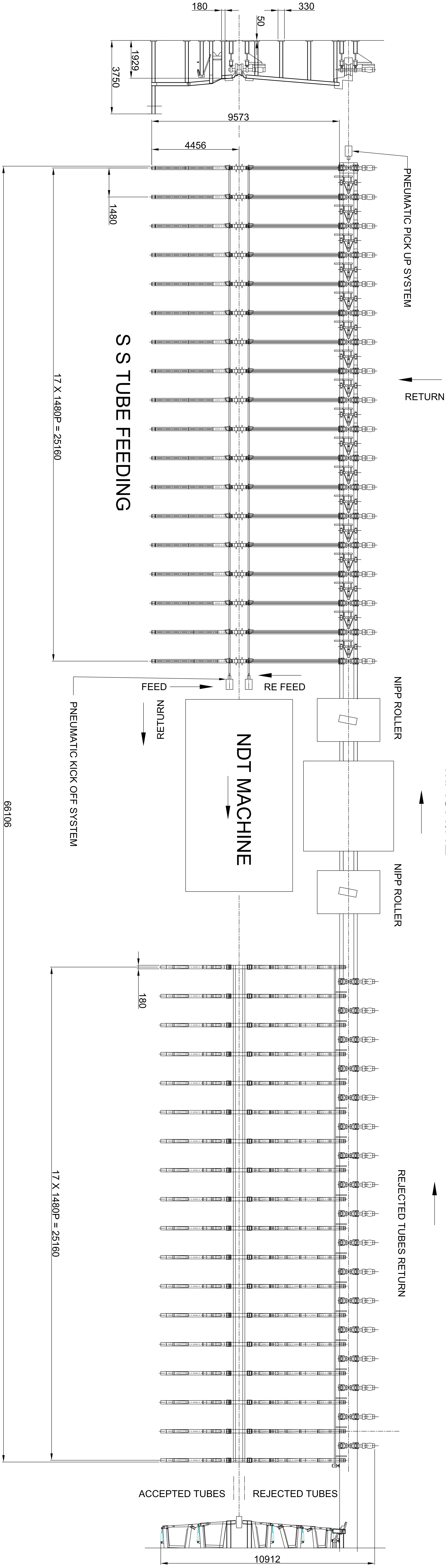
**Department:**

**M/s**

# SUPPORTING ARRANGEMENT FOR NDT MACHINE



ELEVATION

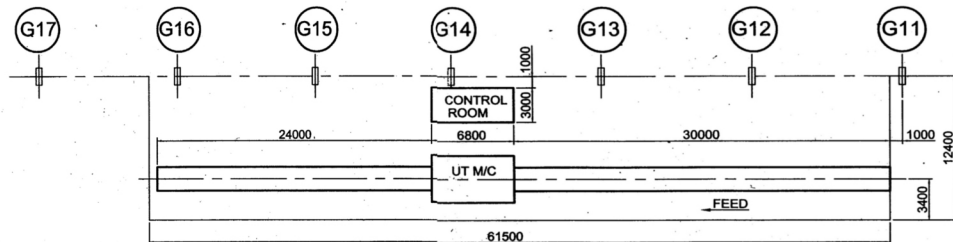


PLAN

|                      |  |  |  |                                      |  |
|----------------------|--|--|--|--------------------------------------|--|
| DYNAMACH INDUSTRIES  |  |  |  | TUBE HANDLING SYSTEM FOR NDT MACHINE |  |
| SS-001               |  |  |  | SS-001                               |  |
| REV. 1.0             |  |  |  | REV. 1.0                             |  |
| DATE: 10/10/2023     |  |  |  | DATE: 10/10/2023                     |  |
| BY: 10/10/2023       |  |  |  | BY: 10/10/2023                       |  |
| CHK: 10/10/2023      |  |  |  | CHK: 10/10/2023                      |  |
| APP: 10/10/2023      |  |  |  | APP: 10/10/2023                      |  |
| DESIGN: 10/10/2023   |  |  |  | DESIGN: 10/10/2023                   |  |
| MATERIAL: 10/10/2023 |  |  |  | MATERIAL: 10/10/2023                 |  |
| QUANTITY: 10/10/2023 |  |  |  | QUANTITY: 10/10/2023                 |  |
| SPEC. 1.0            |  |  |  | SPEC. 1.0                            |  |



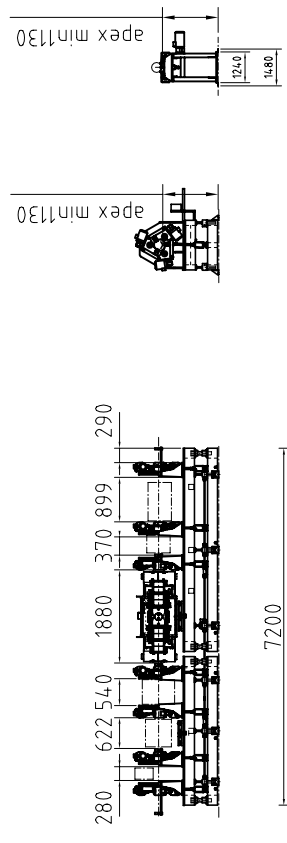
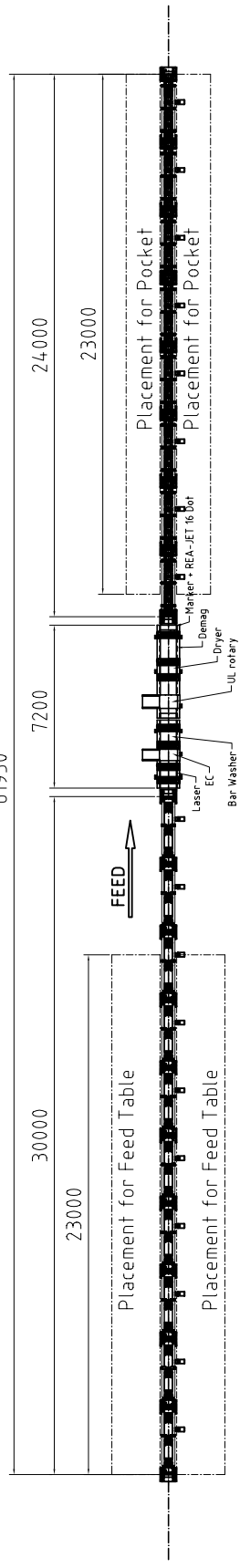
ALL DIMENSIONS ARE IN MILLIMETERS



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CAUTION: IT MUST NOT BE USED DIRECTLY OR INDIRECTLY IN ANY MANNER DETRIMENTAL TO INTEREST OF THE COMPANY


REV DATE ALTERED :  
CHECKED &  
APPROVED:

|  |             |  |                   |                                      |
|--|-------------|--|-------------------|--------------------------------------|
| ITEM NO  | DESCRIPTION | DRAWING NO   | MATERIAL CODE     | UNIT WT                              |
|  |             |  | MATERIAL SPEC     | QTY                                  |
| EQPT: COLD NDT   |             |  |                   |                                      |
|  |             | NAME SSN.KUMAR<br>CHD & APPD B.SANTHAKUMAR<br>DATE 29.4.08<br>27/04/08 |                   |                                      |
| BHARAT Heavy Electricals Ltd<br>SEAMLESS STEEL TUBE PLANT<br>TIRUCHIRAPALLI - 620014 |             | DEPT<br>CODE   | SCALE<br>1:250    | WEIGHT (Kg)<br>REF TO ASSY / OLD DWG |
| TITLE<br>LAYOUT OF UT M/C  |             | GRADE OF UNITS, DWG<br>9/10/18<br>18-2102                              | CARD CODE<br>U 01 | DRAWING NO :<br>3-7-0100-00-04885    |
|  |             |  |                   | REV<br>00                            |



Scope of supply not necessarily shown on drawing

| 14. |                            | 15.      |      |
|-----|----------------------------|----------|------|
| No  | Am't                       | Amending | Date |
| A   | measurement changed        | 08-07-10 | PW   |
| B   | front view conveyor added  | 08-07-23 | PW   |
| C   | UT side changed side       | 08-08-12 | PW   |
| D   | Test section change length | 08-08-14 | PW   |
| E   | Scope of supply box added  | 08-08-20 | PW   |

|   |                 |      |  |           |              |          |                                |  |
|---|-----------------|------|--|-----------|--------------|----------|--------------------------------|--|
| K | Date of<br>Mtr. |      | Ant.   | Beginning |              | Material | Machine name<br>or description | Amplifying                                       |
|   | Mtr.            | P.W. | Used   | Kwhr.     | Yds.         | Used     | Gm                             | Grater   |
|   |                 |      | <br>Harris<br>Subsidiary to MAC |           | LAY-OUT BHFL |          | 1:00                           | Fencing 5264-0001 E<br>2808-06-13<br>5264-0001 E |
|   |                 |      | 13   | 14        |              | 15       |                                |  |