

ENQUIRY / RFQ NO. 2692000013 – dt. 28.11.2020- HEATING ELEMENTS FOR HT
FURNACE BED MODIFICATION

ITEMS AND DESCRIPTIONS

Item	Description	Unit	Quantity	Delivery Quantity
10	Cylindrically formed Fibrothal board emb Cylindrically formed Fibrothal board embedded heating element Refer Drawing No. DRG: BHEL: U2: 001 and DRG: BHEL: U2: 002 Inner diameter of the of the Fibrothal insulation: 750mm Number of segments of the Fibrothal board: 3 Thickness of the fibrothal board: 125mm Placement of heating element: In the grooves provided on the inner surface of the fibrothal board. Total power rating of the furnace: 36kW No of segments in the furnace: 3 Power rating of one segment: 12kW Rated voltage of one segment: 230VAC (star connection of all 3 segments) Element material: Kanthal A1 Operating temperature: 900 degrees Celsius Element resistance: 4.135 Ohm Wire diameter: 5mm Coil Outer Diameter:30mm Coil inner diameter: 20mm Pitch: 8.4mm Total no of turns: 713 No of divisions of coil: 8 Distance between divisions: 80mm No of turns in each division: 89 Length of each division: 750mm Terminal strip dimensions: L275mm x W25mm x T3mm Kanthal A1 strip	NO	4.000	4.00
20	KANTHAL A1 STRIP 15x2MM HEATING ELEMENT Kanthal A1 - Formed Heating Element - ready to use. Element Details: Refer Drawing No. BHEL: U2: 003A 1. Material: Kanthal A1 grade 2. Cross section of the heating element (Width x Thickness): 15mm x 2mm (rectangular) 3. Cutting Length of Element strip (before forming): 21.2668 meter	NO	24.000	24.00

4. Resistance of the element: 1.027184466 OHM
 5. Power rating of the element: 12.5kW (115VAC, 108.70A)
 6. Surface Load: 1.73W/sq.cm.
 7. Weight of element with terminal: 5169 gram
 8. Element connection in the furnace: Two elements are connected in series at outside of the furnace shell using dedicated short links, which forms a single element rated 25kW at 230Vac. Such three combinations are connected in a "STAR connection with ungrounded neutral" rated for 75kW at 3Phase 415VAC. Such four STAR connected units are available in the furnace, which are divided into two zones with two set of such star connections each.
 Forming Details of the Element:
 1. Corrugation Height: 145mm
 2. Pitch: 60mm
 3. Radius: 14mm
 4. No. of pitches: 66.42
 5. Corrugated Length: 3985mm
 6. Terminal detail: by joining 3 strips of 15x2mm Kanthal A1 strips by welding.

30	NO	12.000	12.00
KANTHAL A1 WIRE (4.8MM) HEATING ELEMENT			
Kanthal A1 - Formed Heating Element - ready to use.			
Element Details: Refer Drawing No. BHEL: U2: 005			
1. Material: Kanthal A1 grade			
2. Cross section of the heating element: dia 4.8mm wire			
3. Power rating of the element: 7kW @230VAC (Star Connection)			
Forming Details of the Element:			
1. Formation of element: By joining four divisions in series. Each division of coil consist of 69 turns wound with turn OD-33mm along a length of 690mm with pitch-10mm. 100mm of wire is left between divisions for placement of coil in the oven.			
2. Coil OD: 33mm			
3. No of turns per division: 69			
4. Pitch of coiling: 10mm approx.			
5. Length of a coil: 690mm			
6. No of division of coil per element: 4			
7. Connection of divisions in the coil: series			
8. Total no of turns in the coil = 4 x 69 = 276			
9. spacing between divisions: 100mm			
10. Length of wire at terminal end: 400mm			
40	NO	24.000	24.00

CERAMIC TUBE L800xDia22xT3

Ceramic Tube (Item no II in Drg No: DRG: BHEL: U2: 007)

Application: Heating element support in M/s Vibrant make high

temperature flux baking oven

Maximum working temperature of the oven: 1100 degree Celsius

Length of the tube: 800mm

Outer diameter of the tube: 22mm

Inner diameter of the tube: 16mm

Thickness of the tube: 3mm

50		NO	24.000	24.00
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CERAMIC COLLAR TUBE FOR
TERMINAL STUD

Ceramic Collar Tube for Terminal Rod of Oven
Refer: Item no III of Drg No: DRG: BHEL: U2: 007

Application: Heating element support in M/s Vibrant make high

temperature flux baking oven

Maximum working temperature of the oven: 1100 degree Celsius

Total Length of the tube: 170mm

Dimension of the tube: Single piece construction
of L 20mm x OD 36mm + L

150mm x OD 20mm

Wall thickness: 3mm

60		NO	24.000	24.00
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SS310 TERMINAL ROD 12MM DIA

Stainless Steel Terminal Rod for High
temperature Oven

Refer: Drg No: DRG: BHEL: U2: 008

Application: Stainless Steel Terminal Rod for
M/s Vibrant make High

temperature flux baking oven.

Maximum working temperature of the oven: 1100 degree Celsius

Material of the terminal rod: SS310

Diameter of the rod: 12mm

Total length of the rod: 395mm

Description of construction:

Element connecting end of the rod: A Slot of
3mm width and 25mm depth
should be cut at this end. And a through hole
of dia 5.5mm shall be made

at the center of the slotted portion, in
perpendicular to the slot,

passing through the slot. This is for inserting
the end of the element

wire through the through hole and to weld fill
the slot for attaching
the element to the rod.

From the slotted end, the first 344mm is of Dia
12mm, then it reduces to
a squared cross section portion of 10mm x
10mm cross section for next

25mm of length and then it changes to a threaded portion of Dia 10mm for balance of 26mm of length for electrical connection termination.

70	NO	12.000	12.00
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U-TUBE EMBEDDED HEATING ELEMENT

1.67kW

heating element for immersion water heater assembly

Refer Item 01 Of Drg No: 3-M-19B06-16114

Power rating of heating element: 1.67kw

Rated voltage: 230V AC, 50Hz

Resistance of the element: 32 ohm

Operating temperature: 100 degrees Celsius

Max temperature: 120 degrees Celsius

Element construction: as per attached drawing

Length of the heater: 1860mm

Form Factor: U-shaped with short bending radius

Construction: The ceramic insulated heating element is embedded in a U-Shaped metallic tube of diameter 8 mm with bending radius as per the drawing. The electrical termination is made at the ends of the two parallel arms of the U-Tube using stud bolts M4 size. The two ends of the heating element embedded U-tube is inserted and through two holes provided in the face of a threaded brass cylindrical block, and welded together with the whole heating element portion on the one side and the electrical connection terminals on the other side.

Mounting: The heating element is mounted to the machine by the threaded on the brass cylinder outer periphery.

Details of the heater assembly:

Heater specification: 5kw immersion water heater, 5kw 3phase-star connection

Total No of Elements: 3

Make: Kantilal Chunilal < (> &<)> Sons Appliances Pvt Ltd, Surat

Model: Spherehot FHIMM 062

80	NO	12.000	12.00
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U-TUBE EMBEDDED HEATING ELEMENT

3.33kW

Heating element for immersion water heater assembly

Refer Item 02 of Drg no: 3-M-19B06-16114

Power Rating of Heating Element: 3.33kW

Rated Voltage: 230V AC, 50Hz

Resistance of the Element: 16 OHM

Operating Temperature: 100 degrees Celsius

Max Temperature: 120 degrees Celsius

Element construction: as per attached drawing

Length of the heater: 2650mm

Form Factor: U-shaped with short bending radius
 Construction: The ceramic insulated heating element is embedded in a U-Shaped metallic tube of diameter 8 mm with bending radius as per drawing. The electrical termination is made at the ends of the two parallel arms of the U-Tube using stud bolts of size M4. The two ends of the heating element embedded U-tube is inserted and through two holes provided in the face of a threaded brass cylindrical block, and welded together with the whole heating element portion on the one side and the electrical connection terminals on the other side.
 Mounting: The heating element is mounted to the machine by the threaded on the brass cylinder outer periphery.
 Details of the heater assembly:
 Heater specification: 20kw immersion water heater, 2 x 10kw 3phase-star connection
 Total no of elements: 6
 Make: Kantilal Chunilal < (> & <)> Sons
 Appliances Pvt Ltd, Surat
 Model: Spherehot FHIMM 062

Heating elements for HT Furnace bed modification - PRE QUALIFICATION CRITERIA

Sl.No	Description	Vendor's Reply
01	The bidder should have supplied electrical heating elements/coils to any PSU/Government/Semi Government Organization/Joint Venture company of PSUs or Govt. Organization or both/Private sector company registered under Companies Act 1956, in last three (05) years (on the date of opening of tender). Copies of Purchase Order(s) is required to be submitted in support of above along with Contact details of the customer.	
02	Along with the Technical offer, the Vendor should submit one Performance certificate from the customer for the satisfactory performance of the heating elements supplied to them as mentioned in above clause 01.	
03	The bidder shall confirm to 1-year warranty for all the items from the date of material receipt	

NOTE:

Offers meeting the above prequalification criteria points only (01 to 03) will be evaluated further. Otherwise the offers will summarily be rejected.

ATTACHMENTS:

Pre-Qualification Criteria

Annexure-II - Terms and Conditions Of The Enquiry

Annexure-B - Make in India Format LOCAL CONTENT SELF DECLARATION

Drawings

Annexure-II

BHARAT HEAVY ELECTRICALS LIMITED

(A GOVT.OF INDIA UNDERTAKING)

HIGH PRESSURE BOILER PLANT

TIRUCHIRAPPALLI-620 014

TERMS AND CONDITIONS OF THE ENQUIRY (TWO PART BIDS)

1.	The tender will be operated on Two part bids basis i.e. Part I -Techno-Commercial Bid & Part II- Price Bid in EPS PORTAL (https://bhel.abcpocure.com)ONLY.
2.	Part-I Techno-Commercial Bid : It contains Technical details, specifications, commercial terms and conditions Taxes, delivery terms, delivery schedule, validity of offer, payment terms (except price details), acceptance for LD clause, RP clause etc. as per ANNEXURE-II.
3.	Part-II Price Bid : It contains the input form for quoting price for all the enquired items in EPS PORTAL(https://bhel.abcpocure.com).
4.	This Tender is hosted in EPS portal & offer to be submitted through EPS portal only. You are requested to submit your 2 parts offer before due date & time given in RFQ through EPS PORTAL (https://bhel.abcpocure.com) only.
5.	Tender should not be addressed to any individual's name / designation.
6.	Attached documents/tenders should be free from CORRECTION AND ERASURES. Any correction in any attached document should have been attested. If there is such discrepancy in an offer, the same shall be conveyed to the bidder with target date up to which the bidder has to send his acceptance on the above lines and if the bidder does not agree to the decision of the purchaser, the bid is liable to be ignored
7.	Please submit point wise compliance to our specifications, terms and conditions. Otherwise it will be presumed that you are accepting BHEL's terms and conditions. Please ensure that all terms & conditions are filled. Commercial terms agreed in Part-1 Techno commercial Bid table of ABC portal is final, anywhere else mentioned will not be considered.
8.	Offer(s) received after due date and time as mentioned in EPS portal will not be considered under any circumstances.
9.	If the due date of tender opening happens to be a holiday, those tenders will be opened on future working day for which corrigendum will be issued.
10.	Documents submitted with the offer shall be signed and stamped in each page by authorized representative of the bidder
11.	The bidder shall submit his response through bid submission to the tender on EPS website at https://bhel.abcpocure.com . The bidder would be required to register on the EPS website at https://bhel.abcpocure.com and submit their bids online. SEALED COVER BIDS / E-MAILS / FAX / MANUAL OFFERS WILL NOT BE ACCEPTED
12.	Normally offer to be submitted within due date only. Any tender due extension request to be given on or before 48hrs of due date & time

13.	Validity of quoted rates should be maintained minimum for 120 days from the date of Tender opening for ordering (Technical Bid). The quoted/Finalized rates shall be Firm till completion of the supplies
14.	The rates are to be quoted on F.O.R. BHEL TRICHY STORES / BHEL THIRUMAYAM STORES (Refer Enquiry for delivery locations) basis ONLY which includes Packing & Forwarding charges, Freight & Insurance charges. All the items should be supplied at our STORES, BHEL –TRICHY / THIRUMAYAM (wherever applicable) at your own cost. Offers with any other delivery conditions is not acceptable. IMPORTANT NOTE: Delivery condition like Ex-works / Ex-godown / Transportation of materials through transport carriers from your works up to the transport carrier's office at TRICHY OR THIRUMAYAM wherever applicable and taking delivery of goods by BHEL from such office of transport carriers is not acceptable to us).
15.	<u>Payment Terms</u> 1). For Indigenous (Non-MSE) Bidders: ○ Payment term is “100% direct EFT payment after 60 days from the date of receipt and acceptance (supply, installation & successful commissioning of the system, wherever if applicable) of materials at BHEL TRICHY or THIRUMAYAM STORES wherever applicable”. ○ Any deviation in the above payment terms, any other conditions in payment terms or any other Payment Terms will not be accepted and offer will not be considered. ○ <i>Payment term is 100% direct EFT payment after 60 days from the date of receipt and acceptance of materials and against 10% PBG valid for the warranty period, wherever necessary.</i> ○ The duplicate copy of the invoice meant for the transporters should accompany the material as stipulated under C.E. rules 52a and 173c (or) 57gg. A Photostat copy of the above invoice for each Delivery Challan should be submitted along with the original bills routed through bank or submitted directly to BHEL. 2). New Suppliers: ○ For new suppliers not registered with BHEL Trichy for the product, payment shall be made 60 days after receipt and acceptance of materials.
16.	<u>Liquidated Damages / Penalty: -</u> The delivery of the goods specified in the purchase order should be made within the time prescribed. LD for delay in ‘Supply’ and/or ‘E&C’ (E&C wherever if applicable) will be applicable to the delays attributed to vendor. LD will be considered separately for ‘Delivery’ and ‘E&C’ (E&C wherever if applicable). Where the seller supplies or dispatches the goods, beyond the delivery period Liquidated damages shall be applicable 0.5% of the total order value per week or part thereof subject to a maximum of 10% of the total order value. ** In case of single delivery date, Order should be completed 100% for processing the bill, otherwise LD will be calculated based on Total PO Value restricted to Max % as mentioned in the PO Condition column Material Despatched after Due date: Once the delivery due date is crossed, bills have to be clubbed till final despatch and forwarded for processing of payment as a single bunch. LD percentage will be calculated from Delivery due date to final despatch date. The rate of LD for delayed E&C shall be @ 0.5% per week of delay of total PO value (Supply + E&C) in E&C subject to a maximum of 10% of total PO value (Supply + E&C). Penalty on delay in ‘Supply’ and/or ‘E&C’ will be applicable to the delays attributed to vendor. Penalty will be considered separately for ‘Supply’ and ‘E&C’. The rate of penalty for delayed Supply shall be @ 0.5% per week of delay of total PO value (Supply + E&C) in supply subject to a maximum of 10% of total PO value (Supply + E&C). The rate of penalty for delayed E&C shall be @ 0.5% per week of delay of total PO value (Supply + E&C) in E&C subject to a maximum of 10% of total PO value (Supply + E&C). Maximum penalty for delay in Supply and E&C together shall be limited to 10% of total PO value (Supply + E&C).

	For staggered delivery schedule (if BHEL accepts), LD shall be 0.5% of the undelivered portion per week of the delay or part thereof subject to a maximum of 10% of the total order value. Any deviation from the above LD clause, loading will be applied to the extent to which it is not agreed by the bidder (at offered value).
17.	<u>RISK PURCHASE:</u> The purchaser at his option 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 previous supplier has failed to deliver or dispatch within the time stipulated as aforesaid or if the same were not available, the best and the nearest available substitutes therefore. The supplier shall be liable for any loss, which the purchaser may sustain by reason of such risk purchases in addition to penalty at the rate mentioned in our LD clause. Risk Purchase clause will be applicable. Deviated offers with non-acceptance of Risk Purchase clause will lead to rejection of offer.
18.	<u>PREFERENTIAL DELIVERY:</u> (Applicable in the case of BHEL's Enquiry specifies Preferential Delivery in the Special Instructions) It should be noted if a contract is placed on a higher tendered as a result of this invitation to tender in preference to the lowest acceptable offer in consideration of the earlier delivery, the seller will be liable to pay to the purchaser the difference between the contract rate and that of the lowest acceptable tender on the basis of final price F.O.R destination, including all elements of freights, Sales tax, duties and other incidents, incidental in case of failure to complete supplies in terms of such contract within the date of delivery specified in the tender and incorporated in the contract, such difference amount in addition to penalty at the rate mentioned in our LD clause.
19.	<u>Make in India:</u> i) Offers from Foreign vendors will not be considered. Offers of local vendors with less than the minimum local content as prescribed in this Tender will also not be considered. In the absence of any such information in the tender, the required minimum local content shall be 20%. ii) For this procurement, Public Procurement (Preference to Make in India), order 2017 dated 15.06.2017, 28.05.2018 & 04.06.2020 issued by DPIIT and subsequent orders issued by the respective Nodal ministry shall be applicable even if issued after issue of this NIT but before finalization of contract/PO/WO against this NIT. iii) In the event of any Nodal Ministry prescribing higher or lower percentage of purchase preference and/ or local content in respect of this procurement, same shall be applicable. iv) Default margin of purchase preference shall be 20% to local suppliers with default minimum local content of 50%. v) "For this procurement, the local content to categorize a supplier as Class I local supplier/ Class II local Supplier/ Non-Local supplier and purchase preference to Class I local supplier, as defined in Public Procurement (Preference to make in India), Order 2017 dated 04.06.2020 issued by DPIIT. vi) In case of subsequent orders issued by the nodal ministry, changing the definition of local content for the items of the NIT, the same shall be applicable even if issued after issue of This NIT, but before opening of part-II bids against his NIT" vii) For more details, pls. refer the Public Procurement (Preference to Make in India), order 2017 dated 15.06.2017 & 28.05.2018 and subsequent orders issued by the respective Nodal ministry. viii) Self-Declaration format as per Annexure-B shall be submitted along with part-1 tender document
20.	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
21.	If Guarantee / Warranty period is applicable as per tender specification, No deviation is permitted and deviated offers are liable for rejection
22.	Supplier has to ensure quoting of price very carefully in EPS PORTAL to avoid any discrepancies
23.	While quoting price, it will be ensured that all terms & conditions as per GST act is followed.
24.	TAXES AND DUTIES: GST IN no, HSN CODE, GST rate for each items are to be quoted

25.	On the due date of tender opening, the technical bids will be opened . Bids will be evaluated by us and clarifications required, if any, will be called for from the bidders on technical and commercial points
26.	After tender opening Technical scrutinisation of the offers will be done.
27.	Bidders has to meet our technical specification and PQC is essential for consideration of their offer.
28.	Tender evaluation will be carried out on the basis of Technical Specifications and Commercial Terms and Conditions specified in the tender documents and changes thereof (if any) will be communicated to all bidders
29.	For verification of data submitted towards evaluation of bidder's capability, BHEL may decide to visit the bidder(s) works. Any fact found deviating from submitted data shall make the bidder liable to be disqualified.
30.	The correspondence between the bidder and BHEL through email is considered as valid document Legally though not signed. It is treated as valid confirmations made on behalf of the respective company and comes under the legal ambit of the business transaction and hence binding on both the parties. If any discrepancies found in the Techno-commercial bid and price bid, the final terms will be finalised after clarification sought through mail/EPG portal by BHEL will be considered.
31.	<u>Cost Evaluation:</u> Evaluation will be done on the basis of "Landed cost to BHEL TRICHY STORES or THIRUMAYAM wherever applicable". BHEL will consider the ranking after the loading is applied as referred above, wherever deviations are observed Ranking (L-1, L-2 etc.) will be done only for the Techno-Commercially acceptable offers. Normally BHEL reserves the right to place order for individual items with different vendors. At special circumstance ranking shall be done on compatible basis which will be indicated through Enquiry special instruction General Notes. The evaluation currency for this tender shall be INR
32.	In the event of more than one vendor becoming L1 for any of the item / items, the enquiry quantity for those item / items will be shared equally among all the L1 vendors.
33.	If the quoted prices by the L1 suitable vendors for net cash out flow to BHEL is same and quantity splitting is not feasible, in such case revised price bid may be asked from those respective suppliers for the respective item/items. (Wherever, if applicable)
34.	BHEL reserves the right to increase or decrease the tender quantity and split up the tender quantity among more than one vendor at the lowest acceptable price to BHEL and place order accordingly in any proportion at our own discretion
35.	Lowest price received against BHEL tenders need not be the technically acceptable one and in that case BHEL reserves the right not to consider the same. The purchaser shall be under no obligation to accept the lowest or any other tender and shall be entitled to accept or reject any tender in part or full without assigning any reason whatsoever. (Wherever if applicable)
36.	BHEL reserves the right to negotiate or re-float the tender opened, if L1 price is not the lowest acceptable price to BHEL due to inter-alia other reasons. (Wherever if applicable).
37.	<u>IMPORTANT NOTE:</u> BHEL will consider the ranking after the loading is applied as referred above wherever deviations observed in Payment Terms & LD clause.
38.	Any other conditions which might have been quoted by the seller and are in contravention to the terms prescribed in the order and which have not been specifically accepted by purchaser in written will not be applicable to the contract
39.	<u>Special Provisions for Micro and Small Enterprises (MSE)</u> The bidder may also be a Micro and Small Enterprises (MSE) vendor registered as per MSE act. As per the public procurement policy notified by the Central government.

	25% of the tendered quantity is earmarked for MSE suppliers in this tender. Out of the 25% tendered quantity reserved for MSE suppliers, 4% shall be earmarked for procurement from MSE owned by SC / ST entrepreneurs. Also 3% shall be earmarked for procurement from MSE owned by women (Such enterprise will have to submit relevant document for proof of women ownership) (Note: vendor need to go through General Note of tender condition also for any special instruction & deviation from above.) In case MSE vendor participating in the tender quotes within the price band of L1 + 15%, they will be allowed to supply the portion of the requirement subject to acceptance of L1 price by MSE vendor. In case of more than one such MSE, the supply shall be shared proportionately. <u>UDYAM Registration</u> As per Gazette Notification no. S.O. 2119(E) dated 26.06.2020 issued by Ministry of MSME regarding change in definition of Micro, Small & Medium Enterprises (MSMEs) applicable w.e.f. 01.07.2020, you are hereby requested to obtain 'UDYAM Registration' and submit the same. Non submission of such documents will lead to consideration of their bid at par with other bidders. In case any improper / lack of documents is there, vendor on their own interest may submit all the relevant documents as stated above before tender opening. No benefit shall be applicable for this enquiry if any deficiency in the above required documents are not submitted before tender opening. Documents should be notarized or attested by a Gazetted officer for consideration of MSE certificate. " Such Micro/Small Enterprises registered vendors must state the sub-category to which they belong and submit documentary proof for the same. The sub-categories: (a) Enterprises owned by Scheduled Castes. (b) Enterprises owned by Scheduled Tribes. (c) Enterprises owned by Women (d) Enterprises owned by other than above two categories The enterprises under (a), (b) & (c) means the proprietor in case of single owned firm and all partners in case of partnership firm and all directors in case of private/public limited must belong to SC/ST category or women (Such enterprise will have to submit relevant document for proof of SC/ST or women ownership category) (Note: vendor need to go through General note Of tender condition also for any special instruction & deviation from above.) If more than one valid MSE supplier stands with in rage of L1+15% range, 25% of quantity will be shared till quantity split is feasible & rest of 25% will be awarded to lowest quote of valid MSE supplier. Note: Wherever for splitting of order, if splitted quantity comes out <1, the splitting of order will not be feasible. (For MSE vendors). Further updates or any changes will be taken decision according to MSE procurement policy. Traders will be excluded from the above MSE benefit as per MSE public procurement policy. In order to get MSE benefit, MSE supplier will have to submit the UDAYAM RIGESTRATION CERTIFICATE and will be considered after updating in BHEL. Payment for MSE Indigenous eligible vendors will be as per MSMED Act 2006 subject to fulfilment of above procedure.
40.	Equipment will be inspected and proved at vendor's works prior to dispatch, if applicable as per tender condition. However final inspection and acceptance of equipment will be after installation at BHEL, TRICHY or THIRUMAYAM wherever applicable
41.	PACKING AND MARKING: The supplier shall arrange for securely protecting and packing the stores to avoid loss or damages during transit. (Wherever if applicable).
42.	Erection / commissioning charges , if applicable as per tender condition will be clearly mentioned in the offer or else confirmation that Erection / commissioning shall be done at free of cost is available in the offer
43.	Any warranty replacement during warranty period shall be supplied free of charge on FOR BHEL, TRICHY or THIRUMAYAM basis
44.	The vendor shall provide necessary drawings, Test Certificates and Operating Maintenance Manuals etc., as called for in the Technical Specification, in the required number of copies at no extra cost

45.	In case of any short shipment in the main equipment / spares, where separate rates are not available in the contract, the customs duty levied on such supplies, shall be borne by the supplier / Indian agent. (For import supplies)
46.	<u>ARBITRATION:</u> All disputes or differences whatsoever which may arise at any time during execution of the Contract shall be mutually settled by BHEL Trichy and Vendor as per provision of the Contract. However, in the event such disputes cannot be settled mutually, such disputes shall be settled as per the Arbitration and conciliation Act, 1996 of the Govt. of India and its subsequent amendments. In case of disputes with the Central PSUs, the same shall be settled at Tiruchirappalli as per the Guidelines of the Govt. of India. However, during the period such disputes are settled either by mutual discussions between the parties or by legal means, Vendor shall continue to do the work as per terms & conditions of Contract. Any dispute arising out of or in connection with this Agreement shall be finally settled by binding arbitration in accordance with the Arbitration and Conciliation Act, 1996 as may be amended from time to time. Executive Director / BHEL, Trichy – 620 014 or his authorized representative shall be the Sole Arbitrator and his decision shall be final and binding on both the parties. The place of arbitration shall be Tiruchirappalli, and the language shall be English. The courts at Tiruchirappalli shall have exclusive jurisdiction on any dispute arising out of or in connection with this Agreement, if intervention of court is warranted, subject to the arbitration provided above.
47.	<u>FRAUD PREVENTION POLICY:</u> The bidder along with its associate/ collaborators/ sub-contractors/ sub-vendors/ consultants/ service providers shall strictly adhere to BHEL fraud prevention policy displayed on BHEL website http://www.bhel.com and shall immediately bring to the notice of BHEL management about any fraud or suspected fraud as soon as it comes to their notice
48.	<u>IN THE EVENT OF FORCE MAJEURE:</u> i) Notwithstanding the provisions contained in other clauses, the supplier shall not be liable for imposition of any such sanction so long the delay and/or failure of the supplier in fulfilling its obligations under the contract is the result of an event of Force Majeure. For purposes of this clause, Force Majeure means an event beyond the control of the supplier and not involving the supplier's fault or negligence and which is not foreseeable and not brought about at the instance of the party claiming to be affected by such event and which has caused the non – performance or delay in performance. Such events may include, but are not restricted to, wars or revolutions, hostility, acts of public enemy, civil commotion, sabotage, fires, floods, explosions, epidemics, quarantine restrictions, strikes excluding by its employees, lockouts excluding by its management, freight embargoes and Acts of GOD. ii) If a Force Majeure situation arises, the supplier shall promptly notify the Purchaser/Consignee in writing of such conditions and the cause thereof within twenty-one days of occurrence of such event. Unless otherwise directed by the Purchaser/Consignee in writing, the supplier shall continue to perform its obligations under the contract as far as reasonably practical, and shall seek all reasonable alternative means for performance not prevented by the Force Majeure event. iii) If the performance in whole or in part or any obligation under this contract is prevented or delayed by any reason of Force Majeure for a period exceeding sixty days, either party may at its option terminate the contract without any financial repercussion on either side. iv) In case due to a Force Majeure event the Purchaser/Consignee is unable to fulfil its contractual commitment and responsibility, the Purchaser/Consignee will notify the supplier accordingly and subsequent actions taken on similar lines described in above sub-paragraphs
49.	In order to protect the commercial interests of BHEL, it becomes necessary to take action against suppliers / contractors by way of suspension of business dealings, who either fail to perform or are in default without any reasonable cause, loss of business / money / reputation, indulged in malpractices, cheating, bribery, fraud or any other misconducts or formation of cartel so as to influence the bidding process or influence the price etc. Guide- lines for Suspension of Business Dealings with Suppliers / Contractors shall prevail over which is available at BHEL website http://www.bhel.com .
50.	The offers of the bidders who are under suspension as also the offers of the bidders, who engage the services of the banned firms, shall be rejected. The list of banned firms is available on BHEL web site www.bhel.com .
51.	The quality of the supplies should strictly conform to Technical specifications applicable for the item. The offer should specifically confirm this
52.	If any quality problem is pointed out by any BHEL unit w.r.t. supplied material, the same shall be settled and corrected immediately with the concerned BHEL unit, by the supplier. If the material cannot be accepted by BHEL, supplier has to replace the material with no extra cost. Collection of rejected material will be sole responsibility of the supplier. If there is any failure by the supplier to settle such quality problems, the matter will be considered very seriously and appropriate penal action may be initiated against the respective supplier

53.	Bidders have to confirm that, whether they have been black-listed / kept on hold / given Business holiday for a specified period by any Public Sector Undertaking or Government Departments/any other units of BHEL. 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, it will be construed that the bidder is not under any such hold. However, at a later date if it comes to the notice of BHEL about any such hold under enforcement, BHEL reserves the right to reject the offer at any point of time and also under any stage of the finalization of the tender. Such bidders will not be permitted to participate in the further tender proceedings and will be communicated suitably.
54.	BHEL shall be at liberty to accept any tender, part or in full, at their discretion without giving any reason
55.	Unloading at BHEL Unit / Site has to be done by the SUPPLIERS only. BHEL will not be in a position to provide any handling / unloading facilities.
56.	The supplier shall arrange for securely protecting and packing the material to avoid loss or damages during transit.
57.	There is no minimum quantity for placement of purchase order.
58.	BHEL shall be at liberty to cancel the requirement as per tender partially or fully at any stage, without giving any reasons partially or fully.
59.	In case of receipt of order vendor will need to send consignment/material as indicated in PO. In case of dispatch by courier/ Lorry kindly put/paste the Delivery challan (extra copy) on the top of packed consignment box & another copy of DC inside the box. Consignment should be forwarded to the PO consignee address only along with extra/Xerox copy of invoice (wherever applicable) .It should be supported with Delivery challan copy. (Kindly do not forward any consignment to purchase dept. or do not address the consignment to the name of any official)
60.	Vendor's confirmation for any terms & conditions should be uniform throughout the offer. In case any discrepancies is found in the quoted terms & conditions & Vendor's own format of quotation BHEL reserves the right to consider terms mentioned in Annexure-II
61.	Vendor may View Bill Status in www.bheltry.co.in -> materials management systems -> login id - Vendor Code and Password
62.	<u>For the New vendors-</u> In case of ordering bills against the PO shall be processed only on receipt of the following: - Send the hard copy of EFT Format (will be informed at the time of PO) duly filled-in in a Single Page with all the certification formalities by you & your bankers - One Cancelled cheque of your account (from the concerned bank) must be sent. - The Vendor's code as per PO & address must be as per billing address mentioned in PO.
63.	If winning bidder who gets the order are unable to login or still if you have any difficulty kindly let us know.
64.	<u>Authorization for participation in EPS portal through DSC: E-Tender.</u> <u>Participation requirements:</u> Either Principal or authorized agent shall register their Digital Signature Certificate (DSC) (Class 3- SHA2- 2048 BIT- SIGNING & ENCRYPTION). Suppliers are advised to go through the FAQ available in the web portal (https://bhel.abcprocure.com). DSC shall be registered for the authorized person and all transaction done using that DSC against our tenders shall be taken as valid communication and shall be binding on principal/agent and is valid legally. <u>For foreign Principal</u> In case of Principal (being foreigner), they may apply for DSC through Indian embassy at their country and can register with us for participating in E-tenders. Details of the applicable procedure is available in the webpage http://www.cca.gov.in/cca/. <u>For Indian agent</u>

	In case of agents participating/registering their DSC (of authorized person), it will be at the sole authorization of principal to their agents to participate on their behalf and all transactions done using that DSC against our tenders shall be known as valid communication and shall binding on principal and is legally valid.
65.	Since GST is implemented, the taxes & duties will prevail as per the government notification/ guidelines. Our Provisional GST registration no. 33AAACB4146P2ZL . However, it will be mandatory to confirm from BHEL for this mentioned GST no. Suppliers may quote their GST no with valid proof in the quotation. Also before quoting of tender it is suggested to consider all the factors before quoting the tender in line with GST guidelines for input tax credit to arrive ranking of quoted suppliers.
66.	<u>GST compliance for Indigenous suppliers:</u> - In Response to Tenders for Indigenous supplier will be entertained only if the vendor has a valid GST registration no which should clearly have mentioned in the offer. If any specific exemption is available, a declaration with due supporting documents need to be furnished for considering the offer. - Supplier shall mention their GSTN registration number in all their invoices and invoices shall be in the format as specified/prescribed under GST laws. Invoices shall necessarily contain Invoice number (in case of multiple numbering system is being followed for billing like SAP invoice no, commercial invoice no etc., then the Invoice No which is linked/uploaded in GSTN network shall be clearly indicated), item description as per PO, Quantity, Rate, Value, applicable taxes with nomenclature (like IGST, SGST, CGST & UTGST) separately, HSN/ SAC Code, etc. - All invoices shall bear the HSN Code for each item separately (Harmonized System of Nomenclature)/ SAC code (Services Accounting Code). - A declaration to the effect that all invoice particulars are/were uploaded in the GSTN network/ portal & all tax liability as per GST rules and regulations have been and will be discharged, shall be mentioned in the invoice. If not mentioned in the invoice, a separate declaration shall be submitted as per the requirement of BHEL. - All documents like Mill Test Certificate, LR copy, Guarantee/Warranty certificate, work completion certificate, any other document mentioned in PO, shall be sent along with the vehicle/consignment. For all consignments received within the calendar month, input credit will be availed within that month in line with monthly returns filing cycle. In case of any discrepancy in the document or non-submission of documents mentioned in the PO, then BHEL will not be able to accept or account the material, in such case availing of tax credit will be deferred to next month or so. - In case of discrepancy in the data uploaded by supplier in the GSTN portal or in case of any shortages or rejection in the supply, then BHEL will not be able to avail the tax credit and will notify the supplier of the same. Supplier has to rectify the data discrepancy in the GSTN portal or issue credit note (details to be uploaded in GSTN portal) for the shortages or rejections in the suppliers, within the calendar month notified by BHEL. - For any such delay in availing of tax credit for reasons attributable to supplier (as mentioned above), interest (calculated @ SBI Base Rate + 6%) along with penalty if any will be deducted for the delayed period i.e. from the month of receipt till the month tax credit is availed, from the running bills. - Under GST regime, BHEL has to discharge GST liability on LD recovered from suppliers/contractors. Hence applicable GST shall also be recoverable from suppliers/contractors on LD amount. For this Debit note will be issued by BHEL indicating the respective supply invoice number. - This is to inform that GST portion of invoice, shall be released only upon Vendor declaring such invoice in his GSTR-1 and receipt of goods and Tax invoice by BHEL and Confirmation of payment of GST thereon by vendor on GSTN portal. Alternatively, BG of appropriate value may be obtained from vendor which shall be valid At least one month after the confirmation of date of payment of GST by vendor on GSTN portal and receipt of Tax invoice and receipt of goods, whichever is later. Above is subject to receipt of goods/service and tax invoice thereof along with vendor declaring invoice in his return and paying GST within timeline prescribed for availing ITC by BHEL. - That in case vendor delays Declaring such invoice in his return and GST credit availed by BHEL is denied or reversed subsequently as per GST law, GST amount paid by BHEL towards such ITC reversal as per GST law shall be recoverable from vendor/contractor along with interest levied/ leviable on BHEL.

67. Tender terms for GST in line with new GST Return System:

For supplies after implementation of New GST Return System i.e. from 01/10/2019, the following conditions will apply and supplier shall fully comply to the below points.

Indigenous suppliers:

1. *Response to Tenders for Indigenous supplier will be entertained only if the vendor has a valid GST registration No (GSTIN) which should be clearly mentioned in the offer. If the dealer is exempted from GST registration, a declaration with due supporting documents need to be furnished for considering the offer. Dealers under composition scheme should declare that he is a composition dealer supported by the screen shot taken from GST portal. The dealer has to submit necessary documents if there is any change in status under GST.*
2. *Supplier shall mention their GSTIN in all their invoices (incl. credit Notes, Debit Notes) and invoices shall be in the format as specified/prescribed under GST laws. Invoices shall necessarily contain Invoice number (in case of multiple numbering system is being followed for billing like SAP invoice no, commercial invoice no etc., then the Invoice No. which is linked/uploaded in GSTN network shall be clearly indicated), Billed to party (with GSTIN) & Shipped to party details, item description as per PO, Quantity, Rate, Value, applicable taxes with nomenclature (like IGST, SGST, CGST & UTGST) separately, HSN/ SAC Code, Place of Supply etc.*
3. *All invoices shall bear the HSN Code for each item separately (Harmonized System of Nomenclature)/ SAC code (Services Accounting Code).*
4. **Invoices** will be processed only upon completion of statutory requirement and further subject to following:

Vendor declaring such invoice in Form GST ANX-1

Receipt of Goods or Services and Tax invoice by BHEL
5. *As the continuous uploading of tax invoices in GSTN portal (in GST ANX-1) is available for all (i.e. both Small & Large) tax payers under proposed new GST Return System, all invoices raised on BHEL may be uploaded immediately in GST portal on despatch of material /rendering of services. The supplier shall ensure availability of Invoice in GST portal before submission of invoice to BHEL. Invoices will be admitted by BHEL only if the invoices are available in GSTN portal (in BHEL's GST ANX-2).*
6. *In case of discrepancy in the data uploaded by the supplier in the GSTN portal or in case of any shortages or rejection in the supply, then BHEL will not be able to avail the tax credit and will notify the supplier of the same. Supplier has to rectify the data discrepancy in the GSTN portal or issue credit note or debit note (details also to be uploaded in GSTN portal) for the shortages or rejections in the supplies or additional claims, within the calendar month informed by BHEL.*
7. *In cases where invoice details have been uploaded by the vendor but failed to remit the GST amount to GST Department (Form PMT-08 or Form GST RET-01 to be submitted) within stipulated time, then GST paid on the invoices pertaining to the month for which GST return not filed by the vendor will be recovered from the vendor along with the applicable interest (currently 24% p.a) and all subsequent bills of the vendor will not be processed till filing of the GST return by the vendor*
8. *In case GST credit is denied to BHEL due to non-receipt or delayed receipt of goods and/ or tax invoice or expiry of timeline prescribed in GST law for availing such ITC, or any other reasons not attributable to BHEL, GST amount claimed in the invoice shall be disallowed to the vendor.*
9. *Where any GST liability arising on BHEL under Reverse Charge (RCM), the vendor has to submit the invoices to BHEL well within the timeline prescribed in GST Law, to enable BHEL to discharge the GST liability. If there is a delay in submission of invoice by the vendor resulting in delayed payment of GST by BHEL along with Interest, then such Interest payable or paid shall be recovered from the vendor.*
10. *Under GST regime, BHEL has to discharge GST liability on LD recovered from suppliers/contracts. Hence applicable GST shall also be recoverable from suppliers/contractors on LD amount. For this Tax Invoice will be issued by BHEL indicating the respective supply invoice number.*

GST TDS will be deducted as per Section 51 of CGST Act 2017 and in line with Notification 50/2018 – Central Tax dated 13.09.2018. GST TDS certificate which will be generated in GST portal subsequent to vendor accepting the TDS deduction in the GST portal, will be issued to the vendor.

68.	<u>Imports and Input Tax Credit (ITC):</u> In GST regime, input tax credit of the integrated tax (IGST) and GST Compensation Cess shall be available to the importer and later to the recipients in the supply chain, however the credit of basic customs duty (BCD) would not be available. In order to avail ITC of IGST and GST Compensation Cess, an importer has to mandatorily declare GST Registration number (GSTIN) in the Bill of Entry. Provisional IDs issued by GSTN can be declared during the transition period. However, importers are advised to complete their registration process for GSTIN as ITC of IGST would be available based on GSTIN declared in the Bill of Entry. Input tax credit shall be availed by a registered person only if all the applicable particulars as prescribed in the Invoice Rules are contained in the said document, and the relevant information, as contained in the said document, is furnished in FORM GSTR-2 by such person. Customs EDI system would be interconnected with GSTN for validation of ITC. Further, Bill of Entry data in non-EDI locations would be digitized and used for validation of input tax credit provided by GSTN. Customs EDI system would be interconnected with GSTN for validation of ITC. Further, Bill of Entry data in non-EDI locations would be digitized and used for validation of input tax credit provided by GSTN. Note: In cases where imported goods are liable to Anti-Dumping Duty or Safeguard Duty, calculation of Anti-Dumping Duty or Safeguard duty would be as per the respective notification issued for levy of such duty. It is also clarified that value for calculation of IGST as well as Compensation Cess shall also include Anti-Dumping Duty amount and Safeguard duty amount
69.	Wherever Service is associated in the tender scope (For cases Service PO is released – Supplier has to pay GST for all charges including transportation, boarding etc.)
70.	Suppliers will have to fill& send the SRF (Supplier registration form) if applicable.
71.	BHEL reserve the right for asking sample / drawing approval / Pre-Dispatch Inspection before bulk supply of the materials (If required)
72.	GST CREDIT: Suppliers are advised to get registered to GSTN portal. Tenderer under "GST credit" shall be preferred
73.	Pay procedure will be initiated after acceptance of full lot of material & final submission of Bill in line with PO instructions & conditions, GST regulations. Also Pay procedure will be initiated only if the GST return is filed against submitted invoice to BHEL.
74.	<u>BILL PROCESSING METHOD</u> “Supplier has to ensure the full quantity of material delivery within given PO delivery date to process the bill for payment. In case supplier fails to deliver full quantity within delivery date, bills received after PO delivery date will be processed after final despatch of the total pending supply. Further, bills will be clubbed and forwarded for payment processing as a single bunch”.
75.	For more details please refer to Ref. NIT of BHEL's website http://www.bhel.com (tender notification page) or from the govt. tender website http://tender.gov.in (Public Sector Units Bharat Heavy Electricals Limited page) or CPP portal https://eprocure.gov.in/eprocure/app. <u>Important:</u> All updates, amendments, corrigendum etc., if any will be posted only on the above website as and when required. There will be no publication of the same through any other media.
76.	For any clarification you can contact to mpuja@bhel.in , subramanian.s@bhel.in Contact nos. 04312574750 / 04312577427

ENQUIRY NO. 2692000013 - Notes for item No. 10 to 80

Note for item No:10

1. Mechanical assembly drawing (Drawing No: DRG: BHEL: U2: 002) and heating element circuit drawing (Drawing No: DRG: BHEL: U2: 001) is attached for reference.
2. One number of the item means one segment, and one segment means fibrothal embedded heating coil assembly consisting one third of the total cylindrical coil assembly.
3. Vendor may visit BHEL works to inspect the furnace before quoting for the same.
4. Final drawings shall be submitted to BHEL for approval before manufacturing.

Note for item No:20

1. Detailed drawing of the heating element (Drg No: TE 3544ELE / DRG: BHEL: U2: 003A) is attached for reference.
2. The tolerance for manufacturing the heating element is -3% to +3% from the reference value.
3. As the elements are connected in STAR connection with ungrounded neutral, it is important to keep the resistance of all three phases exactly equal for balancing the load. So all the elements supplied should be manufactured should have resistance tolerance within 2% from one another, considering the practical constrains in manufacturing.
4. Vendor may visit BHEL works to inspect the furnace before quoting for the same.
5. The element shall not have any welded joints in between.
6. Final drawings shall be submitted to BHEL for approval before manufacturing

Note for item No:30

1. Detailed drawing of the heating element (Drg No: TE 3544ELE / DRG: BHEL: U2: 003A) is attached for reference.
2. The tolerance for manufacturing the heating element is -3% to +3% from the reference value.
3. As the elements are connected in STAR connection with ungrounded neutral, it is important to keep the resistance of all three phases exactly equal for balancing the load. So all the elements supplied should be manufactured should have resistance tolerance within 2% from one another, considering the practical constrains in manufacturing.
4. Vendor may visit BHEL works to inspect the furnace before quoting for the same.
5. The element shall not have any welded joints in between.
6. Final drawings shall be submitted to BHEL for approval before manufacturing

Note for item No:40

1. The drawing (Item no II in Drg No: DRG: BHEL: U2:007) of the ceramic tube is attached for reference.
2. As per the attached drawing, the wall thickness of the tube is only 2mm. But the wall thickness of the tube should be ENHANCED to 3mm, keeping the outer diameter 22mm. So the tube should be produced with a wall thickness of 3mm, but keeping the outer diameter and the length of the tube as same as the attached drawing.
3. Vendor may visit BHEL works to inspect the furnace before quoting for the same.
4. Final drawings shall be submitted to BHEL for approval before manufacturing.

Note for item No:50

1. The drawing (Item no III in Drg No: DRG: BHEL: U2:007) of the ceramic tube is attached for reference.
2. Vendor may visit BHEL works to inspect the furnace before quoting for the same.
3. Final drawings shall be submitted to BHEL for approval before manufacturing

Note for item No:60

1. The drawing (Item no II in Drg No: DRG: BHEL: U2:008) of the terminal rod is attached for reference.
2. Vendor may visit BHEL works to inspect the furnace before quoting for the same.
3. Final drawings shall be submitted to BHEL for approval before manufacturing

Note for item No:70

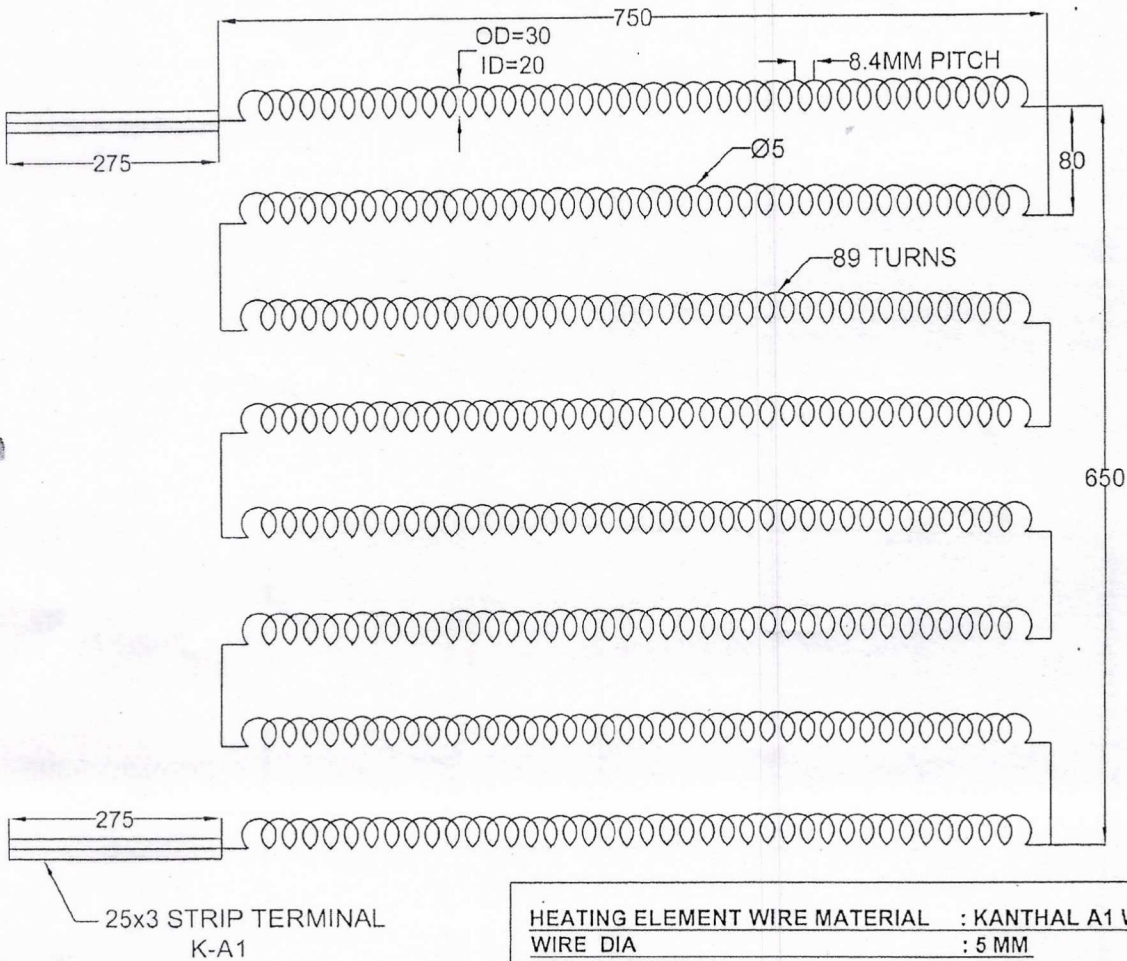
1. The detailed drawing (Item 01 of Drg no: 3-M-19B06-16114) of the item is attached for reference.
2. The deviation of the resistance of the heating element is limited to less than -3% to +0% of the stated value. The connection of the coils in the machine is in star with ungrounded neutral, which requires balanced load in each phase. So the resistance difference between all the supplied coils of same type should be within 2%, considering the practical constraints in manufacturing.
3. Vendor may visit BHEL works to inspect the furnace before quoting for the same.
4. Final drawings shall be submitted to BHEL for approval before manufacturing

Note for item No:80

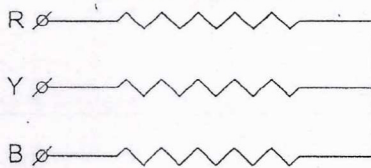
1. The detailed drawing (Item 02 of Drg no: 3-M-19B06-16114) of the item is attached for reference.
2. The deviation of the resistance of the heating element is limited to less than -3% to +0% of the stated value. the connection of the coils in the machine is in star with ungrounded neutral, which requires balanced load in each phase. so the resistance difference between all the supplied coils of same type should be within 2%, considering the practical constraints in manufacturing.
3. Vendor may visit BHEL works to inspect the furnace before quoting for the same.
4. Final drawings shall be submitted to BHEL for approval before manufacturing

THIS DRAWING AND DESIGN IS THE PROPERTY OF
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PERMISSION IN WRITING

COIL TYPE HEATING ELEMENT DIAGRAM



Element Wiring
Connection Diagram



HEATING ELEMENT WIRE MATERIAL	: KANTHAL A1 WIRE
WIRE DIA	: 5 MM
COIL OUTSIDE DIA	: 30 MM
COIL INNER DIA	: 20 MM
PITCH	: 8.4 MM
LENGHT OF EACH DIVISION	: 750 MM
NO. OF TURNS IN EACH DIVISION	: 89Nos
NO. OF DIVISION	: 8Nos
TOTAL NO. OF TURNS	: 713Nos
TERMINAL STRIP SIZE	: 25x3MM
VOLTAGE / ELEMENT	: 230V,AC
POWER / ELEMENT	: 12 KW
TOTAL POWER RATING	: 36 KW
RESISTANCE / ELEMENT	: 4.135 OHMS
MAXIMUM TEMPERATURE	: 900°C
OPERATING TEMPERATURE	: 750°C
NO. OF ELEMENT	: 3Nos

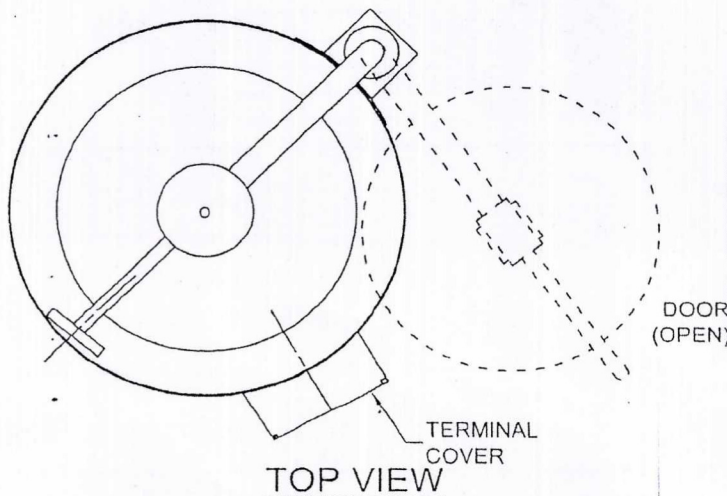
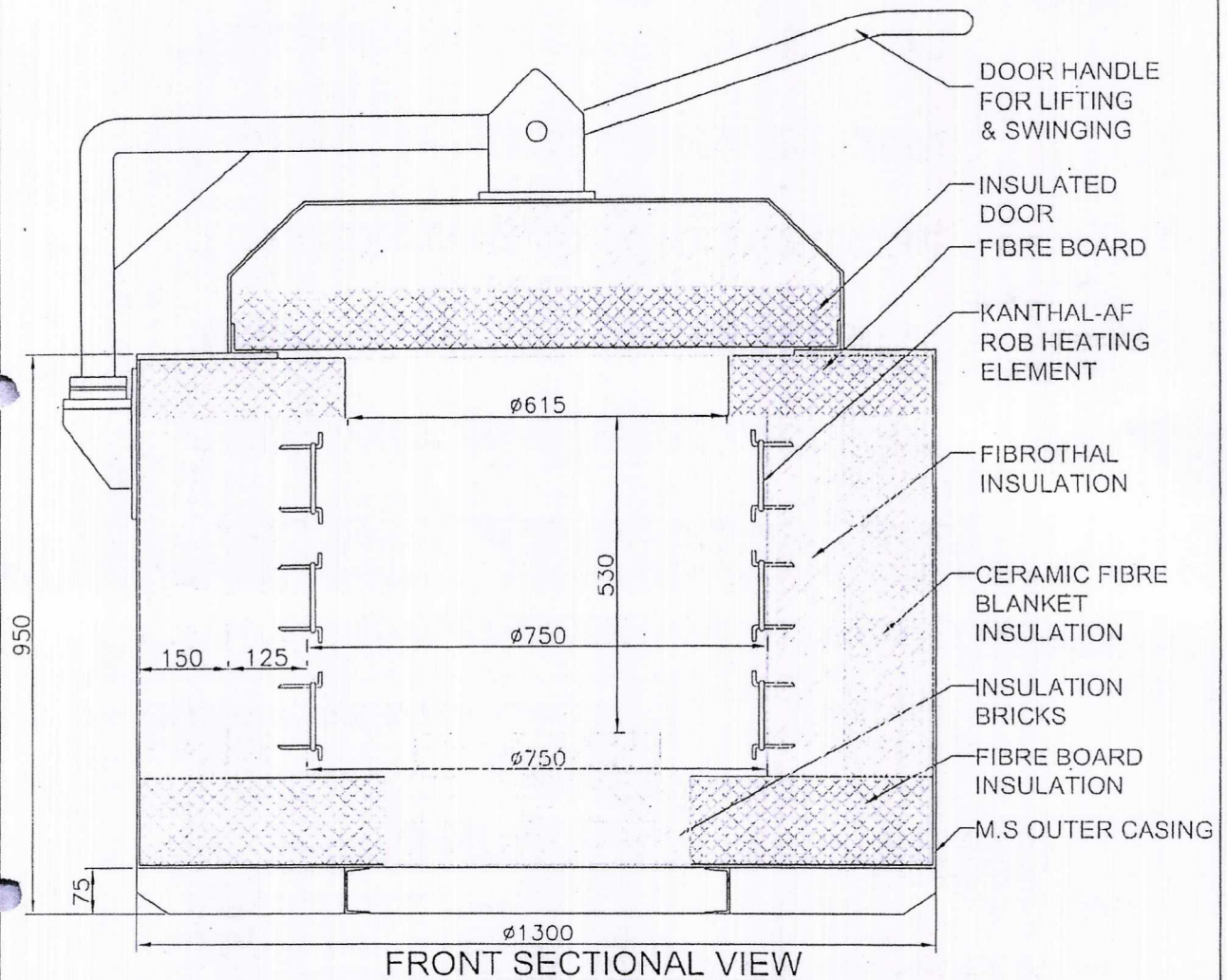
MAJOR SPECIFICATIONS

CHAMBER SIZE	: Ø750MM x 630MM H
MAXIMUM TEMPERATURE	: 900°C
POWER RATING	: 36KW
NUMBER OF ZONES	: 1NO
POWER SUPPLY	: 415V,3PH,50HZ,AC

ITEM No: 10

DRG: BHEL: U2: 002

ELECTRICALLY HEATED FURNACE

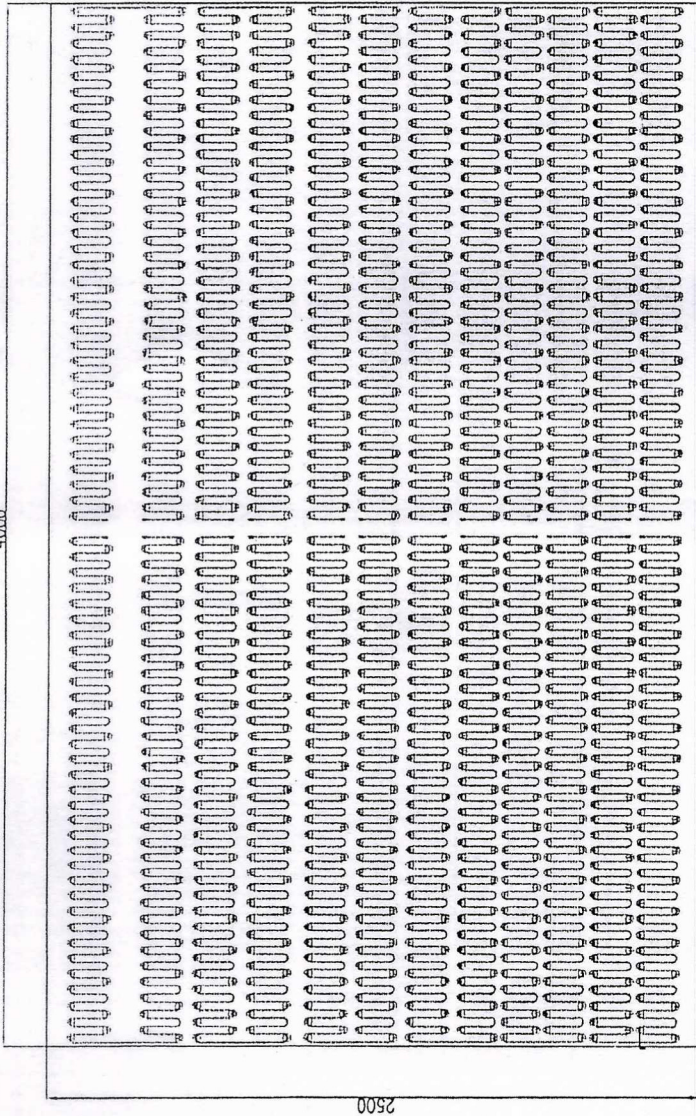


MAJOR SPECIFICATIONS:

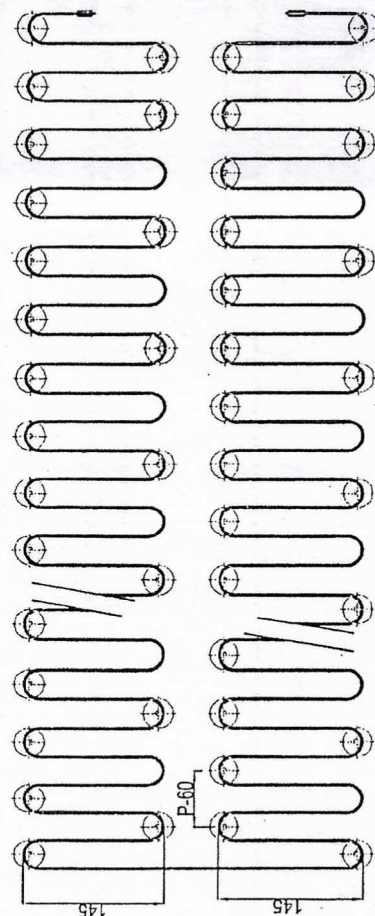
USEFUL CHAMBER : $\phi 600 \times 530$ MM Ht
MAX TEMP: 900°C
OPERATING TEMP: 850°C
POWER RATING : 39 kW
POWER SUPPLY : 415V, 3 ϕ , 50Hz AC

CAR BOTTOM FURNACE : ELEMENT DISTRIBUTION DETAILS

4000



2500



ELEMENT

4

ELEMENT MATERIAL: KANTHAL A1 STRIP
 ELEMENT CROSS SECTION: 15x2 MM
 CORRUGATION HEIGHT: 145 MM
 PITCH: 60 MM
 TERMINAL: BY JOINING 3 STRIPS OF 15x2, K-A1
 - total No. elements = 24 Nos.

ITEM No: 20

Item No. 20

DRG: BHEL: V2: 003A

Resistance Per
 element: 1.02718416 Ω
 length of element: 21.2668 m
 No. of pitches = 66.42

Signature of Chartered
 All dimensions are in millimeters

Date

Heating Furnace

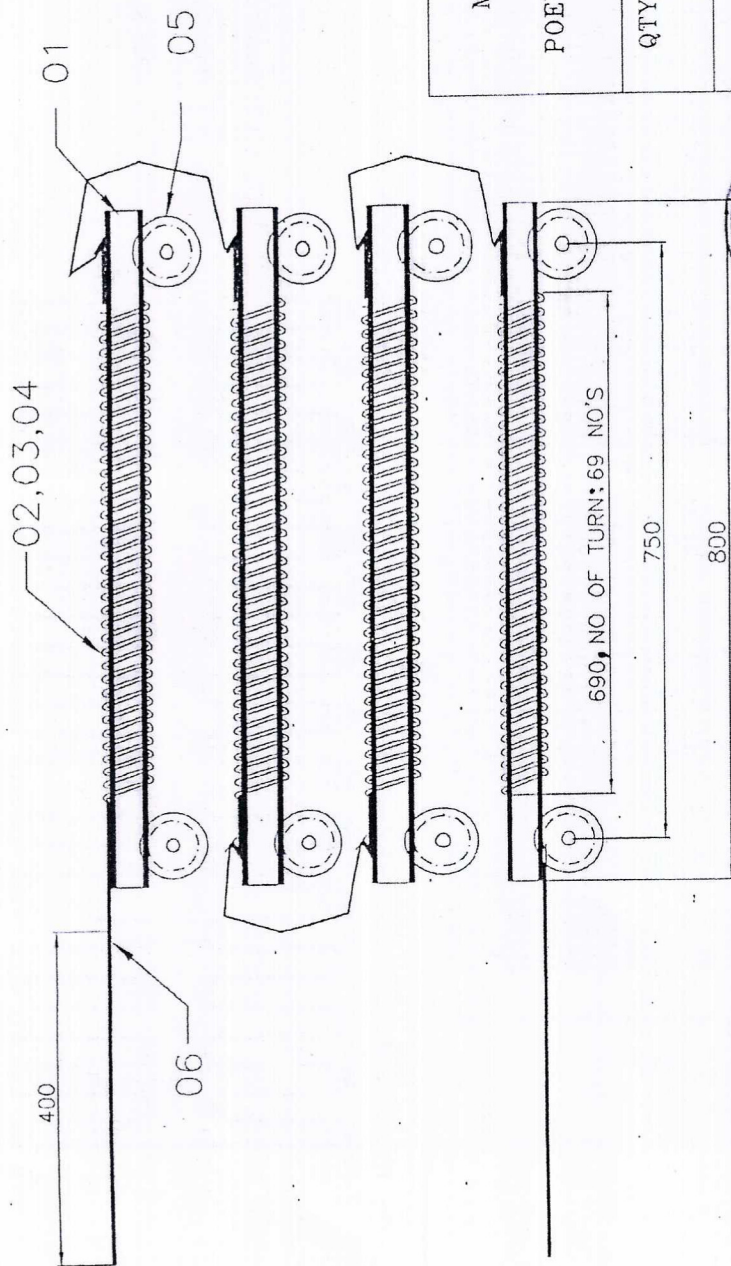
P-(3)

(P.T.O)

ITEM No: 30

DRG: BHEL: UL: 005

ITEM NO. 30



MATERIAL = APM / A1
QTY :- 6 NO'S
POEWEER : 6 X 7 = 42 KW
ONE FURNACE
QTY :- 6 + 6 = 12 NO'S
TWO FURNACE
QTY :- 4 NO'S
SPARE

NOTE:
DESIGN & DIMENSIONS ARE SUBJECT TO
CHANGE DUE TO CONTINUOUS IMPROVEMENT

01. CERAMIC TUBE = OD22, L800

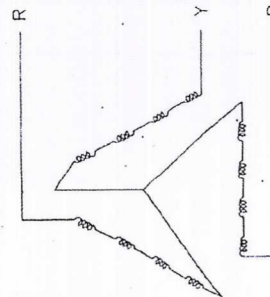
02. HEATING COIL = KANTHAL A1 GARDE

03. COIL OD = 33 MM

04. WIRE DIA = 4.8 MM

05. BOBIN

06. THERMINAL ROD



STARE CONNECTION

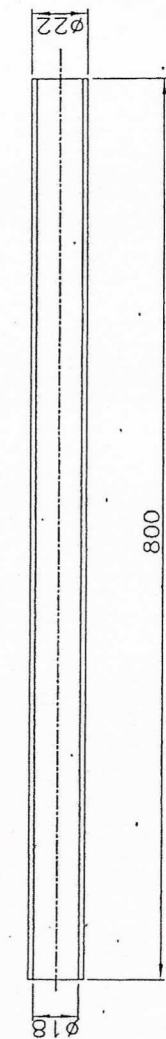
HEATING HELEMENT DETAIL

NAME	SIGN	DRAWING No.	REV.
JN		014-01-03	00
DRN	SCALE	N.T.S	TOTAL WT.Kg.
CHD			-
APPD	SHEET No.	No. OF SHEETS	
SV	1	3	

DRG: BHEL: UL: 007

ITEM 40, 50

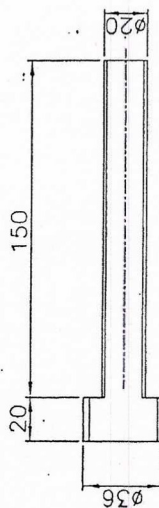
Item no II ✓



CERAMIC TUBE
MATERIAL :- CERAMIC

ITEM 40

Item no III



COLLER TUBE
MATERIAL :- CERAMIC

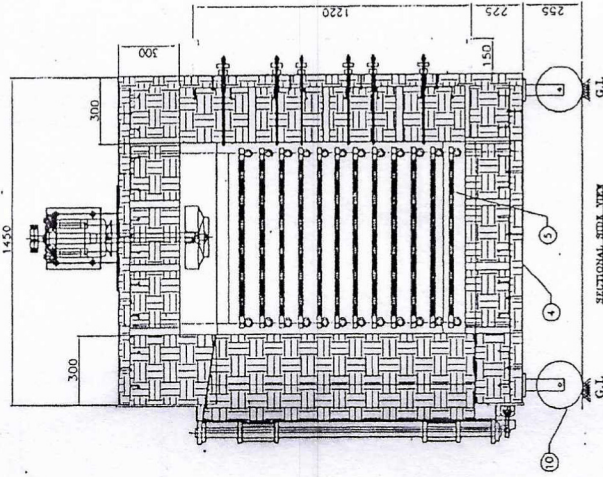
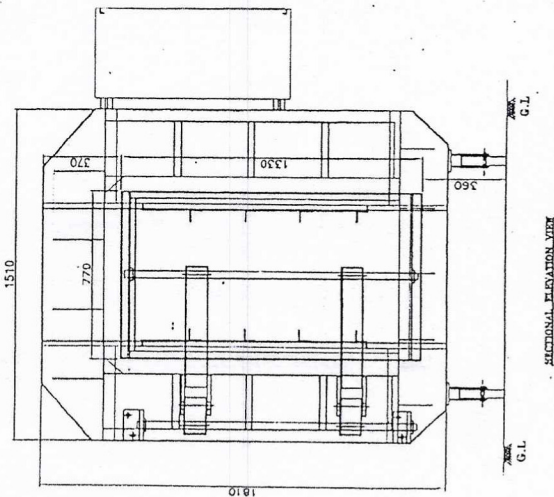
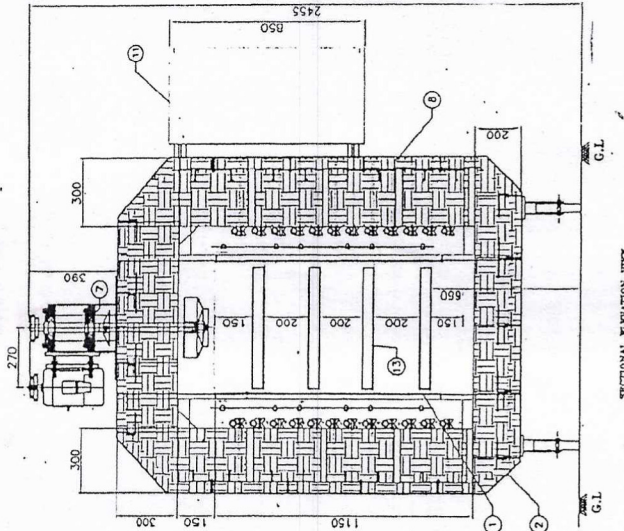
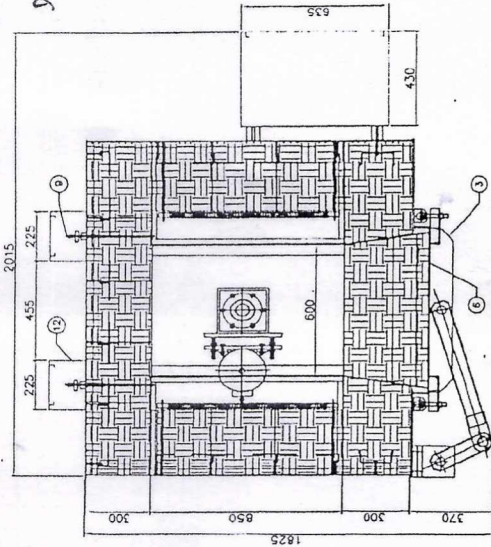
ITEM 50

ITEMS 40, 50, 60

DRG: BHEL: V2: 006

TECHNICAL SPECIFICATION:

INNER SIZE	650 x 600 x 1150 (D*W*H)
OPERATING TEMPERATURE	: 1100° C
POWER	: 42 KW (MAX)
No. OF ZONES	: 1
FAN MOTOR	: 2 HP MOTOR
POWER SUPPLY	: 415 V, AC, 3 PH.
DYEN	: DOUBLE CHAMBER



ASSEMBLY DRAWING FOR REFERENCE ONLY

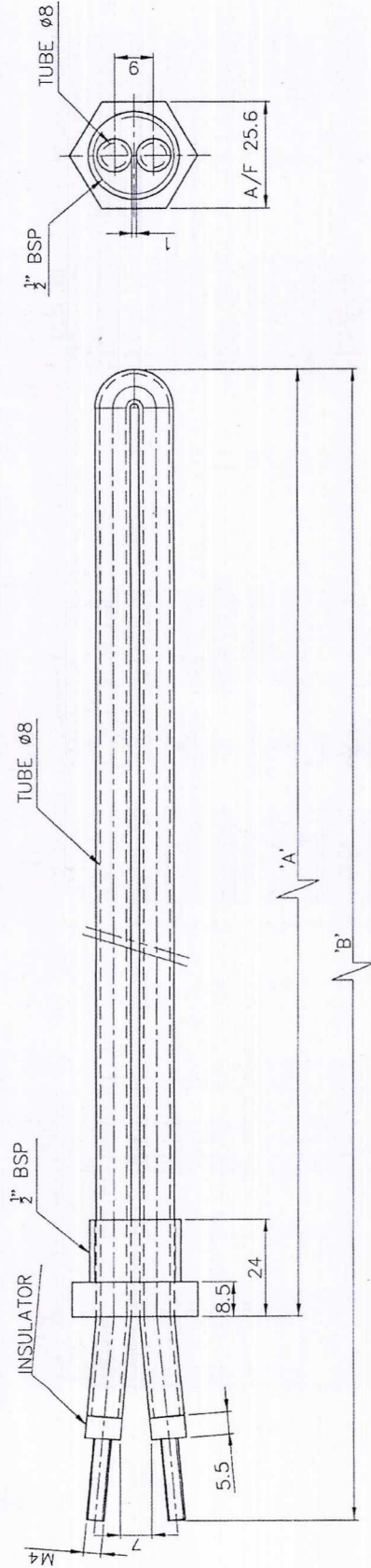
S.No	DESCRIPTION	REMARKS
01	BATTLE - SS310	2 OR 3 MM SHEET
02	DYEN OUTER PLATE - MS	4 MM SHEET
03	DYEN PLATE - MS	4 MM SHEET
04	CERAMIC FIBER	300 MM
05	COIL TYPE HEATER ELEMENT	AI
06	DOOR	INSULC, MANUAL LOCK
07	REGULATION FAN - (KEC)	2 HP MOTOR
08	STUD	SS310
09	THERMAL ROD	SS310
10	WHEEL	CAST
11	CONTROL PANEL	MS
12	TERMINAL BOX	MS
13	TRAY	SS 310

P-10

(P.T.O)

ALL DIMENSIONS ARE IN MILLIMETRES

DRAWING NO: 3-M-19B06-16114



ITEM	POWER	OHMS	'A'	'B'	THREAD SIZE	TUBE LENGTH	TUBE Ø	A/F
01	1.67 KW	320	905	955	1/2" BSP	1860	Ø8	25.6
02	3.33 KW	160	1300	1350	1/2" BSP	2650	Ø8	25.6

ITEM 70

ITEM 80

NOTE: -

01. TUBE OUTSIDE NICKEL PLATED

APPLICATION:

WATER HEATING UPTO 100° C

CAUTION: THE INFORMATION ON THIS DOCUMENT IS THE PROPERTY OF BHARAT HEAVY ELECTRICALS LIMITED. IT MUST NOT BE USED DIRECTLY OR INDIRECTLY IN ANY WAY DETRIMENTAL TO THE INTEREST OF THE COMPANY.		ITEM NO		DESCRIPTION		DRAWING NO		MATERIAL CODE		UNIT WT	
EQPT: FLUSHING STATION - SECONDARY SIDE / PSI - ENGG		SIGNATURE		NAME		DATE		MATERIAL SPEC		QTY	
Bharat Heavy Electricals Ltd		C. PONNUSAMY		DRN		07/11/19		A. DANASEKAR		08/11/19	
HIGH PRESSURE BOILER PLANT		A. DANASEKAR		CHD		08/11/19		A. DANASEKAR		08/11/19	
TIRUCHIRAPALLI - 620014		A. DANASEKAR		APPD		08/11/19		A. DANASEKAR		08/11/19	
DEPT		GRADE OF UNITS DM		SCALE		WEIGHT (Kg)		REF TO ASSY Dwg NO		ITEM	
M/S		Ø 1/4" / 15.2102		1:1		1		REF TO OLD Dwg NO		REV	
2597		15.2102		1		1		3-M-19B06-16114		00	
TITLE		HEATING ELEMENTS		CARD CODE		U 01		DRAWING NO :		REV	
		(SECONDARY SIDE)									

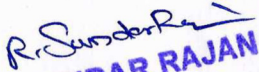
A3-SIZE

Heating elements for HT Furnace bed modification - PRE QUALIFICATION CRITERIA

Sl.No	Description	Vendor's Reply
01	The bidder should have supplied electrical heating elements/coils to any PSU/Government/Semi Government Organization/Joint Venture company of PSUs or Govt. Organization or both/Private sector company registered under Companies Act 1956, in last three (05) years (on the date of opening of tender). Copies of Purchase Order(s) is required to be submitted in support of above along with Contact details of the customer.	
02	Along with the Technical offer, the Vendor should submit one Performance certificate from the customer for the satisfactory performance of the heating elements supplied to them as mentioned in above clause 01.	
03	The bidder shall confirm to 1-year warranty for all the items from the date of material receipt	

NOTE:

Offers meeting the above prequalification criteria points only (01 to 03) will be evaluated further. Otherwise the offers will summarily be rejected.


R. SUNDAR RAJAN
Deputy Manager
ATP / Special Projects
BHEL, TRICHY - 620 014

/ On Bidder's office letter pad /

Self-Declaration

Enquiry No.	
Enquiry Date	

In line with Government public procurement order Number P-45021/2/2017-B.E-II dated 15.06.2017, and further modified order dt. 28.05.2018 & order 04.06.2020 issued by DPIIT

I / We hereby declare that I / We are a "Local Supplier" meeting the requirement of minimum local content (..... %) defined in the above government notification for the goods against above mentioned enquiry Number.

Details of location at which local value addition will be made is as follows:

Door No.	
Street / Address 1	
Street / Address 2	
District	
State	
Country	
PIN Code	

We also understand that the false declarations will be considered as breach of Integrity and liable for action.

For Company Name:

Seal:

Signature:

Date:

Place:

(Please fill all the colored fields)