

दूरभाष :
TELEPHONE :
तार : बार्क-मुंबई, चेम्बूर.
TELEGRAMS : BARC-MUMBAI, CHEMBUR.
फैक्स संख्या : ९१-२२-२५५० ५१५१
FAX NUMBER : 91-22-2550 5151



ट्रॉम्बे,
मुंबई-४००.०८५.
TROMBAY,
MUMBAI-400 085.

भारत सरकार
GOVERNMENT OF INDIA

भाभा परमाणु अनुसंधान केन्द्र
BHABHA ATOMIC RESEARCH CENTRE

**URANIUM EXTRACTION DIVISION
(Utility and Maintenance Section)**

Ref: - UED/Pl.13/22/26482.

Date : 28.1.2022

Tender No. : BARC/ UED/ MLS/21143

Due on : 11/02/2022

Sub. : Preparation of Fabrication drawings, procurement of materials, Fabrication, inspection, Testing, Supply, Installation at site in the existing system and warranty of seamless Inconel 600 tube along with accessories for Rotary tube Furnace.

Dear Sir,

Quotations are invited in two parts (Part A : Technical Bid and Part B : financial Bid) Director, Materials Group, in sealed envelope for and On behalf of President of India for the above subject as per following terms and conditions.

1. **Scope of work:** Fabrication and supply of seamless inconel 600 tube along with accessories and Installation at site in the existing system as per Drawing no. UED/BARC/ HF/ RT/ 01 and Annexure I enclosed.

2. **Quantity :**

1. Inconel 600 tube : 200NB X SCH 60X 5.5 M long	-----	02 nos.
2. SS 304 L sleeve : OD 240 X ID 220 X 255 mm long	-----	02 nos.
3. SS 304 L sleeve : OD 250 X ID 220 X 51 mm long	-----	04 nos.
4. Cam with supporting ring	-----	02 nos.
5. Sprocket with supporting ring.	-----	02 nos.

3. **TENDERING PROCEDURE:** The tender will be opened in two parts 1) PART A – Technical bid (should not include the quoted price), 2) PART B – Price bid. Hence, the vendor has to submit the quotations against this tender in two separate envelopes clearly mentioning PART A and PART B on the envelope. Both the envelopes should be posted in single bigger envelope. Tender no. and due date should be written on the top of the main envelope.

PART A will be opened as per due date PART B will be opened only after scrutinizing the technical part by appropriate committee or authority only the PART B of technically suitable offer will be opened for further processing.

4. **WARRANTY:** 12 months from the date of commissioning.
5. **VALIDITY:** Price should be valid throughout the contract period.
6. **COMPLETION PERIOD:** The job is to be completed within **3 months** from the date of receipt of the order any delay which is liable to the contractor is liable for penalty @ 0.5% perweek (5% maximum) to be imposed on the contractor.
7. **INCOME TAX:** Income Tax @2% and surcharge on tax as applicable shall be deducted from vendor's bill.
8. **SAFETY:** Party should follow all the safety procedure while working inside BARC. During the execution of the work order party will be responsible for all safety precautions to be maintained in the work area. The party should arrange all the safety appliances. As per BARC security norms, the contractor shall have to obtain in the police verification Certificate (PVC) to work inside BARC for all the persons to be employed for this work and be comply with all security regulations strictly. Any injury/damage caused to the contractor's work force during execution of the job for any reason whatsoever shall be the liability of the contractor only. The vendor will be only responsible for any labor related dispute.
9. **PAYMENT:** 100% including taxes after receipt of the unit at our site, final acceptance of the total job and submission of the following documents:
 - A. Delivery Challan.
 - B. Advance Stamped Receipt.
 - C. Original Bill.
 - D. Guarantee certificate
 - E. Job completion certificate.
10. **Working Experience :** Party should have experience in the fabrication of component of Rotary Tube furnace and working experience inside BARC in Radioactive materials at site.

11. TERMS AND CONDITIONS:

Note: [Reference: (2/Misc-9/Lgl/2001/92 dated April 30, 2001, BARC]

- A. Confidentiality: No party shall disclose any information to any third party concerning the matters under this contract generally. In particular, any information identified as "Propriety" in nature by the disclosing party shall be kept strictly confidential by the receiving party and shall not be disclosed to any third party without the prior written consent of the original disclosing party.
- B. "Restricted information" categories under Section 18 of the Atomic Energy Act, 1962 and "Official Secrets" under Section 5 of the Official Secrets Act, 1923:Any contravention of the above –mentioned provisions by any contractor, sub-

contractor, consultant, adviser or the employees of a contractor will invite penal consequences under theaforesaid legislation.

- C. Prohibition against use of BARC's name without permission for publicity purposes: The contractor or sub-contractor, consultant, adviser or the employees engaged by the contractor shallnot use BARC's name for any publicity purpose through any public media like Press, Radio, TV orInternet without the prior written approval of BARC.

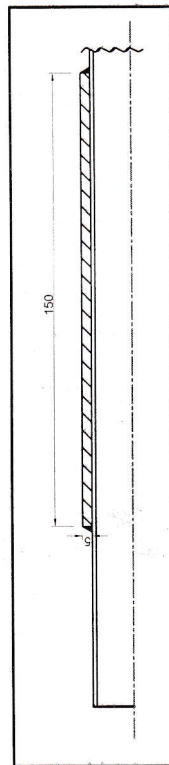
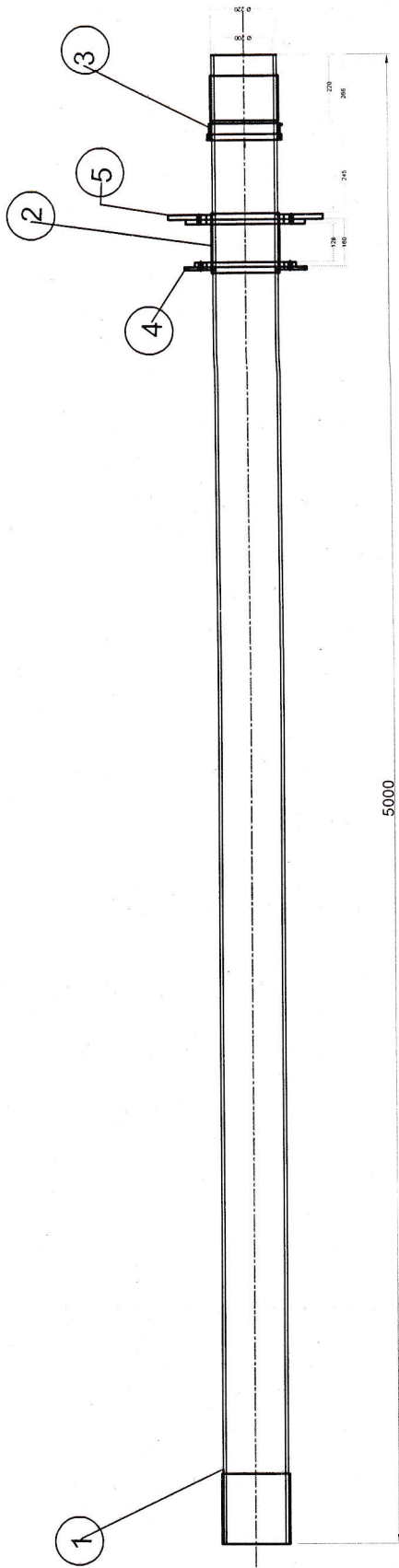
Party should write clearly the Tender No., and due date on the top of envelope. Quotation should be submitted on **printed letter head** and to be addressed to Head, Uranium Extraction Division, Bhabha Atomic Research Centre, Trombay, Mumbai 400085. Party should mention their own **PAN/GST No.** on top of quotation. Party should send the Quotation using Indian postal service only i.e. speed post, registered post or ordinary post only and should not send the Quotation by private courier service. The quotations sent by private courier service will be treated as invalid.

Thanking you,

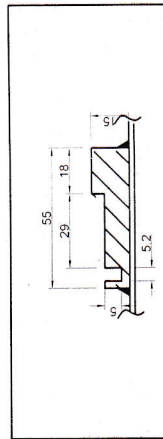

(M L Sahu)
Head UED,

(For and On Behalf of President of India)

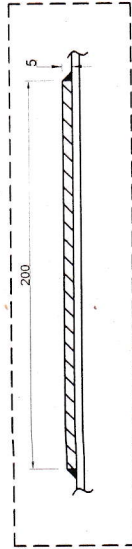
श्री एम. एल. साहू / Shri M.L. Sahu
अध्यक्ष, यु.नि.प्र./Head, UED



DETAIL 'A'



DETAIL 'B'



DETAIL 'C'

DRG NO : UED/BARC/HF/RT/01

5	SPROCKET WITH SUPPORTING RING	2			QTY
4	CAM WITH SUPPORTING RING	2			
3	SS 304L SLEEVE	4			
2	SS 304L SLEEVE	2			
1	INCONEL 600 TUBE	2			
SR	DESCRIPTION				

Annexure I.

Tender No. : BARC/ UED/ MLS/21143

TENDER SPECIFICATION

A. Technical specification :

Preparation of Fabrication drawings, procurement of materials, Fabrication, inspection, Testing, Supply and warranty of seamless inconel 600 tube along with accessories for Rotary tube Furnace as per following specification.

1. Size of tube : 200mm NB, Schedule 60

Approximate dimensions :

Outside dia. (OD) - 219.1mm to 220mm.

Inner dia. (ID) - thickness 10.00 mm to 10.31 mm

Running length (L) – 5000 mm to 5500 mm.

Note : the tube should be in single piece of above dimension without any welding joint.

2. Material : Grade ASTM / ASME SB 167 / 517 UNS 6600 (INCONEL 600).

3. Manufacturing Process : cold drawn, heat treated and free from scale.

4. Chemical Composition in (%) :

Ni - 72.0 min. Cr - 14.0 to 17.0 Fe - 6.0 to 10.0

C- 0.15 max. Mn - 1.0 max. S - 0.015 max.

Si - 0.5 max Cu - 0.5 max.

5. Mechanical & Physical properties :

Density - 8.47 g/cm³ Tensile strength - 95,000 PSI (655 MPa)

Meting point - 1413 °C Yield Strength - 45,00 PSI (310 MPa)

Elongation - 40%

6. Tolerances : tolerances according to ASTM B163, B407, B167

OD : ± 2.38 mm / -0.79 mm

Straightness : 1.25mm Max. from flat surface.

Wall thickness : - 12.5%

Ovality : 1.5% of OD (3.3 mm Max.)

7. Accessories as per Drawing no. UED/BARC/ HF/ RT/ 01

B. FABRICATION:

- a) All materials like Inconel-600, Monel-400, etc to be used for fabrication shall be purchased from reputed source along with original test certificates for chemical and mechanical properties. Source of supply should be indicated in the offer. The supplier shall inform the purchaser after the purchase of these materials for their identification & sampling which will be sent to the government approved laboratory for the required tests as per ASTM standards.
- b) Fabrication of Inconel-600, Monel-400, SS, MS & other materials should be done by only qualified welders and as per qualified welding procedures as per appropriate standards for ASTM for materials & ASME for procedures and testing.
- c) The supplier shall proceed for fabrication of the furnace only after obtaining the approval of drawing, QAP from the purchaser.

- d) Pickling and passivation of the materials should be carried out as per the procedures given by the purchaser after placement of order.
- e) The welding procedure & performance qualification specifications shall be in accordance with ASME code section IX and the same shall be submitted to the purchaser for approval. After this, the same shall be witnessed & approved by the purchaser.
- f) All the welding joints shall be subjected to liquid penetrate test for each root pass of all weld joints in accordance with ASME code Sec.5 article 6 and examination shall be performed in accordance with ASME code Sec. VIII Div.I.
- g) Welding filler metal shall conform to AWS standard .
- h) Monel-60 & Inconel-82 filler wires shall be used for welding Monel-400 & Inconel-600 materials respectively.

C. INSPECTION & TESTING:

1. All materials shall be identified & sample will be taken in the presence of purchaser's representative for chemical and physical analysis.
2. Approval of welding procedure & performance qualification as mentioned earlier.
3. Submission of all test certificates.
4. After Completion of job the furnace components shall be inspected for dimensional check-up, finish, welds, Furnace leak testing, testing of seals.
5. Installation, commissioning & testing of the system at BARC site shall be carried out by the supplier in the presence of purchaser representative.

NOTE:

- a. All the materials to be used for fabrication shall be purchased from the manufacturers only along with original test certificates for chemical & mechanical properties.
- b. After placement of order the vendor should submit design and fabrication drawings for all the components and a general assembly drawing of system for purchaser approval.

D. FREE ISSUE MATERIALS : No free issue material (FIM) shall be supplied by BARC.

E. QAP for fabrication of metallic items :

1. All raw materials should be purchased from reputed and approved dealers only (Mill product with heat nos. and not re-melted material). The mill certificate should also be provided for checking of the mechanical and chemical property. The following checks should normally be done during procurement of raw materials
2. The chemical composition of the material should be done in site for all relevant elements from Govt. approved laboratory.
3. Visual inspection should be done to identify defects like Dimensional irregularity, Surface irregularity, Corrosion Physical deformation dents
4. Sizes are accommodated to reduce the number of welding joints
5. D.P. tests for surface cracks on Inconel 600 sleeves.
6. Mechanical testing to check that physical properties confirm to specification.
7. Party should prepare the fabrication drawing and submit for approval. Dimensional and geometrical checks should be done before marking for cutting off.
8. The pressure and flow of gas, cutting speed should be monitored continuously during cutting operation.
9. Qualified operators to ensure smooth cutting edges and good dimensional tolerance should do the gas cutting and plasma cutting.
10. The gas cut and plasma cut surfaces should be ground off before further processing (Edge preparation).

11. Machining tolerance and surface finish should be checked for machined components as per ASME /IS standards.
12. Tools for SS/ monel, inconel fabrication should be separately maintained.
13. All welding should be done as per ASME code. The welding should be done as per approved WPS strictly as per the fabrication drawing.
14. The procedure for inspection should be as per the article 6 of ASME code, section V.
15. Root pass and final pass weld should be tested with liquid dye penetration test for any surface defects / cracks etc.
16. SS , monel, inconel plates / parts should be cleaned by suitable detergent to remove all dirt and greasy substances. SS wire brushes should only be used wherever necessary.
17. After fabrication SS plates , monel ,inconel parts should be cleaned by acid pickling. Subsequently these should be cleaned / washed with clear water and dried.
18. Washed surface should be checked by litmus test to ascertain total removal of acid.
19. Welder qualification and approval 5G/6G position is a must. The welder shall have certification for welding of Monel 400 also.

F. Records / Documentation:

- Party should maintain records for all inspection and tests.
- Fabrication drawing for each item should be submitted for approval & records of drawing revision wise should be maintained accordingly.
- Documents for all the material testing, weld joint testing & hydro / pneumatic testing should be submitted in bound volume.
- Three sets of as built mechanical, electrical & instrumentation (wherever applicable) drawing should be submitted after completion of project. All drawing shall be prepared in AutoCAD 2013 or latest available and electronic files shall be provided as part of final drawing. Text document should be in Microsoft Word 2013 or higher.
- The contractor shall arrange for final documentation in bounded hard copy in 3 sets as part of final documentation. Electronic files (soft copy, preferred in CD) of all drawing and documents should also be submitted along with three copies of operation manual (wherever applicable) & drawing for all the bought out items after completion of works.

G. TERMS AND CONDITION : For erection and commissioning

- a) Party should have valid security vetting certificate.
- b) All the person to be deputed for erection and commissioning have valid PVC and fully vaccinated for COVID 19.
- c) Party should have experience of carrying out similar work supply of rotary tube in DAE / BARC. (The proof should be attached along with technical offer.)
- d) The party should submit medical certificate for the person to be carried out the erection work as the system is for Radio chemical plant.


(M L Sahu)
Head UED,