Sub: **Minor Fabrication - invitation of quotations.**

Dear Sirs,

1. Quotations are invited for the minor fabrication of Copper - Tungsten (Cu-W) anode pieces with specifications and details as per Annexure-D.
2. Bidder shall quote for fabrication of these components with material.
3. Taxes and excise duties shall be quoted separately. Form AF shall be provided where necessary.
4. The quotations must reach, **Head, Laser & Plasma Technology Division** by **08.11.2019** and must be sent in a sealed envelope **super scribed** with the above reference number and due date given above.
5. The address on the envelope should read:
   The Head,
   Laser & Plasma Technology Division
   Bhabha Atomic Research Centre,
   Trombay, Mumbai - 400 085.
   (Attn.: S.Ghorui)
6. The bidder shall have to take an insurance policy against any material issued to him by the purchaser.
7. The fabrication work shall be subject to inspection by our engineer.
8. The bidder shall complete the work within **45 days** from the date the firm work order is issued to the bidder. Installation will be done at **M-34, PRIP Shed, Near Engg.Hall-8, BARC, Trombay, Mumbai-400 085.**
9. Head, Laser & Plasma Technology Division, BARC, reserves the right to accept/reject any or all quotations without assigning any reason.

Yours faithfully,

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Head, Thermal Plasma Technology Section

Head, Thermal Plasma Technology Section

Copy to: (1) Accounts Officer, G.S.S. (2) Head, SIRD for uploading

The quotations will be opened at 3.00 PM. on **08.11.2019**
**Annexure-D**

1. **Justification and Scope of work:**

Thermal Plasma Technology Section of Laser & Plasma Technology Division is involved in design and development of plasma torches. The present fabrication work involves fabrication of thirty four (34) numbers of copper-tungsten anode pieces of specific composition as per the details and drawings provided. There is no free issue of material. Scope of the work includes procuring material of appropriate dimension, composition, quantity and quality, fabrication of the components as per the design and specification, and delivery of the item to the users place. There is no Brazing/welding involved. Necessary fabrication must be performed by certified personnel only. Work shall be carried out to Indian Standards and Code of Practices. In absence, latest issue of International Standards shall be followed. Any discrepancies/conflict noticed shall be directed to the Executing Officer for his direction/approval. Required precision, drawing of components and overall dimensions are provided for proper budgetary estimate. Detail drawing of each and every component will be provided only after the issue of the final work order. The fabrication being an R&D effort, vendor should quote accommodating a maximum of 5% alteration in the design while fabrication. It is responsibility of the vendor to prepare the final fabrication drawing, getting it approved by the indenting authority and handing over the same to the indentor. It remains clarified that the final fabrication drawings are the property of Thermal Plasma Technologies Section of Laser and Plasma Technology Division, BARC, Trombay, Mumbai-85, Govt. of India. This must not be copied or reproduced in any manner, or design disclosed or parts manufactured without written permission. All the fabricated components must bear warranty of 1 year from the date of delivery against any manufacturing defect found in the fabricated components.

2. **Details of job:**

The job involves fabrication of a total of thirty four (34) numbers of anode pieces with specifications and details as provided in this document.

The complete job includes:

(i) Preparation of void free six types of Copper-Tungsten (Cu-W) alloy material of very specific compositions and quantity mentioned, in the shape of a rod of appropriate dimension so that the desired components of given dimension can be fabricated:

(i) Cu-20%, W-80% [Qty-7 Nos.]  (ii) Cu-25%, W-75% [Qty-7 Nos.]  (iii) Cu-30%, W-70% [Qty-5 Nos.]
(iv) Cu-35%, W-65% [Qty-5 Nos.]  (v) Cu-40%, W-60% [Qty-5 Nos.]  (vi) Cu-45%, W-55% [Qty-5 Nos.]

(ii) Machining of the rods to give it the precise shape of the anode pieces of dimensions given

(iii) Critical examination of the fabricated components for precise dimensions and rejection of the faulty pieces

(iii) Delivery of the mentioned quantities of final fabricated components to BARC, Trombay
3. Detail drawing of components to be fabricated

Drawing of the anode piece to be fabricated is given below:

4. Acceptance Test Criteria

Once the job is ready, Engineers from the indenting authority will visit the works of the vendor to inspect the fabricated components. The fabricated items must pass the following tests to qualify for acceptance:

2.1 Dimensions of various fabricated components must match with the dimensions provided in the final approved fabrication drawing within the tolerance limits.
2.2 The components will be checked for inside void using ultrasonography at the user's lab. If any of the components shows presence of void inside, the same will be rejected and must be replaced by a new one which does not contain any void.
2.3 The used material will be tested at the user's lab for alloy composition. Cu:W (weight) ratio must comply within ±1%.