

## Annexure-I

### 1. SCOPE:

Fabrication and Supply of 40 Nos of "Copper Flanges" as per Drg. No. BARC/ED&DD/RF/1704 and attached specification.

### 2. GENERAL:

You shall send your offer in a sealed envelope indicating delivery period, price inclusive of all the taxes and other relevant information, to:

Head,  
Engineering Design & Development Division,  
Bhabha Atomic Research Centre  
Trombay, Mumbai- 400 085.

(Kind Attention : Head, Engineering Design & Development Division)

- Quotation shall reach us on or before **24/04/2019** by **Registered Post/Speed post only.**
- Please send "REGRET" if not quoting.
- All applicable taxes should be clearly mentioned.
- The supplier shall mention GST No. in their quotation, without which quotation will be invalid.
- Overwriting, scratching etc. must be avoided in the quotation. Rewriting the whole figure shall carry out any alteration in the figure. The authorised person from the firm shall countersign such figure.
- The delivery period mentioned in the quotation shall be strictly adhered to. If the contractor fails to supply and secure extension of delivery date before effecting delivery of the supply against the contract, acceptance of such item by the purchaser will in no way prejudice the right of the purchaser to levy liquidated damage nor will it be entitled to the contractor for payment of statutory levies that comes into force after the expiry of the delivery date.
- Early delivery schedule will be given a consideration.
- You may contact us for any clarification on or before **23/04/2019** (Shri Kaushal Jha at 25590670)

### 3. GENERAL REQUIREMENT:

The fabrication of components requires the highest standard of workmanship, particularly from the machinist. The desired machining finish, geometrical tolerance, and general tolerance as specified by us in the drawing shall be of primary concern to the contractor. Any lowering of standards of workmanship, machining finish and tolerances will be evident in the final products and thus it is in the contractor's interest to ensure high quality supervision.

### 4. DELIVERY PERIOD:

The delivery period mentioned in the quotation shall be strictly adhered to. If the contractor fails to supply and secure extension of delivery date before effecting delivery of the supply against the contract, acceptance of such item by the purchaser will in no way prejudice the right of the purchaser to levy liquidated damage nor will it be entitled to the contractor for payment of statutory levies that comes into force after the expiry of the delivery date. Any delay which is attributable to contractor is liable for penalty @ ½ % per week (max 5%) to be imposed on the contractor. For any delay, the party shall submit request for extension in delivery period before expiry of work order for consideration.

### 5. PLACE OF DELIVERY:

The inspected and accepted components shall be delivered to:

Stores Officer  
Radiological Zonal Stores,  
Bhabha Atomic Research Centre  
Mumbai- 400085

### 6. PAYMENT TERMS:

Full payment will be made only after the satisfactory completion of Work order of "Fabrication & supply of **Copper Flanges**". Please note that income tax @ 2% and GST TDS @ 2% will be deducted from your bill. **No part payment or advance payment will be made.** For this mode of payment, you are required to draw your invoice in the name of



Head, Engineering Design & Development Division, Bhabha Atomic Research Centre, Mumbai 400085, in **triplicate** along with advance stamp receipt, and to be submitted at the time of delivery.

#### 7. CONFIDENTIALITY CLAUSE :

No, party shall disclose any information to any third party, concerning the matters under this contract generally. In particular, any information identified as " Proprietary" 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.

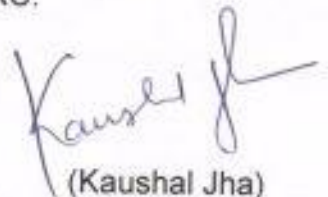
This clause shall apply to the sub-contractors, consultants, advisers or the employees engaged by a party with equal force.

**"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 the aforesaid legislation.

#### **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 shall not use BARC's name for any publicity purpose through any public medial like press, radio, T.V. or Internet without the prior written approval of BARC.



(Kaushal Jha)  
Scientific Officer (G)

**Annexure-II**  
**Specification of Copper Flanges**

**1. SCOPE:**

Fabrication, inspection and supply of "**Copper Flanges**" shall be done as per the Drg. No BARC/EDDD/RF/1704. Contractor shall follow all the instructions given in our documents. The contractor shall prepare the fabrication drawings, inform the manufacturing procedure and get approved. Inspection and testing will be performed at the suppliers work. The supplier shall prepare for shipment and supply of copper flanges to BARC, Mumbai.

**2. Quantity:**

Item	Drg. No	Quantity
Copper Flange	BARC/EDDD/RF/1704	40 Nos

**3. GENERAL REQUIREMENT:**

The fabrication of Copper flanges shall be of the highest standard of workmanship, particularly from the machinist. The desired machining finish, geometrical tolerance and general tolerance as specified by us in the drawing shall be of primary concern to the contractor. Any lowering of standards of workmanship, machining finish and tolerances will be evident in the final products and thus it is in the contractor's interest to ensure a high standard of workmanship and supervision.

**4. MATERIAL:**

All the materials used shall be in accordance with the relevant standard of specifications or equivalent and shall be of recent manufacture, free from all defects such as imperfections, pits, rusting, laminar type discontinuities etc. The material of construction shall be DHP grade copper (UNS C12200). The material shall be in fully annealed condition. Copper content shall be more than 99.9% and phosphorus shall be in the range of 0.015% to 0.04%. The percentage elongation shall be 40% minimum in 50 mm gauge length. The fabricator is requested to take utmost care in the beginning to avoid any such defects, which may lead to rejection of the component.

Material used shall comply with the requirement of code. Supplier shall submit mill test report (for chemical and physical properties) in co-relation with the material marking. The starting material shall be tested from NABL accredited labs and shall meet the specifications.

**5. FABRICATION/MANUFACTURING DETAILS**

Prior to machining, the supplier shall get the material tested ultrasonically so that it shall not have any lamination or crack. Copper Flanges shall be machined from a plate or forged billet near to finish dimensions and final dimensions shall be achieved by machining. Annealing shall be done prior to machining so as to remove any kind of residual stresses. The machining shall be done using suitable fixtures. Tolerances shall be maintained carefully.

Fabrication/Execution shall be done in following stages:

- a) Preparation of shop/fabrication drawings
- b) Manufacturing
- c) Inspection



## 6. MACHINING:

In general, machining shall be in accordance with high-grade practice, adequate to achieve the accuracy and machining finish mentioned in the drawings.

In addition to the above points the general care is to be taken while machining:

1. All material should be as specified on the drawings.
2. In general every surface shall have good machining finish.
3. The material used should be of recent make and free from any defect.
4. The holes should be drilled using suitable jig and fixture.
5. All sharp corners/Burrs should be rounded to a suitable radius.
6. Threading shall be checked by using suitable thread gauge. Thread gauge is to be manufactured by the supplier and shall be provided during inspection.

All the general tolerances, geometrical tolerances, sizes and machining finishes shall be as specified on the drawings.

## 7. INSPECTION AND TESTING:

The purchaser shall have access at all reasonable times to all shops and the sub-contractors where material is being machined and all reasonable facilities for such inspection shall be provided. A certificate shall be issued along with each component including inspection records and test results.

### 7.1 INSPECTION OF RAW MATERIALS:

Chemical, mechanical and ultrasonic testing shall be arranged by vendor at NABL accredited lab. Supplier has to arrange for the tests. Ultrasonic testing shall be done 100% & shall be witnessed by purchaser. Chemical and Mechanical test shall be carried out for at least on three samples from each plate. The inspector will inspect that all materials used comply with the requirements of respective codes and also examine mill test reports (for chemical and physical properties) in correlation with material markings.

In case of doubt the purchaser may carry out chemical analysis by taking samples from the plates and other material. Purchaser also reserves the right to take the random samples from the raw material to be tested for mechanical testing.

### 7.2 FINAL INSPECTION:

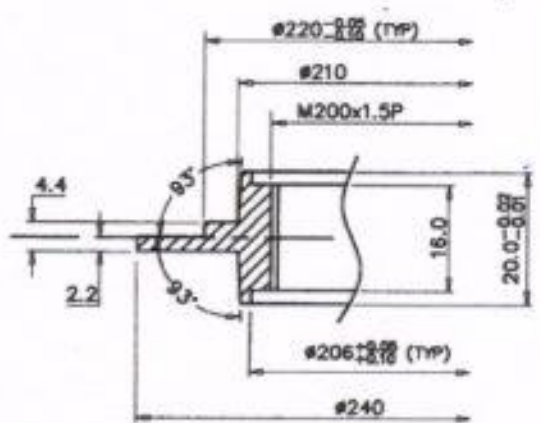
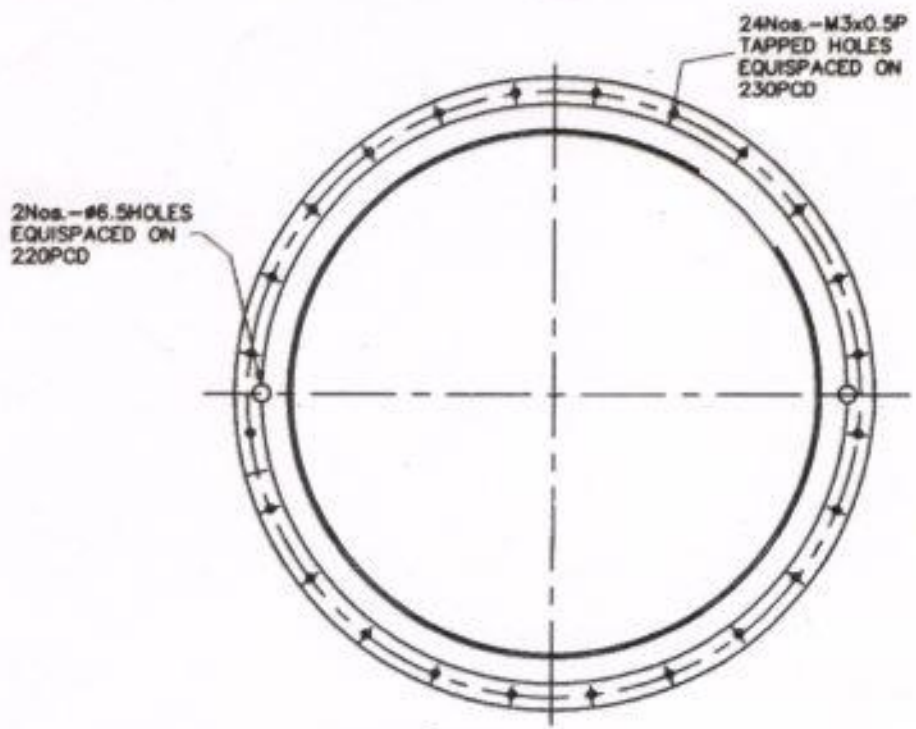
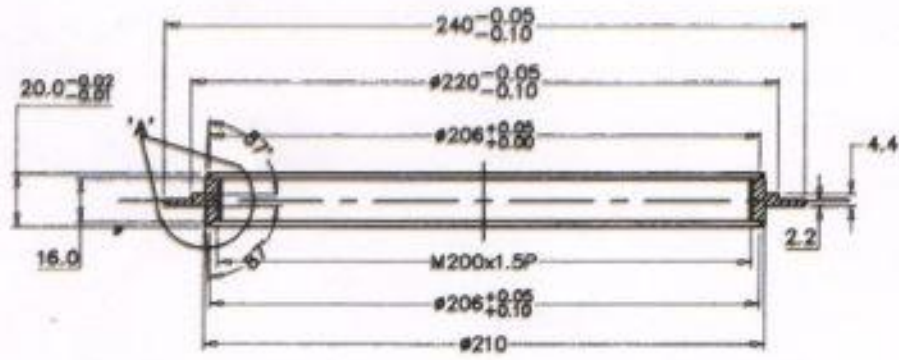
All the components will be accepted only after the final inspection. Components will be inspected as per the following details:

- 1) Visual inspection: finish, scratches, dents, distortions etc.
- 2) Dimensions inspection: Each and every part shall be checked as per dimensions using suitable instruments. The accuracy of measuring devices shall be better than 1/10th of the tolerance.
- 3) Final acceptance will be subject to satisfactory reports of all the test & dimensional accuracies.

All rectification and subsequent tests if required shall be arranged by the supplier to the satisfaction of the purchaser.

Note:

- The supplier shall get approved the fabrication procedure from the purchaser (BARC) before going ahead.
- The procedure for ultrasonic testing shall be in accordance of ASME Sec V and acceptance shall be as per Sec VIII Div I.
- All rectification and subsequent tests shall be provided at the contractor's expense to the satisfaction of the purchaser.



**DETAIL AT-'A'**

**MAT: COPPER**  
**IS-191 DHP GRADE**

- NOTES:**
1. ALL DIMENSIONS ARE IN mm
  2. REMOVE ALL SHARP CORNERS
  3. IF ANY DOUBT, PLEASE ASK.

**Drawing No. BARC/EDDD/RF/1704**