



GOVERNMENT OF INDIA  
BHABHA ATOMIC RESEARCH CENTRE

## Atomic Fuels Division

**Avadhesh Kumar**  
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Ref: AFD/SFDS/2018/OPA- 137415

July 13, 2018

**Sub: Enquiry for Fabrication and Supply of Box type Air Furnace, Spare Thermocouples and Ceramic Fibre Boards as per Specification.**

Dear Sir / Madam,

Sealed quotations are hereby invited for and on behalf of the President of India for fabrication and supply of Box type Air Furnace, Spare K- type Thermocouples and Ceramic Fibre Boards as per specification and terms & conditions given in Annexure-I enclosed.

The Items will be accepted after performance test as per specification at our works.

Your offer must include a suitable sketch giving major dimension and detail for Box type Air Furnace and details of other items.

The completion time shall be **two (02) months** from the date of placement of order.

You are, therefore, requested to send your offer for the same so as to reach the undersigned **ON or BEFORE August 10, 2018**. Sealed envelope containing the quotation shall be super scribed with the tender no. and due date and sent by **REGISTERED / SPEED POST** only to:

**AVADHESH KUMAR  
TECHNICAL OFFICER,  
ATOMIC FUELS DIVISION,  
BHABHA ATOMIC RESEARCH CENTRE,  
TROMBAY, MUMBAI – 400 085.**

Thanking you,

Yours faithfully,

Enclosures: Annexure-I: 3 Pages

(Avadhesh Kumar)  
Technical Officer (D)  
SFDS, AFD, BARC  
Trombay, Mumbai-400085

**A. TECHNICAL SPECIFICATION:**

**1. BOX TYPE AIR FURNACE:**

Furnace shall be constructed in Mild Steel followed by powder coating. It shall have ceramic fibre board insulation with Kanthal A1 coiled form of heating element on 3 sides of chamber. The inner chamber shall be fabricated using 3 mm thick SS 310 plates bent in C-Shape. The C-shaped baffle will cover top, 2 sides and back. It will also shield the heating elements from fumes evolved during heating the charge. The bottom SS 310 plate will be separate and removable. The box type air furnace shall have the following details:

1. Overall dimension : 1000 mm (L) x 1000 mm (W) x 1500 mm (H) (max.)
2. Chamber Size : 300 mm x 300 mm x 300 mm (min.)
3. Maximum Temperature : 1000°C
4. Operating Temperature : 900°C
5. Power Rating : 12 kW
6. Power Supply : 440V, ±10%, 50Hz, 3 Phase.
7. Heating Rate : 2°C/min to 20°C/min maximum settable.
8. Control accuracy : ± 3°
9. Control type : Thyristor.
10. The back wall shall have an outlet for exhaust of fumes produced during heating and a hole for thermocouple insertion.
11. Thermocouple shall be duplex 'K' type one for PID controller and another one for safety controller.
12. Control Panel shall have PID programmable temperature controller of **EUROTHERM OR OTHER REPUTED MAKE**. It should have 4 ramps and 4 soaks segment of programming.
13. Suitable digital Ammeter, Voltmeter and indicating lamps for ON, OFF and TRIPS etc. should be provided.

Quantity: 01 Set

- 2. K- type Thermocouples** in Ø 2.0 mm stainless steel sheath with end coupling (male and female both for connection to extension cable) along with NABL calibration certificate as per following details:

S. No.	Length of K- type Thermocouple	Quantity
1.	3000 mm	3 nos.
2.	2000 mm	3 nos.
3.	1000 mm	6 nos.
4.	500 mm	6 nos.

- 3. K-Type Thermocouples** in Ø 6.0 mm stainless steel sheath with end coupling (male and female both for connection to extension cable) along with NABL calibration certificate as per following details:

S. No.	Length of K- type Thermocouple	Quantity
1.	3200 mm	02 nos.
2.	3000 mm	04 nos.
3.	2000 mm	12 nos.

4. **-Type Thermocouples** in Ø 6.0 mm stainless steel sheath; 500 mm long with **metallic end coupling** (male and female both for connection to extension cable) along with NABL calibration certificate.

Quantity: 15 nos.

5. **Ceramic Fiber Boards:**

Ceramic fiber board is of size 1000 mm (L) x 500 mm (W) x 25 mm (T) and made of high temperature insulator wool (grade ASW) with density not less than 300 kg/m<sup>3</sup> and classification temperature not less than 1000°C. It is meant for use as insulation material in resistance heating type furnace.

Quantity: 4 nos.

6. **Male-Female Connectors:** Male-female connector for connecting extension cable of K- type Thermocouples.

Quantity: 30 Sets.

**B. SCOPE OF WORK:**

1. Quotations are invited **only from established manufacturers** of furnaces.
2. Quotation must include the drawing and sketch with dimension of the chamber and overall dimension of the furnace with control panel and other items.
3. Fabrication of Box type Air Furnace as per specification and terms & conditions of work order.
4. Inspection of the Box type air furnace shall be carried out at supplier's site as per specification.
5. Delivery of Box type Air Furnace along with manual and test certificates of bought out items, Spare K- type Thermocouples and Ceramic Fibre Boards as per specification and terms & conditions of work order to AFD, BARC, Trombay, Mumbai-400085.
6. Installation and demonstration of the furnace and its control system as per specification at purchaser's site.
7. Box type Air Furnace shall be guaranteed for one year trouble free operation from the date of successfully completion of work order.

**C. TERMS & CONDITIONS OF WORK:**

1. There is no Free Issue Material (FIM).
2. Only lump sum price should be quoted.
3. **Quotation must** be printed on letter head and it must mention GST Registration Number, PAN Number of the firm etc.
4. **Quotation must** clearly mention the name of the signatory and should bear company seal.
5. **Offers where there is not sufficient clarity to adherence of any of the requirement given in tender enquiry will be rejected.**
6. Any delay in completion of order, which is attributed to supplier, will be liable for penalty @ 0.5% per week (max. 5%) to be imposed on supplier.
7. Income Tax @ 2% and surcharge & 3% education cess on tax as applicable shall be deducted from your bill.
8. Payment shall be made after the receipt, acceptance of the Items and on receipt of the following documents:
  - a. Delivery challan in duplicate.
  - b. Bill in triplicate.
  - c. Advanced stamped receipt in favour of Accounts Officer, BARC, Trombay, Mumbai.
  - d. Electronic Clearing Service (ECS).

9. Tax Invoice should be on letter head of the supplier. GST and PAN no. of the firm shall be mentioned on the tax invoice.
10. HSN Code of the items must be quoted. GST will be paid @ 5% against GST exemption certificate issued by us.
11. Advance or part payment against delivery cannot be made.
12. After completion of work the contractor / supplier shall make arrangements for disposal of all scrap / garbage, redundant material and debris generated during the course of the work. Payment due shall not be made until the contractor / service provider clears the premises of the purchaser of all left over material.
13. Declaration to be submitted along with the offer: The prospective supplier shall declare as to whether he has any relation working in BARC or himself is an ex-employee of BARC, or has an ex-employee of DAE on his pay rolls.

**D. CONFIDENTIALITY CONDITION:**

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 written consent of the original disclosing party. This clause shall apply to the sub-contractors, consultants, advisers or the employees engaged by the party with equal force.

Any contravention of the above mentioned provisions by contractor, sub-contractors, consultants, advisers or the employees engaged by the contractor will invite penal consequences under the legislation of restricted information categories under section 18 of the Atomic Energy Act 1962 and official secrets act 1923.

The contractor or sub- contractor, consultant, adviser or the employees engaged by the contractor shall not use BARC'S name for any publicity through any public media like press, radio, TV or internet without prior written approval of BARC.

(Avadhesh Kumar)  
Technical Officer (D)  
AFD, BARC