



**SPONSORED RESEARCH, INDUSTRIAL CONSULTANCY & CONTINUING
EDUCATION CELL
NATIONAL INSTITUTE OF TECHNOLOGY
ROURKELA – 769 008, ORISSA**

Advertised Tender Enquiry

Department: Ceramic Engineering

Tender Notice No: NITR/PW/CR/2018/66

Date: 03/10/2018

To,
CPP Portal
(E-procurement)

Important Dates

Event	Date	Time
Pre-bid Conference	NA	NA
Last Date of submission of Bid	30/10/2018	03:00 PM
Date of opening of technical Bid	31/10/2018	03:00 PM

Dear Sir,

We intend to purchase the commodities specified below and invite quotations in accordance with the terms and conditions detailed in the bid document. If you are interested, kindly send your offer with prices and complete terms within the time mentioned above.

Please send your quotation to:

Name:
Principal Investigator: Prof. S.K. Pratihar
Department of Ceramic Engineering
NATIONAL INSTITUTE OF TECHNOLOGY
ROURKELA – 769 008, ORISSA

Yours sincerely,

Name: Prof. S.K Pratihar
Principal Investigator:
Project Code: SR/16/CR/022

Encl:

- (1) Schedule of requirement, specifications, dates etc.**
- (2) Bid document containing detail terms and conditions.**

1. Schedule of requirements

Sl. No.	Description of Goods/Service	Quantity
01.	Fabrication and supply of high temperature gas permeability setup (as per attached design and specification). (Detailed specification as per attached Annexure – I)	01 unit

2. Specifications and allied Technical Details

* Attach User list along with the quotation

3. Format of Quotation (tick appropriate box)

It is a single bid; please give all technical specifications and price bid in one go.

OR

It is a two-part bid with separate technical and price bids.

4. The bid should be submitted through <https://eprocure.gov.in/eprocure/app>

5. Quotations should be valid for a period of **120** days from the closing date of the bid.

6. Some important dates:

- i. Pre-bid Conference: Date: ___NA___ Time: ___NA___
- ii. Last date for submission of bid: Date: **30/10/2018** Time: **03:00 PM**
- iii. Date of opening of Technical bid: Date: **31/10/2018** Time: **03:00 PM**

7. **Warranty** of minimum **01** years must be provided

8. **GST:** GST should be charge according to applicable rates.

9. **Tender Cost:** Tender Cost (Non- refundable) in the form of DD for **INR 500/-** (Rupees Five Hundred Only) in favor of **Director, NIT Rourkela** Payable at Rourkela from any Scheduled Commercial Bank except Co-operative and Gramin bank. **Tender Cost** should reach physically through speed post/ register post/courier, containing in an envelope & superscripted with subject, tender reference number addressing to **Registrar, NIT Rourkela- 769008, Odisha;** Attention: HOD(CR) **on or before 31/10/2018 at 03:00 PM**

10. **Bid Security: Not Applicable**

11. **Performance Security: Not Applicable**

12. Please go through the enclosed "bid document" carefully for other bidding instructions.

13. Please send your quotations through <https://eprocure.gov.in/eprocure/app>

14. For technical details, you may contact

Prof. S.K Pratihar

Principal Investigator:
Project Code: SR/16/CR/022
Department of Ceramic Engineering.,
National Institute of Technology,
Rourkela – 769 008
Phone: 0661 – 2462206,
Mobile No. +919437391103
Fax: 0661 – 2462206
E-mail: skpratihar@nitrkl.ac.in

NB: Please furnish your Dealership Certificate (must) and Proprietary Nature Certificate (If applicable)



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BID DOCUMENT

1. Instructions to the bidders

- 1.1 Bids are invited on behalf of the Director, National Institute of Technology (NIT), Rourkela – 769 008, Orissa, from the intending bidders for supply of the goods/stores/equipment's for the Institute as detailed in the enquiry letter.
- 1.2 The bidders should quote their offer/rates in BOQ in clear terms without ambiguity.
- 1.3 In case of any discrepancy between the rates in figures and that in words, the rate in words will be accepted as correct.
- 1.4 The last date for receipt of the bid is marked in the enquiry.
- 1.5 The bids should be uploaded in <https://eprocure.gov.in/eprocure/app> Please follow the guidelines of the site.
- 1.6 If a prospective bidder requires any clarification in regard to the bidding documents, he may make a request the concerned officer or faculty member at least 15 days before the deadline for receipt of bids.
- 1.7 Bids received after the deadline of receipt indicated in para 1.4 above, shall not be taken in to consideration.
- 1.8 Each bidder shall submit only one bid. A bidder, who submits more than one bid, shall be disqualified and considered non-responsive.
- 1.9 (In respect of high value plant, machinery etc. of a complex and technical nature). The bids may be submitted in two parts, viz., technical bid and financial bid.
- 1.10 The bidder has to sign in full at all pages of the scanned part of the bidding document. No over-writing in those pages is acceptable.
- 1.11 If any bidder does not fulfill technical specification, his/her eligibility will be cancelled even if his/her price got L1 status.

2. Conditions of the bid

- 2.1 The rates quoted should preferably be net, inclusive of packing, forwarding, freight, Insurance and all other incidental charges excluding taxes. In case these charges are quoted extra in addition to the quoted rates, the amount thereof or Ad Valorem rate must be specified. Packing, forwarding, freight, entry tax etc., when quotes separately are reimbursable at actual. If external agencies are employed, their receipts must be enclosed with the invoice.
- 2.2 Duties and Taxes are to be quoted separately. Ad Valorem rates thereof should be clearly indicated with reference to the relevant Acts and Rules.

It may be noted that the Institute is exempt from paying Excise Duty vide Government Notification No. 10/97 dated 01.03.1997 [Registration No.: TU/V/RG-CD (227)/2011, dated 10.10.2011. GST may be charged at applicable rates.

- 2.3 The goods are required to be delivered at the indenting Department of NIT, Rourkela, and must be reached within **60 days** from the date of placement of the supply of order under the risk and arrangement of the bidder and offers with delivery beyond the above period shall be treated as unresponsive. In case the delivery time is higher, the same must be mentioned clearly in the quotation.
- 2.4 The bid should remain valid for a period of **120 days** from the date of opening. In case your offer has a different validity period that should be clearly mentioned in the quotation.
- 2.5 Conditional discount, if any, offered by the bidder shall not be considered at the time of evaluation.
- 2.6 The goods offered should strictly conform to the specification and technical details mentioned in **Annexure - I**.
- 2.7 The Institute may like to conduct pre-dispatch inspection of goods, where applicable.
- 2.8 Period of guarantee/warranty, where applicable, should be specified in the bid.
- 2.9 If the successful bidder, on receipt of the supply order, fails to execute the order within the stipulated period, in full or part, it will be open to the Director, NIT, Rourkela to recover liquidated damage from the firm at the rate of 1 percent of the value of undelivered goods per month or part thereof, subject to a maximum of 5 percent of the value of undelivered goods. Alternatively, it will also be opened to the Director, to arrange procurement of the required goods from any other source at the risk and expenses of the bidder.
- 2.10 The successful bidder may be required to execute a contract, where applicable.
- 2.11 The bidder has to furnish up to date GST and Income Tax Clearance Certificate along with the bid which will be mandatory clause while technical bid evaluation.
- 2.12 Payment (*100 percent*) will be made by Account Payee Cheque/Bank Draft, within 30 days from the date of receipt of the goods in good condition or receipt of the bill, commissioning of the equipment, where applicable, whichever is later/latest.
- 2.13 In case of Advance payment, the payment will be made on either in Foreign Demand Draft or Wire Transfer only. The proforma invoice copy need to be sent for advance payment.
- 2.14 In the event of any dispute arising out of the bid or from the resultant contract, the decision of the Director, NIT, Rourkela shall be final.
- 2.15 The bid document/resultant contract will be interpreted under Indian Laws.

Technical Specification of high temperature gas permeability setup.

Schematic diagram of different parts are shown below:

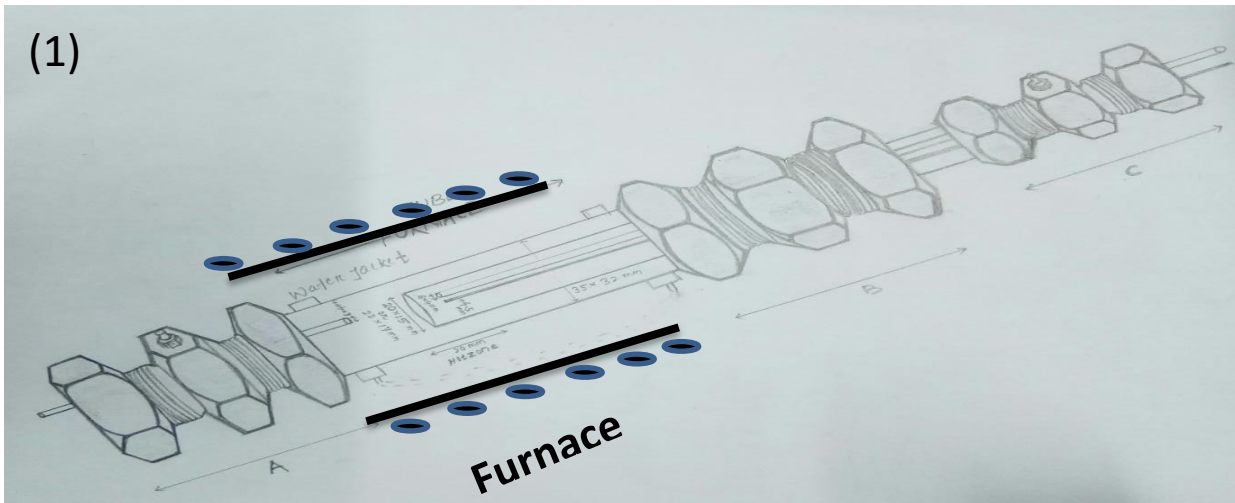


Fig-1. Schematic diagram of high temperature gas permeability set up consists of

- (I) Tube furnace (Fig-1)
- (II) Furnace tube with accessories (Fig-2)
- (III) Permeability sample holder (Fig-3)

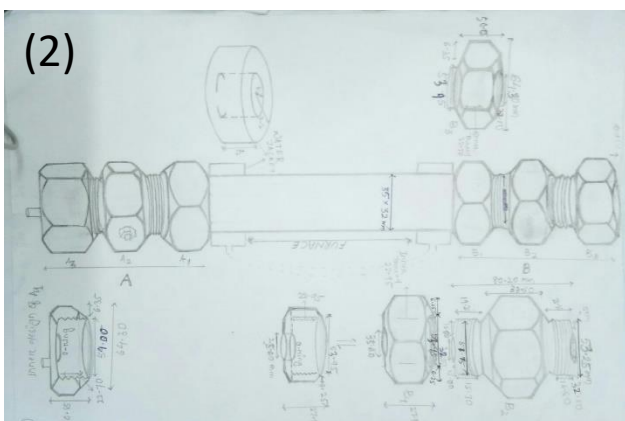


Fig-2. Furnace tube with accessories (made up of quartz with inlet and outlet flanges A and B).

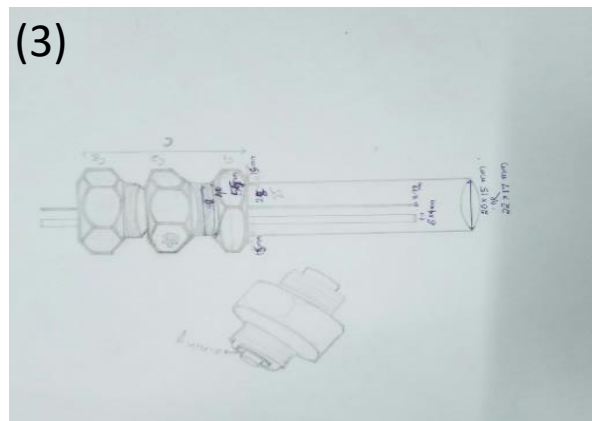


Fig-3. Schematic diagram of permeability Sample holder consists of Alumina tube, Thermocouple sheath, gas inlet and outlet tube air tight flanges.



Fig-4. Typical gas tight flange arrangement to be used in different joints.

The system consists of

(I) Tube Furnace:

1. Tube Furnace complete with thyristor drive power supply PID controller/ indicator
2. Hot zone temperature 1000°C
3. Zone length 20-30 mm
4. Cold face temperature 150°C
5. Furnace tube made of quartz (capable to withstand 1100°C), ϕ_{out} 35 mm, ϕ_{in} 32 mm
6. Length of the furnace tube to be decided on the basis of hot zone and cold face temperature.
7. Water jacket for cooling on cold face of the tube and dimension should be on the basis of quartz tube ϕ_{out} 42 mm, ϕ_{in} 35 mm, length 50 mm.

(II) Furnace tube with accessories:

1. Airtight hex-flanges to be fitted on the quartz tube a) one set for Sweep gas inlet and outlet (A) of part I b) other set to be fitted with the quartz tube and permeability sample holder (B) of part I.
2. The Hex-flange A (hexagonal side 37 mm) consists of three parts A1, A2, and A3.
3. Part A2 is a hexagonal structure (side 37 mm and height 34.00 mm) with two projections one to be fitted with A3 and another to be fitted with A1. The projection to be fitted with A3, have height 20 mm (having 3 mm flash with thread up to 16 mm from the top which have 1 mm flash inside the projection must be fitted O-ring smoothly) with ϕ_{out} 54 mm. The projection to be fitted with A1 have height 28 mm (having 5 mm flash with thread up to 17 mm from the top which have 6 mm flash in the top of the projection must be fitted O-ring smoothly) with ϕ_{out} 54 mm. A2 have a central hole of 32.00 mm throughout it. The central part of A2 will have an opening for gas outlet fitted with push fit (0.5 inch).
4. Hex flange A1 height 28 mm will be used to join furnace quartz tube with Hex-flange A2 by O-ring coupling. This hex flange contains a central hole of outer diameter 54 mm with threads up to 23 mm from top (to be fitted with A2) on one side. There will be another central hole of diameter 35 mm at the other side through which the quartz tube will pass.
5. Hex flange A3 height 41 mm will be used to join gas inlet pipe of outer diameter 6 mm with Hex flange A2 by O ring coupling. It will have a central hole of 54 mm containing thread up to 23 mm from the top (to be fitted with A2) on one side. The other side of the Hex flange A3 will be joined with a gas inlet tube (outer diameter 6 mm) by O-ring coupling.
6. The Hex-flange B (hexagonal side 37 mm) consists of three parts B1, B2, and B3.
7. Part B2 is a hexagonal structure (side 37 mm and height 34.00 mm) with two projections one to be fitted with B3 and another to be fitted with B1. The projection to be fitted with B3, have height 20 mm (having 3 mm flash with thread up to 16 mm from the top which have 1 mm flash inside the projection must be fitted O-ring smoothly) with ϕ_{out} 54 mm. The projection to be fitted with B1 have height 28 mm (having 5 mm flash with thread up to 17 mm from the top which have 6 mm flash in the top of the projection must be fitted O-ring smoothly) with ϕ_{out} 54 mm. B2 have a central hole of 32.00 mm throughout it.
8. Hex flange B1 height 28 mm will be used to join furnace quartz tube with Hex-flange B2 by O-ring coupling. This hex flange contains a central hole of outer diameter 54 mm with threads up to 23 mm from top (to be fitted with B2) on one side. There will be another central hole of diameter 35 mm at the other side through which the quartz tube will pass.
9. Hex flange B3 height 50 mm will be used to Permeability tube of outer diameter 22 mm with Hex flange B2 by O-ring coupling. It will have a central hole of 54 mm containing thread up to 23 mm from the top (to be fitted with B2) on one side. The other side of the Hex flange B3 will be joined with a gas inlet tube (outer diameter 22 mm) by O-ring coupling.

(III) Permeability Sample Holder:

1. The Hex-flange C (hexagonal side 23 mm) consists of three parts C1, C2, and C3.
2. Part C2 is a hexagonal structure (side 23 mm and height 21 mm) with two projections one to be fitted with C3 and another to be fitted with C1. The projection to be fitted with C3, have height 13 mm (having 2 mm flash with thread up to 10 mm from the top which have 1 mm flash inside the projection must be fitted O-ring smoothly) with ϕ_{out} 34 mm. The projection to be fitted with C1 have height 18 mm (having 3 mm flash and with thread up to 11 mm from the

top which have 4 mm flash on the top of the projection) with ϕ_{out} 34 mm. C2 have a central hole of 32.00 mm throughout it. The central part of C2 will have an opening for gas outlet fitted with push fit (0.5 inch).

3. Hex flange C1 height 18 mm will be used to join Permeability tube with Hex-flange C2 by O-ring coupling. This hex flange contains a central hole of outer diameter 34 mm with threads up to 14 mm from top (to be fitted with C2) on one side. There will be another central hole of diameter 22 mm at the other side through which the quartz tube will pass.
4. Hex flange C3 height 26 mm will be used to join gas inlet pipe of outer diameter 6 mm and two bore thermocouple pipe of outer diameter 4 mm with Hex flange C2 by O-ring coupling. It will have a central hole of 34 mm containing thread up to 14 mm from the top (to be fitted with C2) on one side. The other side of the Hex flange C3 will be joined with a gas inlet tube and two bore thermocouple pipe (outer diameter 6 mm and 4 mm) by O-ring coupling.

Materials specification:

1. Alumina Tube for permeability sample holder -Dimension: ϕ_{out} 22 \times ϕ_{in} 17 mm.
2. Quartz Tube for furnace - ϕ_{out} 35 \times ϕ_{in} 32 mm.
3. Quartz Tube for gas inlet - ϕ_{out} 6 \times ϕ_{in} 4 mm.
4. Two bore Alumina Tube for thermocouple sheath – ϕ_{out} 3.5 mm
5. Sufficient amount of Silicon Rubber O-ring is required for Quartz and Alumina Tube for each dimension as mention in drawing.
6. Thermocouple Wires-0.45 mm (K-Type)
7. Glass tube for sealing sample on alumina tube- ϕ_{out} 22 \times ϕ_{in} 17 mm).
8. Suitable arrangement for holding hex-flanges horizontally to furnace tube.
9. All the details dimensions are indicative and may change in actual design.

Others

1. Vendor should provide name and contact from NIT/IIT/reputed Indian institute/Govt. research organization where the same type of job has been under taken in last three years along with copy of purchase order.

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