

**GOVERNMENT OF INDIA  
DEPARTMENT OF SPACE  
ISRO PROPULSION COMPLEX (IPRC)  
MAHENDRAGIRI**

**Tender for Muffle furnace**

**Bids to be submitted online**

**Tender No.: IPRC/PURGP2/IP202100016101 dated 16-07-2021**

## A. Tender Details

Tender No : **IPRC/PURGP2/IP202100016101**

Tender Date : **16-07-2021**

Tender Classification: **GOODS**

Purchase Entity : **PURGP2**

Centre : **ISRO PROPULSION COMPLEX (IPRC)**

### **Design, Engineering, Fabrication, Supply, Installation, Testing, Commissioning, Calibration and Demonstration of Two high temperature box type heat treatment Furnace.**

1. This is a TWO PART Tender. Therefore, the offer shall be submitted in TWO PARTS, in viz.<br>

a) TECHNICAL & COMMERCIAL BID (PART I)<br>

b) PRICE BID (PART II)<br>

2. PART I shall indicate, in addition to the Technical details, Delivery Period, Delivery Terms, Taxes & Duties applicable, Payment Terms, Validity, Warranty/Guarantee etc. Please note that prices should NOT be indicated in the Technical & Commercial Bid. <br>

3. PART II shall contain only PRICES. <br>

4. Complete literature/leaflet relevant to the offer are to be enclosed with Part I (Technical & Commercial Bid).<br>

5. IF PRICE DETAILS OF ANY NATURE ARE FOUND IN THE PART I, THE OFFER SHALL BE REJECTED SUMMARILY.<br>

6. We are eligible for Concessional GST @ 5% towards the supply of materials as per Govt. of India notification No.45 & 47/2017, Dt.14.11.2017. Hence, cost towards supply portion and service portion shall be separately mentioned in the price bid.

7. It is requested to read carefully, all the specifications and terms & conditions before submitting your Offer.

## **A.1 Tender Schedule**

**Bid Submission Start Date : 16-07-2021 16:00**

**Bid Clarification Due Date : 16-08-2021 14:00**

**Bid Submission Due Date : 19-08-2021 14:00**

**Bid Opening Date : 19-08-2021 15:00**

**Price Bid Opening Date : 31-08-2021 14:00**

## **B. Tender Attachments**

NA

### **Instructions To Vendors**

#### **1. GENERAL TERMS AND CONDITONS**

1. LIQUIDATED DAMAGES: Delivery is the essence of the contract. Items shall be delivered within stipulated period. If delivery is delayed beyond the stipulated delivery period mentioned in the purchase order or any extension thereof, an amount equal to 0.5% per week shall be recovered, subject to a maximum of 10% of the order value shall be deducted from your bills due.

2. GST where legally leviable and intended to be claimed should be distinctly shown separately in the tender. As per Notification No.45/2017 Central Tax(Rate) or Notification No. 47/17 Integrated TAX(Rate) of 14/11/17, We are eligible for availing Concessional GST@5% against certificate issued by an officer not below the rank of Dy. Secretary to Govt. of India

3. The purchaser shall be under no obligation to accept the lowest or any tender and reserves the right of acceptance of the whole or any part of the tender or portions of the quantity offered and the tenderer shall supply the same at the rates quoted.

4. Wherever the tenderer is asked to submit sample for evaluation of tenders, the same shall be submitted along with your quote.

5. All amounts shall be indicated both in words as well as in figures. Where there is difference between amounts quoted in words and figures, amount quoted in words shall prevail.

6. Last minute request for the extension of the due date w.r.t. any technical issue at Vendors/Suppliers side will not be considered. You may submit your quotation online well in advance instead of waiting till the last date to ensure that Internet problem and network condition does not cause problem

7. IPRC shall not be responsible for failure of vendors in submitting bids online caused due to technical reasons at vendor end such as network or power failures, computer failure, internet-browser, mistakes / errors in filling the bids on line by vendor etc.

8. The offer should be valid for a minimum period of 120 days from the date of opening of the bids (Technical bid in case of 2-part tender).

9. Offers sent through post, telegram, fax, e-mail, courier will not be considered. Partially completed /

incomplete tenders shall not be considered.

10. The goods or material offered should be strictly as per our specifications. Change(s) in specifications, if any, should be clearly indicated by the supplier in his quotation. The supplier should also indicate make/type No. of the materials or equipment offered. Vague terms such as Best Indian, Best Indigenous and Imported make should not be used.

11. Only authorized dealers/agents or their accredited representatives for original manufacturers have to submit the quotation with documentary evidence.

12. Indian Agents while quoting on behalf of their principals shall attach necessary authorization letter from their Principals along with the bid.

13. In a tender, either the Indian Agent on behalf of the Principal/OEM or Principal/ OEM itself can bid but both cannot bid simultaneously for the same item/product in the same tender.

14. If an Indian agent submits bid on behalf of the Principal/OEM, the same Indian agent shall not submit a bid on behalf of another Principal/OEM in the same tender for the same item/product

15. a) Facility of after sales service to be confirmed with details.

b) Permanent Account Number (PAN) allotted by Income-Tax authorities shall be furnished with documentary proof. Otherwise, documentary proof for having applied for PAN should be provided. Also PAN should be in the name of Company/Firm, if quoted by the Company/Firm and in the name of Individual, if quoted by individual.

c) GST No.

d) PAN No.

e) Local office in Tirunelveli / Nagercoil is preferable.

Note: (b) to (e) are applicable for Indian Companies only.

16. In case of imported items (stores), Ex-Works/FOB/FCA prices should be indicated. In case of indigenous stores the quotation should be on FOR-Destination / Door delivery basis.

17. ISRO PROPULSION COMPLEX (IPRC) is exempted from payment of Customs Duty under Notification No. 50/2017-Customs dated 30.06.2017 and as amended by Notification No.5/18 Customs dt:25/1/18. For imported items IPRC will provide Customs Duty Exemption Certificate for availing Concessional CD and IGST.

18. Guarantee / Warranty period as applicable shall be indicated, along with the quote.

Guarantee/Warranty shall commence from the date of installation and acceptance of the complete equipment supplied under the contract/purchase order.

19. IPRC reserves the right to accept or reject any quotation in full or part thereof by recording the reasons.

20. In case the vendor falls in the category of Small Scale Industries(SSIs), who are registered with NSI, Public Sector Undertakings (PSUs) and Micro & Small Enterprises (MSMEs) the same shall be mentioned in their quote for evaluation.

21. PAYMENT: 100% through RTGS within 30 days from the date of receipt and acceptance of items at our site is the normal payment for Indigenous supply. In the case of direct Import, normal terms of payment are by Sight Draft / Wire Transfer after receipt of items. However, other terms of payment like establishment of Letter of Credit may be considered by the Purchaser on such terms and conditions as may be agreed upon.

22. SECURITY DEPOSIT : Security Deposit @ 3% of order value shall be submitted in the form of DD/FDR duly endorsed in favour of Accounts Officer, IPRC or by way of Bank Guarantee (in the prescribed format) within 20 days after receipt of order and valid up to the successful execution of the order.

23. PERFORMANCE BANK GUARANTEE :

The Supplier shall guarantee the successful and satisfactory performance/commissioning of equipment/machinery under the conditions specified in the Purchase Order. As a performance security, the SUPPLIER shall furnish a performance bank guarantee (format enclosed) from Nationalized Bank/Scheduled Bank for an amount equal to the sum of 3% of the order value ensuring the due performance of equipment/machinery in accordance with all the specifications and terms specified in the Purchase Order herein valid for the warranty period. On due performance, the performance bank guarantee shall be automatically cancelled and returned to the Supplier within 30 days after expiry of the Warranty period. The performance bank guarantee shall have claim period of six months.

## **2. GENERAL TERMS AND CONDITONS**

1. Offers sent through post, telegram, fax, e-mail, courier will not be considered. Partially completed / incomplete tenders shall not be considered.

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3. Indian Agents while quoting on behalf of their principals shall attach necessary authorization letter from their Principals along with the bid.

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18. Wherever the tenderer is asked to submit sample for evaluation of tenders, the same shall be submitted along with your quote.

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21. The offer should be valid for a minimum period of 120 days from the date of opening of the bids (Technical bid in case of 2-part tender).

22. Last minute request for the extension of the due date w.r.t. any technical issue at



Vendors/Suppliers side will not be considered. You may submit your quotation online well in advance instead of waiting till the last date to ensure that Internet problem and network condition does not cause problem

23. IPRC shall not be responsible for failure of vendors in submitting bids online caused due to technical reasons at vendor end such as network or power failures, computer failure, internet-browser, mistakes / errors in filling the bids on line by vendor etc.

### **3. Conditions for BIDDER FROM A COUNTRY WHICH SHARES LAND BORDER WITH INDIA**

1. As per the Rule 144(xi) of General Financial Rule, 2017, any bidder from a country which shares a land border with India will be eligible to bid in any procurement whether of goods, services (including consultancy services and non-consultancy services) or works (including turnkey projects) only if the bidder is registered with the competent authority ie., Department for Promotion of Industry and Internal Trade (DPIIT).

2. Hence, Vendors or Agents of a Vendor (Indian or others) from a country sharing border with India shall submit copy of valid registration made with Department for Promotion of Industry and Internal Trade (DPIIT), Government of India along with the tender mandatorily, without which the offer will be treated as invalid.

3. Validity of Registration: Registration should be valid at the time of submission of bids and should be valid at the time of placement of order.

4. Any false declaration and non-compliance of the above would be a ground for immediate rejection of offer or termination of the contract and further legal action in accordance with the laws.

#### **5. Model Certificate for Tenders**

I have read the clause regarding restrictions on procurement from a bidder of a country which shares a land border with India; I certify that this bidder is not from such a country or, if from such a country, has been registered with the Competent Authority. I hereby certify that this bidder fulfils all requirements in this regard and is eligible to be considered

### **4. STANDARD TERMS AND CONDITIONS ( DOS PM:19)**

1. Specifications: Stores offered should strictly conform to Purchasers specifications. Deviations, if any, shall be clearly indicated by the tenderer in his quotation. The tenderer should also indicate the Make/Type number of the stores offered and provide catalogues, technical literature and samples, wherever necessary, along with the quotation. Test certificate, wherever necessary, should

be forwarded along with supplies. Wherever options are called for in our specifications, the tenderer should address all such options, wherever specifically mentioned by us, and the tenderer could suggest changes to specifications with appropriate response for the same. Even in such case, the tenderer should state why he cannot meet our specifications and why he is suggesting the change.

2. GST/ other duties/levies, where legally leviable and intended to be claimed, should be distinctly shown separately in the tender.

3. Guarantee: The stores offered should be guaranteed for a minimum period of twelve months against defective stores design, operation or manufacture. For defects noticed during the guarantee period, replacement/repair should be arranged free of cost within a reasonable period of such notification. In cases where our specifications call for a guarantee period more than 12 months specifically, then such a period shall apply

4. The Contractor shall at all times indemnify the Purchaser against all claims which may be in respect of the stores for infringement of any right protected by Patent, Registration or design or Trade Mark and shall take all risks of accidents or damage which may cause a failure of the supply from whatever causes arising and the entire responsibility for the sufficiency of all means used by him for the fulfilment of the Contract

5.

a. Prices are required to be quoted according to the units indicated in the annexed tender form. When quotations are given in terms of units other than those specified in the tender form, relationship between the two systems of unit must be furnished.

6. b. Corrections, if any, in the quotation must be attested. All amounts shall be indicated both in words as well as in figures. When there is difference between the amount quoted in words and figures, the amount quoted in words shall prevail.

7. The Purchaser reserves the right to accept or reject any quotation fully or partly without assigning any reason therefore.

8. Payment terms are full payment within 30 days from the date of receipt and acceptance of material ordered. Our Bankers are State Bank of India, Mahendragiri.

9. Late Tenders will not be considered

10. Where counter terms and conditions/printed or cyclostyled conditions of sale have been offered

by the tenders, the same shall not be deemed to have been accepted by the Purchaser unless the Purchaser's specific written acceptance thereof is obtained

11. Arbitration in the event of any dispute or difference arising under these terms & conditions or any condition contained in the Purchase Order or in connection with this Contract. (except as to any matter the decision of which is specially provided for by these conditions), the same shall be referred to the sole arbitration of the Head of the Purchase Office or of some other person appointed by him, and the dispute further processed in terms of the Arbitration & Conciliation Act, 1996. There will be no objection that the arbitrator is a Government Servant that he had to deal with matter which the Contract relates to or that in the course of his duties as Government Servant has expressed views on all or any of the matters in dispute or difference. The award of the arbitrator shall be final and binding on the parties of this Contract.

12. If the arbitrator is the Head of the Purchase Office :

(i) In the event of his being transferred or vacating his office by resignation or otherwise, it shall be lawful for his successor in office either to proceed with the reference himself or to appoint another person as arbitrator, or In the event of his being unwilling or unable to act for any reason, it shall be lawful for the Head of the Purchase Office to appoint another person as arbitrator

13. If the arbitrator is a person appointed by the Head of the Purchase Office, In the event of his denying or neglecting or refusing to act, or resigning or being unable to act, for any reason, shall be lawful for the Head of the Purchase Office either to proceed with the reference himself or to appoint another person as arbitrator in place of the outgoing arbitrator subject, as aforesaid, to the Arbitration and Conciliation Act, 1996, and the rules thereunder and any statutory modifications thereof for the time being in force shall be deemed to apply to the arbitration proceeding under the clause. The Arbitrator shall have the power to extend with the consent of the Purchaser and the Contractor the time for making and publishing the award. The venue of arbitration shall be the place as the Purchaser in his absolute discretion may determine. Work under the Contract shall, if reasonably possible, continue during Arbitration Proceedings.

14. As per the Rule 144(xi) of General Financial Rule, 2017, any bidder from a country which shares a land border with India will be eligible to bid in any procurement whether of goods, services (including consultancy services and non-consultancy services) or works (including turnkey projects) only if the bidder is registered with the competent authority ie., Department for Promotion of Industry and Internal Trade (DPIIT).

Hence, Vendors or Agents of a Vendor (Indian or others) from a country sharing border with India shall submit copy of valid registration made with Department for Promotion of Industry and Internal Trade (DPIIT), Government of India along with the tender mandatorily, without which the offer will be treated as invalid.

15. Model Certificate for Tenders:

I have read the clause regarding restrictions on procurement from a bidder of a country which shares a land border with India; I certify that this bidder is not from such a country or, if from such a country, has been registered with the Competent Authority. I hereby certify that this bidder fulfils all requirements in this regard and is eligible to be considered

16. Successful tenderer will have to furnish in the form of a Bank Guarantee or in any other form as called for by the Purchaser towards adequate security for the materials/property provided by the purchaser for the due execution for the Contract.

17. Packing and Forwarding: The Contractor will be held responsible for the stores being sufficiently and properly packed for transport by rail, road, sea or air, to withstand transit hazards and ensure safe arrival at the destination. The packing and marking of packages shall be done by and at the expense to the Contractor.

18. TERMS AND CONDITIONS OF TENDER:

Price quoted should be on the basis of FOR IPRC, Mahendragiri or delivery at site  
The Purchaser will not pay separately for transit insurance, and the risk and cost during transit shall be exclusively the responsibility of the Contractor and the purchaser shall pay only for such stores as are actually received in good condition in accordance with the Contract.

19. Quotation should be valid for at least 120 days from the date of opening of the tender.

20. The time for and the date of delivery of the stores stipulated in the Purchase Order shall be deemed to be the essence of the Contract and delivery must be completed not later than the date specified therein, and failure to do so, without adequate justification, may involve cancellation of the Contract at the discretion of the Purchaser.

21. Vendors may please note that in case of two-part tender, the price details shall be mentioned only in the price-bid template. If the price details either in part or full are indicated in the technical bid, the bid will be disqualified.

## C. Bid Templates

### C.1 Technical Bid - Muffle furnace

#### 1. DIGITAL MUFFLE FURNACE

##### Item specifications for DIGITAL MUFFLE FURNACE

SI No	Specification	Value	Compliance	Offered Specification	Remark
1	Scope of the work	Design, Engineering, Fabrication, Supply, Installation, Testing, Commissioning, calibration and Demonstration of Two High temperature Box Type Heat treatment Furnace with provision for Controlled Atmosphere including Training of personnel in operation and maintenance, as per the Technical Specifications, Terms and Conditions given below.	Yes / No / Explain		
2	Indented Use of the Furnace	Heat treatment of semi-finished components/rods/bars/plates made out of super alloys (Fe, Ni and Co base), stainless steels, Aluminum alloys, copper alloys weld specimens and heat treatment studies on ceramics	Yes / No / Explain		
3	Higher Volume Furnace (HVF)	Quantity : 1 unit	Yes / No / Explain		
4	Working hot zone size (HVF)	1000mm width X 1000mm height X 1000mm depth	Yes / No / Explain		

5	Temperature details (HVF)	<p>1. Max. temperature : 1200oC</p> <p>2. Operating temperature (range) : 250oC to 1150oC (programmable)</p> <p>3. Temperature control and Accuracy : ±1oC upto 10000C and ±3oC above 1000°C</p> <p>4. Hot zone temperature uniformity: ±5oC upto 8000C and ± 10oC above 800°C</p> <p>5 Heating rates (range) : 1oC /min. to 20oC /min. (programmable).</p> <p>6. Time to attain max. temperature: ~ 2 hours.</p>	Yes / No / Explain		
6	Working medium (HVF)	Air / Argon gas for controlled atmosphere	Yes / No / Explain		
7	Max. charge load (HVF)	250 kg.	Yes / No / Explain		
8	Lower Volume Furnace (LVF)	Quantity : 1 unit	Yes / No / Explain		
9	Working hot zone size (LVF)	300mm width X 300mm heightX600mm depth	Yes / No / Explain		
10	Temperature details (LVF)	<p>1. Max. temperature : 1800oC (Nominal)</p> <p>2. Operating temperature (range) :250oC to 1700oC (programmable).</p> <p>3. Temperature control and Accuracy : ±1oC upto 10000C and ±3oC above 1000°C</p> <p>4. Hot zone temperature uniformity: ±5oC upto 8000C and ± 10oC above 800°C</p> <p>5. Heating rates (range): 1oC /min. to 20oC /min. (Programmable).</p> <p>6. Time to attain max. temperature : ~ 2 hours.</p>	Yes / No / Explain		

11	Working medium (LVF)	Air / Argon gas for controlled atmosphere	Yes / No / Explain		
12	Max. charge load (LVF)	250 kg.	Yes / No / Explain		
13	Hot zone of Higher Volume Furnace (HVF)		-		
14	Working hot zone size of HVF	1000mm width X 1000mm heightX1000mm depth	Yes / No / Explain		
15	Maximum temperature (HVF)	1200°C	Yes / No / Explain		
16	Operating temperatures (range) (HVF)	250oC to 1150oC	Yes / No / Explain		
17	Continuous operation time at (HVF)	(600 oC - 1175 oC ) : 3 to 5 hrs (700oC - 1175oC) : 5 to 10 hrs (400oC - 850oC) : 25 hrs.	Yes / No / Explain		
18	Temperature control and accuracy of HVF	±1°C upto 1000°C and ±3°C above 1000°C	Yes / No / Explain		
19	Hot zone temperature uniformity of HVF	±5oC upto 8000C and ± 10oC above 800°C	Yes / No / Explain		
20	Heating rates (range) of HVF	1oC /min. to 20oC /min. (programmable).	Yes / No / Explain		
21	Max. Charge load of HVF	250 kg	Yes / No / Explain		
22	Hot zone of Lower Volume Furnace of LVF		-		
23	Working hot zone size of LVF	300mm width X 300mm heightX600mm depth	Yes / No / Explain		
24	Maximum temperature of LVF	1800 oC	Yes / No / Explain		
25	Operating temperatures (range) of LVF	250oC to 1700oC	Yes / No / Explain		
26	Continuous operation time at (LVF)	(600°C - 1175°C ) : 3 to 5 hrs (700oC - 1175oC) : 5 to 10 hrs (400oC - 850oC) : 25 hrs	Yes / No / Explain		

27	Temperature control and accuracy of LVF	±1oC upto 10000C and ±3oC above 1000°C	Yes / No / Explain		
28	Hot zone temperature uniformity of LVF	±5°C upto 800°C and ± 10°C above 800°C	Yes / No / Explain		
29	Heating rates (range) of LVF	1oC /min. to 20oC /min. (programmable)	Yes / No / Explain		
30	Max. Charge load of LVF	250 kg	Yes / No / Explain		
31	Work job materials	Superalloys, Steels, Stainless steels, Copper Alloys, Aluminum alloys, Ceramics, etc	Yes / No / Explain		
32	Insulation bricks	The insulation bricks shall be of High Alumina type. It shall be procured from reputed manufacturer only. The party has to mention the complete details of the insulation type, manufacturer etc along with offer. Appropriate element carrier grooves shall be provided in the bricks. All the bricks shall be joined with high temperature cement	Yes / No / Explain		
33	Heating elements	The heating element shall be made of Kanthal A1 grade for case 1 and high quality MoSi2 for case 2	Yes / No / Explain		
34	Spare heating elements	Two set of heating element shall be supplied as spare. Party shall quote this as an optional item in their offer. (Set: Total number of heating element going to be fitted in the furnace).	Yes / No / Explain		



35	Documents for heating elements	Party shall provide a certificate for the procured Kanthal Heating coils having the batch number, supplier name and other test details provided by the original supplier of the heating coil	Yes / No / Explain		
36	Mounting of heating elements	The heating elements and their supports should be mounted in such a way that they can be easily removed for replacement using readily available tools	Yes / No / Explain		
37	Heating elements robustness	Heating elements shall withstand the drastic cooling when the furnace is opened at 1000°C.	Yes / No / Explain		
38	Work load support grid/corrugated plate for hot zone	Made of INCONEL 600, Dimensions: Width: 1000mm x length: 1000 mm x thickness: 8 mm, Quantity: 1 No.)	Yes / No / Explain		
39	Maintaining controlled atmosphere	Provision shall be provided for argon filling inside the furnace for maintaining controlled atmosphere during heat treatment. Necessary accessories for this purpose shall be part of the equipment.	Yes / No / Explain		
40	INSTRUMENTATION AND CONTROL SYSTEM Control Console/Panel		-		
41	Panel	A free standing panel (Rittal/President/Valrack make or reputed make) with full opening front doors should be provided to house all control instrumentation, push buttons, lights, alarms, relays, and power meters etc	Yes / No / Explain		

42	Panel dimension and ventilation	The size of the panel must be specified and should be ventilated with an air circulation fan (or AC panel) to prevent temperature build up from the operation of the instruments. Temperature inside the control panel between 27C and 30C	Yes / No / Explain		
43	Current and volatage display	The provision should be made in the control panel to measure and display the current and voltage of hot zone heating elements	Yes / No / Explain		
44	Wiring	The electrical and instrumentation panel should be wired as per the international standards	Yes / No / Explain		
45	Temperature Programmable Controller	Microprocessor based PID controllers of reputed make like Siemens/EUROTHE RM/YOKOGAVA/Honeywell should be provided for temperature programming and controlling. This programmer controller should be capable of storing 50 programmes. Each programme shall have 16-20 segments to meet various temperature profiles.	Yes / No / Explain		
46	PID temperature controllers	Accuracy of PID : $\pm 0.25$ % of full scale input Make of PID : YOKOGAWA/EURO THERM/ Siemens/Honeywell/ Equivalent	Yes / No / Explain		

47	Control panel should be equipped with	1.Thyristor Power Unit 2.Blind Control Unit 3.Temperature Indicator and Controller with alarm 4.Digital Volt meter for each phase 5.Digital Ammeter for each phase 6.Indicators 7. Suitable Control switches 8.Recorder. (Output shall be in a format, which can be monitored and recorded through PC)	Yes / No / Explain		
48	Thermocouple (TC) specifications		-		
49	TC Higher Volume Furnace	Quantity : 4 Nos	Yes / No / Explain		
50	TC Details (HVF)	1. Type : "K type" type, Special grade 2. Make : OMEGA. (USA or UK) 3. Range : Ambient to 1200oC. 4. Accuracy : $\pm 2^{\circ}\text{C}$ 5. Bare wire with Alumina beads	Yes / No / Explain		
51	Location of Thermo couple of HVF	Out of four thermocouples, one thermocouple shall be provided in the furnace for temperature measurement and control. This can be placed in an alumina tube. Other Three thermocouples are used to monitor the temperature of the job and each thermocouple shall be provided with a separate temperature display of reputed make.	Yes / No / Explain		

52	Spare thermo couple of HVF	Two set of Thermocouples shall be supplied as spares. Party shall quote this as an optional item in their offer. (Set: Total number of Thermocouples going to be fitted in the furnace).	Yes / No / Explain		
53	TC of Lower Volume Furnace of LVF	Quantity : 4 Nos	Yes / No / Explain		
54	TC details of LVF	1. Type : "C" type, Special grade 2. Make : OMEGA. (USA or UK) 3. Range : Ambient to 1800oC. 4. Bare wire with Alumina beads 5. Accuracy : $\pm 4^{\circ}\text{C}$ upto $425^{\circ}\text{C}$ and 1% of temperature above $425^{\circ}\text{C}$	Yes / No / Explain		
55	Location of Thermo couple LVF	Out of four thermocouples, one thermocouple shall be provided in the furnace for temperature measurement and control. This can be placed in an alumina tube. Other Three thermocouples are used to monitor the temperature of the job and each thermocouple shall be provided with a separate temperature display of reputed make	Yes / No / Explain		
56	Spare thermo couple LVF	Two set of Thermocouples shall be supplied as spares. Party shall quote this as an optional item in their offer. (Set: Total number of Thermocouples going to be fitted in the furnace).	Yes / No / Explain		

57	Calibration Details	Thermocouples TIC and recorder should have valid calibration certificate for a period of one year from NABL accredited agency and traceable to NPL. Furnace chamber shall be calibrated by the party after the installation at WCF, IPRC.	Yes / No / Explain		
58	Thermocouple Calibration:		-		
59	Temperature range for TC calibration	It is to be calibrated from 200oC to 1200oC for K-type and 200 oC -1800 oC for C-type at intervals of 100oC. (Specification of accuracy: 1.1oC±0.4 % of reading whichever is greater)	Yes / No / Explain		
60	Reference Thermocouple	Traceability and validity of the reference thermocouples used for calibration to be reported	Yes / No / Explain		
61	Calibration certificate	Calibration certificate is to be provided giving details such as serial number of instrument, model, date of calibration, accuracy of standard/reference used and the standard to which it is traceable and other details as mentioned above for each item	Yes / No / Explain		
62	Temperature Indicator & Controller (TIC) Calibration		-		
63	Temperature range for TIC calibration	It is to be calibrated from 200°C to 1200°C for K-type and 200°C -1800°C for C-type at intervals of 100°C. (Specification of accuracy: 1°C)	Yes / No / Explain		
64	Recorder Calibration		-		

65	Temperature range for recorder calibration	It is to be calibrated from 200oC to 1200oC for K-type and 200 oC -1800 oC for C-type at intervals of 100oC. (Specification of accuracy: 5oC on temperature and 5 minutes on time scale)	Yes / No / Explain		
66	Furnace Hot Zone		-		
67	No. of master sensors to be used	6 Nos	Yes / No / Explain		
68	Location of sensors	Uniformly distributed throughout the volume	Yes / No / Explain		
69	Temperature Uniformity	5C upto 800C & 10C above 800C	Yes / No / Explain		
70	Calibration Points	200oC to 1200oC for K-type and 200 oC - 1800 oC for C-type at intervals of 100oC	Yes / No / Explain		
71	Furnace chamber qualification	The furnace chamber shall be qualified with dummy charge with an accuracy of $\pm 5\text{oC}$ upto 8000C and $\pm 10\text{oC}$ above 8000C and acceptable mechanical properties / hardness measurements.	Yes / No / Explain		
72	Safety systems	Safety Controller, door limit switch, etc	Yes / No / Explain		
73	Door Closer Interlock	This should prevent heater power to the furnace unless the door is shut	Yes / No / Explain		
74	Door	Should be vertically lifting type, electrically operated. Manual override provision shall also be included for door opening.	Yes / No / Explain		

75	Door construction	Door with protrusion inside the furnace to arrest temperature leakage shall be pushed back during door opening and shall be moved upwards on channels so as to minimize the quench delay period.	Yes / No / Explain		
76	Manual over ride	In the event of any power break down, provision should be available for disengagement by manual declutch	Yes / No / Explain		
77	Door sealing	The door bottom should rest on a sand trough to prevent air infiltration. All gaps in the door should be visible & should be sealed to avoid air infiltration & heat loss.	Yes / No / Explain		
78	Inspection ports	An inspection port with lid should be provided in the centre of the door	Yes / No / Explain		
79	Other provisions	There should also be a provision for a parallel connection for door operation with flexible cable and switch	Yes / No / Explain		
80	Insulation and lining	Ceramic blanket insulation for shell and door	Yes / No / Explain		
81	Job loading and unloading	With transfer trolley	Yes / No / Explain		
82	Available power supply	440V, 50Hz, 3 Phase AC. Details of power requirement should be clearly mentioned	Yes / No / Explain		
83	Skin temperature	20C above ambient (maximum)	Yes / No / Explain		
84	Data acquisition	Recorder with PC interface option	Yes / No / Explain		

85	Alarms	Alarm with indicator audible at the end of every heat treatment cycle. Indicator shall be mounted on the top of the electrical control cabinet	Yes / No / Explain		
86	Shell	Made of heavy M.S. Sections of channels / angles and plates of 6 mm thickness for bottom, front etc.	Yes / No / Explain		
87	Working height	750 mm from ground	Yes / No / Explain		
88	Paint	The outer shell of the Furnace shall be first primed and then finished with two coats of industrial grade aluminium paint	Yes / No / Explain		
89	Installation and commissioning	The party shall erect, commission and trial demonstrate the furnace as per the above specification at WCF/EAIE,IPRC.	Yes / No / Explain		
90	Guarantee	The furnace should be guaranteed for free replacement of parts including bought out items and free service for a period of ONE YEAR from the date of acceptance by WCF/EAIE,IPRC.	Yes / No / Explain		



91	Documents along with quotation	<p>1. A drawing of the furnace with all relevant details should be supplied along with quotation</p> <p>2. Technical catalogue / leaflets of all relevant instruments / panels shall be supplied along with the quotation</p> <p>3. The party shall submit a compliance report regarding conformance to the indented specifications, terms and conditions. Deviations, if any to be clearly indicated on a point-by-point basis.</p> <p>4. The party shall provide commitment for after sale service and supply of spare parts for the offered equipment for a period of at least 10 years.</p>	Yes / No / Explain		
92	Documents along with the item	<p>1. Electrical wiring diagrams of all relevant instruments / panels shall be supplied along with the furnace.</p> <p>2. Test Certificate and User manual in English for TIC, Thyristor and Recorder should be supplied along with the items</p> <p>3. The party shall commit to provide annual maintenance contract after the guarantee period on mutually agreed terms.</p>	Yes / No / Explain		
93	Data acquisition system	The Temperature Controller and Recorder should communicate through our PC for controlling, monitoring and recording of heat treatment parameters.	Yes / No / Explain		

94	Software	Necessary software for Recorder and Communication module shall be installed in our PC.	Yes / No / Explain		
95	Provision for mounting additional thermo couples	Backside of the furnace, three holes shall be provided and one hole each in side wall of the furnace shall be provided. The purpose of the above-said holes is to insert additional thermocouples whenever required. This hole shall be well insulated with removable plugs.	Yes / No / Explain		

**Document : Technical specification**

**Common Specifications (Applicable for all items)**

SI No	Specification	Value	Compliance	Offered Specification	Remark
1	Bidder prequalification document -1	Details of similar systems supplied by the party within India in the last 7 years (preferably to Govt. R&D labs/Institutions)	Yes / No / Explain		
2	Bidder prequalification document -2	Feedback from the customers (preferably to Govt. R&D labs/Institutions) regarding the performance and service support for the supplied systems	Yes / No / Explain		
3	Bidder prequalification document -3	Finance capacity : Annual turnover details for past 3 years	Yes / No / Explain		

**Supporting Documents required from Vendor**

**1. Wiring drawings**

**2. Calibration certificates**

**3. Compliance statement along with offer**

**4. Technical specifications along with offer**

**5. Trouble shooting and operating manuals**

**6. Warranty certificate**

5 additional documents can be uploaded by the vendor

## C.2 Commercial Terms / Bid

Sl. No.	Description	Compliance	Vendor Terms
1	Supply and installation at IPRC	Yes / No / Explain	
2	VALIDITY OF OFFER (specify):	Yes / No / Explain	
3	DELIVERY PERIOD (specify):	Yes / No / Explain	
4	DELIVERY TERM : Normal delivery terms - FOR Destination (for Indigenous cases) & FOB/ FCA or Ex Works (Import cases). Specify your Offered delivery terms.	Yes / No / Explain	
5	PAYMENT TERM:: 100% within 30 days after receipt and acceptance of item for indigenous /Sight Draft for import cases ( No advance payment is acceptable)	Yes / No / Explain	
6	SECURITY DEPOSIT :Security Deposit: Successful Tenderer shall submit Security Deposit equivalent to 3% of the order value valid for a period of 60 days beyond the date for completion of the Purchase Order. This security deposit is collected towards the performance of the Contract. The said Security Deposit shall be submitted either in the form of Bank Guarantee or Fixed Deposit receipts from Nationalised/Scheduled Banks. No exemption is applicable for MSE vendors from submission of Security Deposit.	Yes / No / Explain	
7	Confirm point No. 5 of Conditions for BIDDER FROM A COUNTRY WHICH SHARES LAND BORDER WITH INDIA	Yes / No / Explain	
8	LIQUIDATED DAMAGE : Item shall be delivered with in the stipulated period. If delivery is delayed beyond the stipulated delivery period mentioned in the order or any extension thereof an amount equal to 0.5% subject to maximum 10% of the order value shall be deducted from your bills. Please confirm.	Yes / No / Explain	
9	PRINCIPAL Name, address (specify):	Yes / No / Explain	
10	INDIAN AGENTS Name, address, Conact details, mail id	Yes / No / Explain	

11	Currency quoted (specify)	Yes / No / Explain	
12	WARRANTY PERIOD: (specify)	Yes / No / Explain	
13	Taxes and other costs, if any IPRC is eligible for reduced rate of IGST as per Notification No. 47/2017 - Integrated Tax (Rate) dtd. 14/11/2017 & Notification NO. 45/2017- Central Tax (Rate) dt 14.11.2017. Rate of IGST applicable is 5%].	Yes / No / Explain	
14	PERFORMANCE BANK GUARANTEE :PBG @ 3% of the order value obtained from a scheduled bank in Rs.100/- non judicial stamp paper with validity 2 months beyond the warranty period shall be submitted. Please confirm .	Yes / No / Explain	
15	Cost towards supply portion and Service portion shall be separately mentioned in the offer (in the price bid form)	-	
16	Bank details	-	

### C.3 Price Bid

Sl. No.	Item	Quantity	Unit Price	Currency	Total Price	Discount	Remark
1	DIGITAL MUFFLE FURNACE	1.00 Lot		-			

### Common charges (Applicable for all items)

<b>P &amp; F</b>	
<b>Freight</b>	