

भारत सरकार/**GOVERNMENT OF INDIA**
अंतरिक्ष विभाग/**DEPARTMENT OF SPACE**
क्रय यूनिट-III/**PURCHASE UNIT-III**

विक्रम साराभाई अंतरिक्ष केंद्र/**VIKRAM SARABHAI SPACE CENTRE**
तिरुवनंतपुरम/**THIRUVANANTHAPURAM - 695 022**

विज्ञा. सं. वीएसएससी/एसपीआरई-क्रय/19-2 दि. 09/08/2021

ADVT. NO. VSSC/SPRE-PUR/19-2 DT. 09/08/2021

भारत के राष्ट्रपति के लिए तथा उनकी ओर से वरिष्ठ प्रधान, क्रय एवं भंडार, विक्रम साराभाई अंतरिक्ष केंद्र (वीएसएससी), तिरुवनंतपुरम, निम्नलिखित के लिए ई-प्रापण के माध्यम से (क्रम सं. 1 & 2 के लिए) निविदाएं आमंत्रित करता है:-

For & on behalf of the President of India, the Sr. Head Purchase & Stores, Vikram Sarabhai Space Centre (VSSC), Thiruvananthapuram invites Tenders **through e-procurement (for Sl. No. 1 & 2)** for the following :-

क्रम सं. Sl. No	निविदा सं. Tender No.	वर्णन / Description	मात्रा Qty.	निविदा शुल्क Tender Fee
1	VSSC/PURCHASE UNIT III (SPRE)/VS2021003044 01 [लोक निविदा - दो भाग/ PUBLIC TENDER- TWO PART]	ब्रेज मिश्रधातु Braze Alloy	1 किलो/Kg	लागू नहीं / NA
2	VSSC/PURCHASE UNIT III (SPRE)/VS2021002310 01 [लोक निविदा - दो भाग/ PUBLIC TENDER- TWO PART]	कस्टम बिल्ट ऑटो मॉड विद्युत तापित मफल फर्नेस की अभिकल्पना, संविरचन, आपूर्ति, संस्थापन तथा कमीशनिंग Design, Fabrication, Supply, Installation and commissioning of Custom built Auto Mode Electrically Heated Muffle Furnace	1 सं. /No.	लागू नहीं / NA

विशेष टिप्पणी/Special Note:-

विदेशी विक्रेताओं को निविदा प्रस्तुत करने की अनुमति नहीं है। मेक इन इंडिया नीति के अनुसार केवल श्रेणी-I और श्रेणी-II के स्थानीय आपूर्तिकार इस बोली में भाग लेने हेतु पात्र हैं। विदेशी ओईएम से सीधे प्राप्त उद्धरणों/या विदेशी ओईएमओं की ओर से उद्धरण प्रस्तुत कर रहे एजेंटों को इस निविदा में भाग लेने की अनुमति नहीं है।

Foreign vendors are not permitted to quote. Only Class-I and Class-II Local suppliers as per Make in India Policy are eligible to participate in the bid. Quotations directly from foreign OEM/ or from agents quoting on behalf of foreign OEMs are not allowed to participate in this tender.

क्रम सं. Sl. No.	बोली प्रस्तुत करने की समय-सीमा Time limit for submission of Bid	बोली खोलने की तिथि Bid Opening date
1.	दिनांक 25.08.2021 [14:00 बजे तक]	दिनांक 25.08.2021 [14:01 बजे]
2.	दिनांक 31.08.2021 [14:00 बजे तक]	दिनांक 31.08.2021 [14:01 बजे]

क्रम सं. 1 & 2 के लिए, ब्यौरे इसरो ई-प्रापण पोर्टल <https://eproc.vssc.gov.in> पर उपलब्ध हैं।

For Sl. No. 1 & 2, details are available on ISRO e-procurement portal <https://eproc.vssc.gov.in>.

शुद्धिपत्र, यदि कोई हो तो, हमारे वेबसाइट www.vssc.gov.in / www.isro.gov.in में मात्र प्रकाशित किया जाएगा।

Corrigendum, if any will be published in our websites : www.vssc.gov.in / www.isro.gov.in only.

हस्ताक्षरित/Sd/-

वरि. प्रधान, क्रय एवं भंडार / Sr. Head, Purchase & Stores

E-Procurement No. VSSC/PURCHASE UNIT III(SPRE)/VS2021003044 01 Dt. 03/08/2021 and Website Advertisement ref. No. VSSC/SPRE-PUR/19-2 DT. 09/08/2021. E-Tenders are invited for ***the Supply of Braze Alloy*** through our E-procurement site <https://eproc.vssc.gov.in>. Bids can be submitted **up to 25/08/2021 [14:00 Hrs.], Technical Bid Opening date : 25.08.2021 [14:01 Hrs.].**

Only online tenders will be accepted. No manual / Postal / e-mail / fax offers will be entertained. No manual tender document will be issued. Parties interested to participate in this e-Tender are required to register themselves as vendors, if not already registered, in our e-procurement portal <https://eproc.vssc.gov.in> by downloading plugins and help demos listed on the home page of the e-procurement link mentioned above to complete the vendor registration process. They can seek help from help desk 0471-2565454 also as provided in the home page of e-procurement portal in case of any problem for registration and subsequent process. Vendors may please note that without registering in our e-procurement portal, they will not be able to quote for this e-tender.

Important Notice : Tender will be automatically closed on the due date [ie. **25/08/2021 14:00 Hrs**], if at least one offer is received. If the tender could not be opened on the first day due to any technical snag, it will be opened on the subsequent day as per the schedule.

This being a Two Part Tender, Cost shall be mentioned in the Price Bid Only. All the documents being uploaded like quote split up details, AMC cost etc should not contain the rates/costs. However a copy of your PRICE BID,AMC quote etc WITHOUT PRICE SHALL BE UPLOADED in the Documents Solicited from the Vendor Field [available in Bid forms] TO KNOW THE PATTERN OF QUOTE. [ENSURE NOT TO MENTION ANY PRICE,OTHERWISE THE QUOTE WILL BE INVALID].

THE TECHNICAL DOCUMENTS NEED TO BE ATTACHED ONLINE AS A SINGLE PDF FILE WITHOUT ANY PRICE INFORMATION, TECHNICAL BID CONTAINING PRICE DETAILS WILL BE TREATED AS REJECTED.

E-Procurement No. VSSC/PURCHASE UNIT III(SPRE)/VS2021002310 01 Dt. 04/08/2021 and Website Advertisement ref. No. VSSC/SPRE-PUR/19-2 DT. 09/08/2021. E-Tenders are invited for the **Design, Fabrication, Supply, Installation and commissioning of Custom built Auto Mode Electrically Heated Muffle Furnace** through our E-procurement site <https://eproc.vssc.gov.in>. Bids can be submitted **up to 31/08/2021 [14:00 Hrs.], Technical Bid Opening date : 31/08/2021 [14:01 Hrs.].**

Only online tenders will be accepted. No manual / Postal / e-mail / fax offers will be entertained. No manual tender document will be issued. Parties interested to participate in this e-Tender are required to register themselves as vendors, if not already registered, in our e-procurement portal <https://eproc.vssc.gov.in> by downloading plugins and help demos listed on the home page of the e-procurement link mentioned above to complete the vendor registration process. They can seek help from help desk 0471-2565454 also as provided in the home page of e-procurement portal in case of any problem for registration and subsequent process. Vendors may please note that without registering in our e-procurement portal, they will not be able to quote for this e-tender.

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**GOVERNMENT OF INDIA
DEPARTMENT OF SPACE
VIKRAM SARABHAI SPACE CENTRE (VSSC)
THIRUVANANTHAPURAM**

Tender for BRAZE ALLOY

Bids to be submitted online

Tender No.: VSSC/PURCHASE UNIT III (SPRE)/VS202100304401 dated 03-08-2021

A. Tender Details

Tender No :	VSSC/PURCHASE UNIT III (SPRE)/VS202100304401
Tender Date :	03-08-2021
Tender Classification:	GOODS
Purchase Entity :	PURCHASE UNIT III (SPRE)
Centre :	VIKRAM SARABHAI SPACE CENTRE (VSSC)

Procurement of BRAZE ALLOY

1. Last minute clarification on tenders will not be entertained.
2. This is an E Tender. Hence Postal/Fax/Email tenders will not be accepted.
3. This is a Two-Part tender i.e. Techno Commercial(Containing Documents Solicited Vendor[available in Bid forms] & Vendor Specified Terms) and Price Bid . Hence all technical & commercial details shall be furnished in the Documents Solicited from Vendor & Vendor Specified Terms Fields while price shall be indicated only in the Price Bid.
4. IMPORTANT NOTE: This being a Two Part Tender, Cost/rates shall only be mentioned in the Price Bid Only. All the documents being uploaded like quote split up details, AMC cost etc should not contain the rates/costs. However a copy of your PRICE BID,AMC quote etc WITHOUT PRICE SHALL BE UPLOADED in the Documents Solicited from the Vendor Field[available in Bid forms] TO KNOW THE PATTERN OF QUOTE.[ENSURE NOT TO MENTION ANY PRICE,OTHERWISE THE QUOTE WILL BE INVALID.
5. Foreign vendors are not permitted to quote.
Quotations directly from foreign OEM/ or from agents quoting on behalf of foreign OEMs are not allowed to participate in this tender.
Only Class-I and Class-II Local suppliers as per Make in India Policy are eligible to participate in the bid.
a)The percentage of local content should be specifically mentioned in the offer, without which it will be summarily rejected.
b)Preference will be given to Class-I Local Supplier and in their absence, Class-II Local Supplier will be considered.

A.1 Tender Schedule

Bid Submission Start Date :	03-08-2021 14:00
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Bid Clarification Due Date : **17-08-2021 12:00**

Bid Submission Due Date : **25-08-2021 14:00**

Bid Opening Date : **25-08-2021 14:01**

Price Bid Opening Date : **01-09-2021 10:00**

B. Tender Attachments

NA

Instructions To Vendors

1. Instructions to Vendors

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2. Last minute clarification on tenders will not be entertained.

2. This is a Two-Part tender i.e. Techno Commercial(Containing Documents Solicited Vendor [available in Bid forms] & Vendor Specified Terms) and Price Bid . Hence all technical & commercial details shall be furnished in the Documents Solicited from Vendor & Vendor Specified Terms Fields while price shall be indicated only in the Price Bid.

3. IMPORTANT NOTE: This being a Two Part Tender, Cost/rates shall only be mentioned in the Price Bid Only. All the documents being uploaded like quote split up details, AMC cost etc should not contain the rates/costs. However a copy of your PRICE BID,AMC quote etc WITHOUT PRICE SHALL BE UPLOADED in the Documents Solicited from the Vendor Field[available in Bid forms] TO KNOW THE PATTERN OF QUOTE.[ENSURE NOT TO MENTION ANY PRICE,OTHERWISE THE QUOTE WILL BE INVALID.

4. Quotations directly from foreign OEM/ or from agents quoting on behalf of foreign OEMs will not be considered for evaluation.

Only Class-I and Class-II Local suppliers as per Make in India Policy are eligible to participate in the bid.

a) The percentage of local content should be specifically mentioned in the offer, without which it will be summarily rejected.

b) Preference will be given to Class-I Local Supplier and in their absence, Class-II Local Supplier will be considered.

5. PPP Make in India(Divisible Items-Class I & II Local Suppliers)

1. In line with Public Procurement (Preference to Make in India), Order 2017 & its amendments issued by Govt. of India from time to time with a view to support the Indian industries, ISRO has implemented "Purchase Preference Policy". The "Purchase Preference" is applicable for the "Class-I Local Supplier" for the goods/ services/ works covered in this tender, subject to the following terms & conditions:-

2. a) The subject item falls under divisible category. b) The offers are sought from Class I & II Local Suppliers.

3. Definitions: A supplier or service provider, whose goods, services or works offered for procurement, has local content: i. Equal to or more than 50%: Class-I local supplier. ii. More than 20% but less than 50%: Class-II local supplier. iii. Less than or equal to 20%: Non-local supplier.

4. 'Local content' means the amount of value added in India (i.e. indigenous items/services added in the offered products/ services/ works) be the total value of the item offered (excluding net domestic indirect taxes) minus the value of imported content in the item (including all customs duties/IGST) as a proportion of the total value (excluding net domestic indirect taxes), in percent.

5. The margin of Purchase Preference shall be up to 20%.

6. 'Margin of purchase preference' means the maximum extent to which the price quoted by the "Class-I local supplier" above the L1 (landed cost).

7. 'L1' means the lowest technically accepted tender / bid / quotation (i.e. lowest landed cost including duties, taxes and freight & Insurance).

8. Works means all works as per Rule 130 of GFR- 2017, and will also include 'turnkey works'. Works includes Engineering, Procurement and Construction (EPC) contracts and services include System Integrator (SI) contracts.

9. Purchase Preference Policy:- Goods/Works which are divisible in nature (required quantity is greater than 1 or not a package basis):

i.If L1 is 'Class-1 local supplier', the order/contract for full quantity shall be awarded to L1 bidder.

ii.If L1 bid is not from a 'Class-I local supplier', 50% of the order quantity shall be awarded to L1.

Thereafter, the lowest bidder among the 'Class-I local supplier' will be invited to match the L1 price for the remaining 50% quantity subject to the Class-I local supplier's quoted price falling within the margin of purchase preference (i.e. 20%) and contract for that quantity shall be awarded to such Class-I local supplier subject to matching the L1 price (inclusive of duties, taxes and freight & insurance).

iii. In case such lowest eligible 'Class-I local supplier' fails to match the L1 price or accepts less than the offered quantity, the next higher 'Class-I local supplier' within the margin of purchase preference shall be invited to match the L1 price for remaining quantity and so on, and contract shall be awarded accordingly. In cases where none of the 'Class-I local supplier' within the margin of purchase agree to match L1 price, in such cases 100% quantity shall be ordered on original L1 bidder.

iv. In case no offers are received from 'Class-I local supplier' or none of the 'Class-I local supplier' falls within the margin of purchase preference of 20%, the order shall be processed on L1 vendor.

v. In case L1 bidder (not a 'Class-I local supplier') is not accepting splitting of order on 50:50 basis, in that case the order/contract shall be awarded to such 'Class-I local supplier' for full quantity subject to

matching the L1 price.

vi. Regarding MSEs (Indian vendors):

a) The following additional aspect as indicated below would be applicable for procurement which are falls under divisible category (i.e., not applicable for indivisible category), in case of participation of MSEs in the tendering who are also complying to the Minimum Local Content (MLC) stipulated in the tender.

b) If any Indian vendor satisfies the requirement of MSEs stipulation and also falls within the purchase preference margin as called for in MSME policy (in case of matching L1 price) will be considered for ordering 25% of tendered quantity, the balance quantity / works will be considered for distribution amongst all bidders (including MSEs) as per the purchase preference policy.

c) In case no MSEs qualifies for purchase preference or do not match with L1 price then the total tendered quantity will be distributed amongst all bidders as per the purchase preference policy.

10. Purchase Preference Policy:- Goods/Works which are divisible in nature (required quantity is greater than 1 or not a package basis):

i.If L1 is 'Class-1 local supplier', the order/contract for full quantity shall be awarded to L1 bidder.

ii.If L1 bid is not from a 'Class-I local supplier', 50% of the order quantity shall be awarded to L1.

Thereafter, the lowest bidder among the 'Class-I local supplier' will be invited to match the L1 price for the remaining 50% quantity subject to the Class-I local supplier's quoted price falling within the margin of purchase preference (i.e. 20%) and contract for that quantity shall be awarded to such Class-I local supplier subject to matching the L1 price (inclusive of duties, taxes and freight & insurance).

iii. In case such lowest eligible 'Class-I local supplier' fails to match the L1 price or accepts less than the offered quantity, the next higher 'Class-I local supplier' within the margin of purchase 'preference shall be invited to match the L1 price for remaining quantity and so on, and contract shall be awarded accordingly. In cases where none of the 'Class-I local supplier' within the margin of purchase agree to match L1 price, in such cases 100% quantity shall be ordered on original L1 bidder.

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v. In case L1 bidder (not a 'Class-I local supplier') is not accepting splitting of order on 50:50 basis, in that case the order/contract shall be awarded to such 'Class-I local supplier' for full quantity subject to matching the L1 price.

vi. Regarding MSEs (Indian vendors):

a) The following additional aspect as indicated below would be applicable for procurement which are falls under divisible category (i.e., not applicable for indivisible category), in case of participation of MSEs in the tendering who are also complying to the Minimum Local Content (MLC) stipulated in the tender.

b) If any Indian vendor satisfies the requirement of MSEs stipulation and also falls within the purchase preference margin as called for in MSME policy (in case of matching L1 price) will be considered for ordering 25% of tendered quantity, the balance quantity / works will be considered for distribution amongst all bidders (including MSEs) as per the purchase preference policy.

c) In case no MSEs qualifies for purchase preference or do not match with L1 price then the total tendered quantity will be distributed amongst all bidders as per the purchase preference policy.

11. The 'Class-I & II local supplier' should provide a "Self Certification" along with technical offer indicating that the item offered meets the minimum local content [as per Sl. No.(3)] as called for in the tender and provide the percentage of local content along with details of the location(s) at which the local value addition is made. In case of two bid tenders, it is mandatory to indicate compliance to MLC(minimum Local Content) in technical bid zone.

12. In cases the quoted price is in excess of Rs.1000 Lakhs (including duties, taxes and freight & Insurance) the 'Class-I & II local supplier shall provide a certificate from the statutory auditor or cost auditor of the company (in the case of companies) or from a practicing cost accountant or practicing chartered accountant (in case of suppliers other than companies) giving the percentage of local content.

13. A committee (with an external expert from a practicing cost accountant or practicing chartered accountant, if required) constituted for independent verification shall verify the self-declarations & auditor's / accountant's certificates on random basis, as per the requirements.

14. The ink-signed certificate shall be provided on vendors letter head along with the offer (in case of online tender, copy of ink-signed certificate shall be uploaded along with your offer under concerned tab. Original in Hard copy shall be produced on request). In case of non-submission of certificate, the purchase preference shall not apply.

15. In case of a complaint received from any local supplier indicating a need for review / verification of Local content of successful vendor / awarded vendor, for accepting a complaint from such complainant (w.r.t the false declaration given by the successful vendor on the local content), a complaint fee of Rs.2Lakhs or 1% of the locally manufactured items being procured (subject to a maximum Rs. 5Lakhs), whichever was higher, to be paid by demand draft by the complainant. In case, the complaint is found to be incorrect, the complaint fee shall be forfeited. In case, the complaint is upheld and found to be substantially correct, deposited fee of the complainant would be refunded without any interest.

16. False declarations will be in breach of code of the integrity for which a bidder or its successor's will not be eligible/debarred for purchase preference from further tenders / pending tenders for two years along with other actions as may be applicable.

17. The Public Procurement (Preference to Make in India), Order 2017 issued by Govt. of India indicates that if there are any general or specific restrictive clauses to restrict participation of Indian companies in those countries procurement tenders, reciprocity clause need to be invoked as per the order. Hence, if ISRO or Govt. of India come across that Indian suppliers of an item are not allowed to participate and / or compete in procurement by your government, the bid submitted by you will be not be considered and excluded from eligibility for procurement. Please note this point.

6. Specific Terms and Conditions to Tender (MII Compliant)

1. (VIII) Please upload the Technical Details / Catalogue / Data Sheets (whereever applicable)
2. (IX) The offer should be valid for a period of minimum 90 days from the date of opening of Tender and 180 Days for PT Two Part (120 Days for Technical Bid and 60 Days for Price Bid from the date of opening).
3. (X) In order to avail of the benefits extended to by Govt. of India to the Micro and Small Sectors, please submit attested copy of the valid Entrepreneur Memorandum Part-II signed by the General Manager, District Industries Centre / Udyog Adhar / NSIC Registration Certification along with your offer.
4. (XI) If any bidder submits forged / false document along with the tender, offer of such vendors will be summarily rejected and such bidders will be blacklisted for all future tenders.
5. (XII) Wherever samples are required to be submitted along with the quotation, offer without sample will not be considered.
6. (XIII) The other attached forms are our standard terms and conditions, which are to be complied with. If any conflict arise between the specific terms and standard terms, then in those cases, the specific terms will prevail over the standard terms.
7. (XIV) This tender is restricted only to Class-I and Class-II Local Suppliers as defined under DPIIT Order dtd 04/06/2020- Preference to Make in India Order-2017 Revision. Non-Local Suppliers need not quote.
8. (XV) Foreign OEMs/Agents quoting on behalf of Foreign OEMs are not permitted to quote. High Sea Sales Quotes not permitted. The bids shall be in INR only.
9. (XVI) Definitions: A supplier or service provider, whose goods, services or works offered for procurement, has local content: a)Equal to or more than 50% : Class-I local supplier. b)More than 20% but less than 50% : Class-II local supplier. c)Less than or equal to 20% : Non-local supplier.
10. (XVII) Local content means the amount of value added in India (i.e. indigenous items/services added in the offered products/services/works) be the total value of the item offered (excluding net domestic indirect taxes) minus the value of imported content in the item (including all customs duties/IGST) as a proportion of the total value (excluding net domestic indirect taxes), in percent. Indicate extent of Minimum Local Content in offered product/service and location of such value additions.
11. (XVIII) The Class-I & II local supplier should provide a Self Certification along with your offer in PDF format indicating that the item offered meets the minimum local content as called for in the tender as

mentioned above and provide the % of local content along with details of the location(s) at which the local value addition is made. In case of two part tenders, it is mandatory to indicate compliance to MLC(minimum local content) in technical bid itself.

12. (XIX) Purchase preference to eligible vendors are applicable as per extant notifications issued by the Government of India.

13. (XX) The Class-I/Class-II Local suppliers, at the time of submitting their offer, shall also indicate percentage of local content and provide self-certification that the item (s) offered meets the local content requirement for Class-I/Class-II Local Suppliers as the case may be. They shall also give details of location (s) at which the local value addition is made.

14. (XXI) In cases if the item(s) offered exceed Rs. 10 Crores, the Class-I/Class-II Local Suppliers shall provide a Certificate from the statutory auditor or cost auditor of the company (in case of companies) or from a practicing cost accountant or practicing chartered accountant (in respect of suppliers other than companies) giving the percentage of local content.

15. (I) Please quote applicable GST separately.

(a) We are eligible for partial exemption of IGST vide Notification No: 47/2017-Integrated Tax (Rate) dtd 14/11/2017 and 45/2017-Central Tax (Rate) dtd 14/11/2017 issued by Dept. of Revenue, Ministry of Finance. Necessary Exemption Certificates will be issued on demand.

(b) We are eligible for partial exemption of CGST and SGST vide Notification No: 45/2017 dtd 14/11/2017 and No: 169/2017/TAXES dtd 15/11/2017 respectively. Necessary Exemption Certificates will be issued on demand.

16. (II) Our standard delivery term is FOR, VSSC. In case any vendor offers delivery term of Ex-works, Packing and Forwarding charges if any should be indicated separately either as a percentage of the quoted rate or as a Lumpsum amount.

17. (III) Our standard payment term is 100% within 30 days after receipt and acceptance of the items at our site (after installation and commissioning in cases where installation and commissioning is required).

18. (IV) Liquidated Damages: The delivery period quoted should be realistic. The delivery period so quoted and mentioned in the order is the essence of the order/contract. In case of delay in delivery of material as per the delivery schedule, Liquidated Damage @ 0.5% per week or part thereof on the undelivered portion subject to a maximum of 10% of the contract value shall be levied. Wherever, installation and commissioning is also involved, the supply will be deemed to have been completed only when the entire Stores is supplied, installed and accepted.

19. (V) Performance Bank Guarantee: Wherever products offered carry warranty, the warranty should

be for one year or as per manufacturers standard warranty term. Against such cases, please confirm submission of Performance Bank Guarantee. The Performance Bank Guarantee should be for 3% of the order value covering the warranty period obtained from any Scheduled Bank on Rs.200/- Non Judicial Stamp Paper and should be valid beyond 2 months from the completion of the warranty period. Alternately vendors can request for withholding 3% payment till completion of the warranty period.

20. (VI) Security Deposit: Wherever the offer value is Rs. 5.00 Lakhs or above, the successful tenderer should submit Security Deposit @ 3% of the order value by way of Bank Guarantee / FD Receipt. The Bank Guarantee shall be obtained from any Scheduled Bank on Rs.200/- Non Judicial Stamp Paper and should be valid beyond 2 months from the completion of all contractual obligations. If the Contractor is called upon by the Purchaser to deposit, Security and the Contractor fails to provide the security within the period specified, such failure shall constitute a breach of the Contract, and the Purchaser shall be entitled to make other arrangements for the re-purchase of the stores Contracted at the risk of the Contractor. In case if Security Deposit is submitted and the contractor fails to execute the order, then the security deposit will be forfeited.

21. (VII) Note: SD, LD and PBG clauses are mandatory and offers of the vendors who have not agreed for the above conditions will be excluded from the procurement process. Micro and Small Vendors are not exempted from the submission of Security Deposit. Only Govt Departments/PSUs/PSEs can submit Indemnity Bond instead of Bank Gurantee towards SD/PBG.

22. (XXII) False Declarations will be in breach of the Code of Integrity under Rule 175 (1) (i) (h) of the General Financial Rules for which a bidder or its successors can be debarred for up to two years as per Rule 151 (iii) of the General Financial Rules along with such other actions as may be permissible under law.

7. PROFORMA FOR INSTRUCTIONS TO TENDERERS AND TERMS & CONDITIONS OF TENDER where the indent value is Rs. 2.00 lakhs & above for indigenous stores items

1. Preference will be given to those tenders offering supplies from ready stocks and on the basis of FOR destination/delivery at site.

2. REJECTED STORES:

Rejected stores will remain at destination at the Contractor's risk and responsibility. If instructions for their disposal are not received from the Contractor within a period of 14 days from the date of receipt of the advice of rejection, the purchaser or his representative has, at his discretion, the right to scrap or sell or consign the rejected stores to Contractor's address at the Contractor's entire risk and expense, freight being payable by the Contractor at actuals.

3. The term 'Stores' shall mean what the Contractor agrees to supply under the Contract as specified in the Purchase Order including erection of plants & machinery and subsequent testing, should such a

condition is included in the Purchase Order.

4. SECURITY DEPOSIT: Wherever, the Purchase Order value is Rs. 5.00 Lakhs or more, on acceptance of the tender, the Contractor shall, at the option of the Purchaser and within the period specified by him, deposit with him, in cash or in any other form as the Purchaser may determine, security deposit not exceeding ten percent of the value of the Contract as the Purchaser shall specify. If the Contractor is called upon by the Purchaser to deposit, 'Security' and the Contractor fails to provide the security within the period specified, such failure shall constitute a breach of the Contract, and the Purchaser shall be entitled to make other arrangements for the re-purchase of the stores Contracted at the risk of the Contractor in terms of Sub-Clause (ii) and (iii) of clause regarding Delivery. (b) hereof and/or to recover from the Contractor, damages arising from such cancellation.

5. Sales Tax and/or other duties/levies legally leviable and intended to be claimed should be mentioned in the price bid template. If nothing is mentioned, then it will be presumed that the rate quoted is inclusive of all taxes/duties.

6. TERMS & CONDITIONS OF TENDER

7. TEST CERTIFICATE: Wherever required, test certificates should be sent along with the despatch documents.

8. The Purchaser reserves the right to place order on the successful tenderer for additional quantity up to 25% of the quantity offered by them at the rates quoted.

9. The authority of the person signing the tender, if called for, should be produced.

10. 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 tenderers shall supply the same at the rates quoted.

11. (a) All available technical literature, catalogues and other data in support of the specifications and details of the items should be furnished along with the offer.

(b) Samples, if called for, should be submitted free of all charges by the tenderer and the Purchaser shall not be responsible for any loss or damage thereof due to any reason whatsoever. In the event of nonacceptance of tender, the tenderer will have to remove the samples at his own expense.

(c) Approximate net and gross weight of the items offered shall be indicated in your offer. If dimensional details are available the same should also be indicated in your offer.
(d)

Specifications: Stores offered should strictly confirm to our specifications. Deviations, if any, should 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 quotations. Test Certificates, wherever necessary, should be forwarded

along with supplies. Wherever options have been called for in our specifications, the tenderer should address all such options. Wherever specifically mentioned by us, the tenderer could suggest changes to specifications with appropriate response for the same.

12. The tenderer should supply along with his tender, the name of his bankers as well as the latest Income-Tax clearance certificate duly countersigned by the Income-Tax Officer of the Circle concerned under the seal of his office, if required by the Purchaser.

13. The term Contractor shall mean, the person, firm or company with whom or with which the order for the supply of Stores is placed and shall be deemed to include the Contractor's successors, representative, heirs, executors and administrators unless excluded by the Contract.

14. The term Purchaser shall mean the President of India or his successors or assigns.

15. (a) All available technical literature, catalogues and other data in support of the specifications and details of the items should be furnished along with the offer.

(b) Samples, if called for, should be submitted free of all charges by the tenderer and the Purchaser shall not be responsible for any loss or damage thereof due to any reason whatsoever. In the event of nonacceptance of tender, the tenderer will have to remove the samples at his own expense.

(c) Approximate net and gross weight of the items offered shall be indicated in your offer. If dimensional details are available the same should also be indicated in your offer.

(d) Specifications: Stores offered should strictly confirm to our specifications. Deviations, if any, should 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 quotations. Test Certificates, wherever necessary, should be forwarded along with supplies. Wherever options have been called for in our specifications, the tenderer should address all such options. Wherever specifically mentioned by us, the tenderer could suggest changes to specifications with appropriate response for the same.

16. ACCEPTANCE OF STORES:

(a) The stores shall be tendered by the Contractor for inspection at such places as may be specified by the purchaser at the Contractor's own risk, expense and cost.

(b) It is expressly agreed that the acceptance of the stores Contracted for, is subject to final approval by the purchaser, whose decision shall be final.

(c) If, in the opinion of the purchaser, all or any of the stores do not meet the performance or quality requirements specified in the Purchase Order, they may be either rejected or accepted at a price to be fixed by the purchaser and his decision as to rejection and the prices to be fixed shall be final and binding on the Contractor.

(d) If the whole or any part of the stores supplied are rejected in accordance with Clause No. (c) above, the purchaser shall be at liberty, with or without notice to the Contractor, to purchase in the open market at the expense of the Contractor stores meeting the necessary performance and quality

Contracted for in place of those rejected, provided that either the purchase, or the agreement to purchase, from another supplier is made within six months from the date of rejection of the stores as aforesaid.

17. As a Government of India Department, this office is exempted from payment of Octroi and similar local levies. Tenderers shall ensure that necessary Exemption Certificates are obtained by them from the Purchase Officer concerned to avoid any payment of such levies.

18. DESPATCH: The Contractor is responsible for obtaining a clear receipt from the Transport Authorities specifying the goods despatched. The consignment should be despatched with clear Railway Receipt/Lorry Receipt. If sent in any other mode, it shall be at the risk of the Contractor. Purchaser will take no responsibility for short deliveries or wrong supply of goods when the same are booked on 'said to contain' basis. Purchaser shall pay for only such stores as are actually received by them in accordance with the Contract.

19. GUARANTEE & REPLACEMENT:

(a) The Contractor shall guarantee that the stores supplied shall comply fully with the specifications laid down, for material, workmanship and performance.

(b) For a period of twelve months after the acceptance of the stores, if any defects are discovered therein or any defects therein found to have developed under proper use, arising from faulty stores design or workmanship, the Contractor shall remedy such defects at his own cost provided he is called upon to do so within a period of 14 months from the date of acceptance thereof by the purchaser who shall state in writing in what respect the stores or any part thereof are faulty.

(c) If, in the opinion of the purchaser, it becomes necessary to replace or renew any defective stores such replacement or renewal shall be made by the Contractor free of all costs to the purchaser, provided the notice informing the Contractor of the defect is given by the purchaser in this regard within the said period of 14 months from the date of acceptance thereof.

(d) Should the Contractor fail to rectify the defects, the purchaser shall have the right to reject or repair or replace at the cost of the Contractor the whole or any portion of the defective stores.

(e) The decision of the Purchaser notwithstanding any prior approval or acceptance or inspection thereof on behalf of the Purchaser, as to whether or not the Stores supplied by the Contractor are defective or any defect has developed within the said period of 12 months or any other period or as to whether the nature of defects requires renewal or replacement, shall be final, conclusive and binding on the Contractor.

(f) To fulfill guarantee conditions outlined in (a) to (e) above, the Contractor shall, at the option of the Purchaser, furnish a Bank Guarantee (as prescribed by the Purchaser)

20. PACKING FORWARDING & INSURANCE: 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 of the Contractor. The purchaser will not pay separately for transit insurance, all risks in

transit being exclusively of the Contractor and the Purchaser shall pay only for such stores as are actually received in good condition in accordance with the Contract.

21. PRICES: Tender offering firm prices will be preferred. Where a price variation clause is insisted upon by a tenderer, quotation with a reasonable ceiling should be submitted. Such offers should invariably be supported by the base price taken into account at the time of tendering and also the formula for any such variation/s.

22. a) Your offer should be valid for 90 days from the date of opening of the tender.

b) 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 sets of units must be furnished.

23. d) The term 'Purchase Order' shall mean the communication signed on behalf of the Purchaser by an Officer duly authorised intimating the acceptance on behalf of the Purchaser on the terms and conditions mentioned or referred to in the said communication accepting the tender or offer of the Contractor for supply of stores or plant, machinery or equipment or part thereof.

8. Wherever Security Deposit (SD) & Performance Bank Guarantee (PBG) are mentioned in the tender. It should be 3% of the total order value instead of 10% mentioned therein. This is as per Latest Govt. of India Guidelines.

C. Bid Templates

C.1 Technical Bid - BRAZE ALLOY

1. BRAZE ALLOYS

Item specifications for BRAZE ALLOYS

SI No	Specification	Value	Compliance	Offered Specification	Remark
1	Material code	AMS 4787, BAu-4	-		
2	Name of Alloy	Gold-Nickel Braze alloy	-		
3	Type	Wire	-		
4	Wire diameter	0.5 mm	-		
5	End use	Vacuum brazing of Metallic materials	-		
6	Chemical composition (in weight %)	Gold - 82 +/- 0.5, Nickel - 18	-		
7	Solidus & Liquidus Temperature (in Degree Centigrade)	950	-		
8	General conditions	Chemical composition, method of manufacture and packaging shall be as per American Welding Society(AWS) standard A5.8/A5.8M:2011 : Specification for filler metals for brazing and braze welding.	-		
9	Test certificate	Supplier shall provide naterial test certificate with chemical composition details including impurity elements, dimension of wire diameter and other relevant details.	-		

Common Specifications (Applicable for all items)

Sl No	Specification	Value	Compliance	Offered Specification	Remark
1	Material code	AMS 4787, BAu-4	Yes / No / Explain		
2	Name of Alloy	Gold-Nickel Braze alloy	Yes / No / Explain		
3	Type	Wire	Yes / No / Explain		
4	Wire diameter	0.5 mm	Yes / No / Explain		
5	End use	Vacuum brazing of Metallic materials	Yes / No / Explain		
6	Chemical composition (in weight %)	Gold - 82 +/- 0.5, Nickel – 18	Yes / No / Explain		
7	Solidus & Liquidus Temperature (in Degree Centigrade)	950	Yes / No / Explain		
8	General conditions	Chemical composition, method of manufacture and packaging shall be as per American Welding Society(AWS) standard A5.8/A5.8M:2011 : Specification for filler metals for brazing and braze welding.	Yes / No / Explain		
9	Test certificate	Supplier shall provide material test certificate with chemical composition details including impurity elements, dimension of wire diameter and other relevant details.	Yes / No / Explain		

Supporting Documents required from Vendor

1. Data sheet

2. Local Content Declaration

3. Your quotation in PDF format masking all price details

4. Any other documents

5 additional documents can be uploaded by the vendor

C.2 Commercial Terms / Bid

Sl. No.	Description	Compliance	Vendor Terms
1	Party shall supply the items with test certificate pertaining to the supply batch	Yes / No / Explain	
2	The Class-I & II local supplier should provide a Self Certification along with your offer in PDF format indicating that the item offered meets the minimum local content as called for in the tender as mentioned above and provide the % of local content along with details of the location(s) at which the local value addition is made. In case of two part tenders, it is mandatory to indicate compliance to MLC(minimum local content) in technical bid itself. Confirm attachment of Self declaration along with the offer.	Yes / No / Explain	
3	PO Ordering Address with Name and Contact Details of Sales Person concerned (e-mail and phone number).	Yes / No / Explain	
4	Any Other Terms	Yes / No / Explain	
5	Taxes and other costs, if any . [Note: VSSC is a Public Funded Research Institution under the administrative control of Department of Space and is eligible for partial exemption of IGST @5% vide Notfn No. 45/2017, 47/2017 dt 14.11.2017 respectively. Necessary IGST EXEMPTION CERTIFICATE shall be issued.]	Yes / No / Explain	
6	Security Deposit (Applicable if Offer Value is Rs. 5 Lakhs or above. MSME/NSIC Units are NOT EXEMPTED from the payment of SD. Bank Guarantee @ 3% of Order Value valid till 60 days from the date of supply to be submitted. Mandatory compliance required. Only Government Bodies/PSUs/PSEs can submit Indentity Bond in lieu of BG. In the event of non-performance of contractual obligations, SD will be forfeited).	Yes / No / Explain	
7	Delivery Terms.	Yes / No / Explain	
8	Delivery Period	Yes / No / Explain	

9	Liquidated Damages (Applicable beyond the delivery period mentioned in this tender @ 0.5% per week or part thereof on the undelivered portion subject to a maximum of 10% of the contract value. Mandatory compliance required).	Yes / No / Explain	
10	Payment Term: (Our Defalut payment term: For indigenous orders: 100% within 30 days after receipt and acceptance of item at our site. NOTE: CONSEQUENT TO COVID 19 PANDEMIC AND AS PER EXTANT GUIDELINES FROM DEPARTMENT OF SPACE, NO ADVANCE PAYMENT IS PAYABLE TO THIS TENDER).	Yes / No / Explain	
11	Definitions: A supplier or service provider, whose goods, services or works offered for procurement, has local content: a) Equal to or more than 50% : Class-I local supplier. b) More than 20% but less than 50% : Class-II local supplier. c) Less than or equal to 20% : Non-local supplier. Mention your category.	Yes / No / Explain	
12	Local content means the amount of value added in India (i.e. indigenous items/services added in the offered products/services/works) be the total value of the item offered (excluding net domestic indirect taxes) minus the value of imported content in the item (including all customs duties/IGST) as a proportion of the total value (excluding net domestic indirect taxes), in percent. Indicate extent of Minimum Local Content in offered product/service and location of such value additions.	Yes / No / Explain	

13	<p>IMPORTANT NOTE: This being a Two Part Tender, Cost shall be mentioned in the Price Bid Only. All the documents being uploaded like quote split up details, AMC cost etc should not contain the rates/costs. However a copy of your PRICE BID, AMC quote etc WITHOUT PRICE SHALL BE UPLOADED in the Documents Solicited from the Vendor Field[available in Bid forms] TO KNOW THE PATTERN OF QUOTE.[ENSURE NOT TO MENTION ANY PRICE, OTHERWISE THE QUOTE WILL BE INVALID. NOTE/CONFIRM.</p>	Yes / No / Explain	
14	<p>Foreign vendors are not permitted to quote. Only Class-I and Class-II Local suppliers as per Make in India Policy are eligible to participate in the bid. Please Note & Confirm.</p>	Yes / No / Explain	
15	<p>Country of of the offered product.</p>	Yes / No / Explain	

C.3 Price Bid

Sl. No.	Item	Quantity	Unit Price	Currency	Total Price	Remark
1	BRAZE ALLOYS	1.00 KG		-		

Common charges (Applicable for all items)

P&F Charges	
Freight charge	
Documentation & Handling charges	
Other Charges (If any)	

**GOVERNMENT OF INDIA
DEPARTMENT OF SPACE
VIKRAM SARABHAI SPACE CENTRE (VSSC)
THIRUVANANTHAPURAM**

Tender for Glass sealing furnace

Bids to be submitted online

Tender No.: VSSC/PURCHASE UNIT III (SPRE)/VS202100231001 dated 04-08-2021

A. Tender Details

Tender No : **VSSC/PURCHASE UNIT III (SPRE)/VS202100231001**

Tender Date : **04-08-2021**

Tender Classification: **GOODS**

Purchase Entity : **PURCHASE UNIT III (SPRE)**

Centre : **VIKRAM SARABHAI SPACE CENTRE (VSSC)**

Procurement of Glass sealing furnace

1. Last minute clarification on tenders will not be entertained.
2. This is an E Tender. Hence Postal/Fax/Email tenders will not be accepted.
3. This is a Two-Part tender i.e. Techno Commercial(Containing Documents Solicited Vendor[available in Bid forms] & Vendor Specified Terms) and Price Bid . Hence all technical & commercial details shall be furnished in the Documents Solicited from Vendor & Vendor Specified Terms Fields while price shall be indicated only in the Price Bid.
4. IMPORTANT NOTE: This being a Two Part Tender, Cost/rates shall only be mentioned in the Price Bid Only. All the documents being uploaded like quote split up details, AMC cost etc should not contain the rates/costs. However a copy of your PRICE BID,AMC quote etc WITHOUT PRICE SHALL BE UPLOADED in the Documents Solicited from the Vendor Field[available in Bid forms] TO KNOW THE PATTERN OF QUOTE.[ENSURE NOT TO MENTION ANY PRICE,OTHERWISE THE QUOTE WILL BE INVALID.
5. Foreign vendors are not permitted to quote.
Quotations directly from foreign OEM/ or from agents quoting on behalf of foreign OEMs are not allowed to participate in this tender.
Only Class-I and Class-II Local suppliers as per Make in India Policy are eligible to participate in the bid.
a) The percentage of local content should be specifically mentioned in the offer, without which it will be summarily rejected.
b) Preference will be given to Class-I Local Supplier and in their absence, Class-II Local Supplier will be considered.

A.1 Tender Schedule

Bid Submission Start Date : **04-08-2021 14:00**

Bid Clarification Due Date : **18-08-2021 14:00**

Bid Submission Due Date : **31-08-2021 14:00**

Bid Opening Date : **31-08-2021 14:01**

Price Bid Opening Date : **10-09-2021 10:01**

B. Tender Attachments

Technical Write-up/Drawings

Document : Technical specification and terms and conditions

Instructions To Vendors

2. This is a Two-Part tender i.e. Techno Commercial(Containing Documents Solicited Vendor [available in Bid forms] & Vendor Specified Terms) and Price Bid . Hence all technical & commercial details shall be furnished in the Documents Solicited from Vendor & Vendor Specified Terms Fields while price shall be indicated only in the Price Bid.

3. IMPORTANT NOTE: This being a Two Part Tender, Cost/rates shall only be mentioned in the Price Bid Only. All the documents being uploaded like quote split up details, AMC cost etc should not contain the rates/costs. However a copy of your PRICE BID,AMC quote etc WITHOUT PRICE SHALL BE UPLOADED in the Documents Solicited from the Vendor Field[available in Bid forms] TO KNOW THE PATTERN OF QUOTE.[ENSURE NOT TO MENTION ANY PRICE,OTHERWISE THE QUOTE WILL BE INVALID.

4. Quotations directly from foreign OEM/ or from agents quoting on behalf of foreign OEMs will not be considered for evaluation.

Only Class-I and Class-II Local suppliers as per Make in India Policy are eligible to participate in the bid.

a) The percentage of local content should be specifically mentioned in the offer, without which it will be summarily rejected.

b) Preference will be given to Class-I Local Supplier and in their absence, Class-II Local Supplier will be considered.

5. PPP Make in India(Non- Divisible Items-Class I & II Local Suppliers Only)

1. In line with Public Procurement (Preference to Make in India), Order 2017 & its amendments issued by Govt. of India from time to time with a view to support the Indian industries, ISRO has implemented "Purchase Preference Policy". The "Purchase Preference" is applicable for the "Class-I Local Supplier" for the goods/ services/ works covered in this tender, subject to the following terms & conditions:-

2. a) The subject item falls under Non-divisible category. b) The offers sought only from Class-I & Class-II local suppliers

3. Definitions: A supplier or service provider, whose goods, services or works offered for procurement,

has local content: i. Equal to or more than 50%: Class-I local supplier. ii. More than 20% but less than 50%: Class-II local supplier. iii. Less than or equal to 20%: Non-local supplier.

4. 'Local content' means the amount of value added in India (i.e. indigenous items/services added in the offered products/ services/ works) be the total value of the item offered (excluding net domestic indirect taxes) minus the value of imported content in the item (including all customs duties/IGST) as a proportion of the total value (excluding net domestic indirect taxes), in percent.

5. The margin of Purchase Preference shall be up to 20%.

6. 'Margin of purchase preference' means the maximum extent to which the price quoted by the "Class-I local supplier" above the L1 (landed cost).

7. 'L1' means the lowest technically accepted tender / bid / quotation (i.e. lowest landed cost including duties, taxes and freight & Insurance).

8. Works means all works as per Rule 130 of GFR- 2017, and will also include 'turnkey works'. Works includes Engineering, Procurement and Construction (EPC) contracts and services include System Integrator (SI) contracts.

9. Purchase Preference Policy:- Goods/Works which are not divisible (ie., required quantity is 1 or as a package) and Services:

a) If L1 is from a 'Class-I local supplier', the contract will be awarded to L1 bidder.

b) If L1 is not from a 'Class-I local supplier', the lowest bidder among the 'Class-I local supplier' will be invited to match the L1 price subject to local supplier's quoted price falling within the margin of purchase preference (i.e. 20%) and the contract shall be awarded to such 'Class-I local supplier' subject to matching the L1 price (inclusive of duties, taxes and freight & insurance).

c) In case such lowest eligible 'Class-I local supplier' fails to match the L1 price, the 'Class-I local supplier' with the next higher bid within the margin of purchase preference shall be invited to match the L1 price and so on, and order/contract shall be awarded accordingly. In case where none of the 'Class-I local supplier' within the margin of purchase preference agree to match the L1 price, then the order/contract shall be awarded to the original L1 Bidder.

10. The 'Class-I & II local supplier' should provide a "Self Certification" along with technical offer indicating that the item offered meets the minimum local content [as per SI. No.(3)] as called for in the tender and provide the percentage of local content along with details of the location(s) at which the local value addition is made. In case of two bid tenders, it is mandatory to indicate compliance to MLC(minimum Local Content) in technical bid zone.

11. In cases the quoted price is in excess of Rs.1000 Lakhs (including duties, taxes and freight & Insurance) the 'Class-I & II local supplier shall provide a certificate from the statutory auditor or cost

auditor of the company (in the case of companies) or from a practicing cost accountant or practicing chartered accountant (in case of suppliers other than companies) giving the percentage of local content.

12. A committee (with an external expert from a practicing cost accountant or practicing chartered accountant, if required) constituted for independent verification shall verify the self-declarations & auditor's / accountant's certificates on random basis, as per the requirements.

13. The ink-signed certificate shall be provided on vendors letter head along with the offer (in case of online tender, copy of ink-signed certificate shall be uploaded along with your offer under concerned tab. Original in Hard copy shall be produced on request). In case of non-submission of certificate, the purchase preference shall not apply.

14. In case of a complaint received from any local supplier indicating a need for review / verification of Local content of successful vendor / awarded vendor, for accepting a complaint from such complainant (w.r.t the false declaration given by the successful vendor on the local content), a complaint fee of Rs.2Lakhs or 1% of the locally manufactured items being procured (subject to a maximum Rs. 5Lakhs), whichever was higher, to be paid by demand draft by the complainant. In case, the complaint is found to be incorrect, the complaint fee shall be forfeited. In case, the complaint is upheld and found to be substantially correct, deposited fee of the complainant would be refunded without any interest.

15. False declarations will be in breach of code of the integrity for which a bidder or its successor's will not be eligible/debarred for purchase preference from further tenders / pending tenders for two years along with other actions as may be applicable.

16. The Public Procurement (Preference to Make in India), Order 2017 issued by Govt. of India indicates that if there are any general or specific restrictive clauses to restrict participation of Indian companies in those countries procurement tenders, reciprocity clause need to be invoked as per the order. Hence, if ISRO or Govt. of India come across that Indian suppliers of an item are not allowed to participate and / or compete in procurement by your government, the bid submitted by you will be not be considered and excluded from eligibility for procurement. Please note this point.

6. Specific Terms and Conditions to Tender (MII Compliant)

1. (VIII) Please upload the Technical Details / Catalogue / Data Sheets (whereever applicable)

2. (IX) The offer should be valid for a period of minimum 90 days from the date of opening of Tender and 180 Days for PT Two Part (120 Days for Technical Bid and 60 Days for Price Bid from the date of opening).

3. (X) In order to avail of the benefits extended to by Govt. of India to the Micro and Small Sectors,

please submit attested copy of the valid Entrepreneur Memorandum Part-II signed by the General Manager, District Industries Centre / Udyog Adhar / NSIC Registration Certification along with your offer.

4. (XI) If any bidder submits forged / false document along with the tender, offer of such vendors will be summarily rejected and such bidders will be blacklisted for all future tenders.

5. (XII) Wherever samples are required to be submitted along with the quotation, offer without sample will not be considered.

6. (XIII) The other attached forms are our standard terms and conditions, which are to be complied with. If any conflict arise between the specific terms and standard terms, then in those cases, the specific terms will prevail over the standard terms.

7. (XIV) This tender is restricted only to Class-I and Class-II Local Suppliers as defined under DPIIT Order dtd 04/06/2020- Preference to Make in India Order-2017 Revision. Non-Local Suppliers need not quote.

8. (XV) Foreign OEMs/Agents quoting on behalf of Foreign OEMs are not permitted to quote. High Sea Sales Quotes not permitted. The bids shall be in INR only.

9. (XVI) Definitions: A supplier or service provider, whose goods, services or works offered for procurement, has local content: a)Equal to or more than 50% : Class-I local supplier. b)More than 20% but less than 50% : Class-II local supplier. c)Less than or equal to 20% : Non-local supplier.

10. (XVII) Local content means the amount of value added in India (i.e. indigenous items/services added in the offered products/services/works) be the total value of the item offered (excluding net domestic indirect taxes) minus the value of imported content in the item (including all customs duties/IGST) as a proportion of the total value (excluding net domestic indirect taxes), in percent. Indicate extent of Minimum Local Content in offered product/service and location of such value additions.

11. (XVIII) The Class-I & II local supplier should provide a Self Certification along with your offer in PDF format indicating that the item offered meets the minimum local content as called for in the tender as mentioned above and provide the % of local content along with details of the location(s) at which the local value addition is made. In case of two part tenders, it is mandatory to indicate compliance to MLC(minimum local content) in technical bid itself.

12. (XIX) Purchase preference to eligible vendors are applicable as per extant notifications issued by the Government of India.

13. (XX) The Class-I/Class-II Local suppliers, at the time of submitting their offer, shall also indicate percentage of local content and provide self-certification that the item (s) offered meets the local content requirement for Class-I/Class-II Local Suppliers as the case may be. They shall also give details of location (s) at which the local value addition is made.

14. (XXI) In cases if the item(s) offered exceed Rs. 10 Crores, the Class-I/Class-II Local Suppliers shall provide a Certificate from the statutory auditor or cost auditor of the company (in case of companies) or from a practicing cost accountant or practicing chartered accountant (in respect of suppliers other than companies) giving the percentage of local content.

15. (I) Please quote applicable GST separately.

(a) We are eligible for partial exemption of IGST vide Notification No: 47/2017-Integrated Tax (Rate) dtd 14/11/2017 and 45/2017-Central Tax (Rate) dtd 14/11/2017 issued by Dept. of Revenue, Ministry of Finance. Necessary Exemption Certificates will be issued on demand.

(b) We are eligible for partial exemption of CGST and SGST vide Notification No: 45/2017 dtd 14/11/2017 and No: 169/2017/TAXES dtd 15/11/2017 respectively. Necessary Exemption Certificates will be issued on demand.

16. (II) Our standard delivery term is FOR, VSSC. In case any vendor offers delivery term of Ex-works, Packing and Forwarding charges if any should be indicated separately either as a percentage of the quoted rate or as a Lumpsum amount.

17. (III) Our standard payment term is 100% within 30 days after receipt and acceptance of the items at our site (after installation and commissioning in cases where installation and commissioning is required).

18. (IV) Liquidated Damages: The delivery period quoted should be realistic. The delivery period so quoted and mentioned in the order is the essence of the order/contract. In case of delay in delivery of material as per the delivery schedule, Liquidated Damage @ 0.5% per week or part thereof on the undelivered portion subject to a maximum of 10% of the contract value shall be levied. Wherever, installation and commissioning is also involved, the supply will be deemed to have been completed only when the entire Stores is supplied, installed and accepted.

19. (V) Performance Bank Guarantee: Wherever products offered carry warranty, the warranty should be for one year or as per manufacturers standard warranty term. Against such cases, please confirm submission of Performance Bank Guarantee. The Performance Bank Guarantee should be for 3% of the order value covering the warranty period obtained from any Scheduled Bank on Rs.200/- Non Judicial Stamp Paper and should be valid beyond 2 months from the completion of the warranty period. Alternately vendors can request for withholding 3% payment till completion of the warranty period.

20. (VI) Security Deposit: Wherever the offer value is Rs. 5.00 Lakhs or above, the successful

tenderer should submit Security Deposit @ 3% of the order value by way of Bank Guarantee / FD Receipt. The Bank Guarantee shall be obtained from any Scheduled Bank on Rs.200/- Non Judicial Stamp Paper and should be valid beyond 2 months from the completion of all contractual obligations. If the Contractor is called upon by the Purchaser to deposit, Security and the Contractor fails to provide the security within the period specified, such failure shall constitute a breach of the Contract, and the Purchaser shall be entitled to make other arrangements for the re-purchase of the stores Contracted at the risk of the Contractor. In case if Security Deposit is submitted and the contractor fails to execute the order, then the security deposit will be forfeited.

21. (VII) Note: SD, LD and PBG clauses are mandatory and offers of the vendors who have not agreed for the above conditions will be excluded from the procurement process. Micro and Small Vendors are not exempted from the submission of Security Deposit. Only Govt Departments/PSUs/PSEs can submit Indemnity Bond instead of Bank Gurantee towards SD/PBG.

22. (XXII) False Declarations will be in breach of the Code of Integrity under Rule 175 (1) (i) (h) of the General Financial Rules for which a bidder or its successors can be debarred for up to two years as per Rule 151 (iii) of the General Financial Rules along with such other actions as may be permissible under law.

7. PROFORMA FOR INSTRUCTIONS TO TENDERERS AND TERMS & CONDITIONS OF TENDER where the indent value is Rs. 2.00 lakhs & above for indigenous stores items

1. Preference will be given to those tenders offering supplies from ready stocks and on the basis of FOR destination/delivery at site.

2. REJECTED STORES:

Rejected stores will remain at destination at the Contractor's risk and responsibility. If instructions for their disposal are not received from the Contractor within a period of 14 days from the date of receipt of the advice of rejection, the purchaser or his representative has, at his discretion, the right to scrap or sell or consign the rejected stores to Contractor's address at the Contractor's entire risk and expense, freight being payable by the Contractor at actuals.

3. The term 'Stores' shall mean what the Contractor agrees to supply under the Contract as specified in the Purchase Order including erection of plants & machinery and subsequent testing, should such a condition is included in the Purchase Order.

4. SECURITY DEPOSIT: Wherever, the Purchase Order value is Rs. 5.00 Lakhs or more, on acceptance of the tender, the Contractor shall, at the option of the Purchaser and within the period specified by him, deposit with him, in cash or in any other form as the Purchaser may determine, security deposit not exceeding ten percent of the value of the Contract as the Purchaser shall specify. If the Contractor is called upon by the Purchaser to deposit, 'Security' and the Contractor fails to

provide the security within the period specified, such failure shall constitute a breach of the Contract, and the Purchaser shall be entitled to make other arrangements for the re-purchase of the stores Contracted at the risk of the Contractor in terms of Sub-Clause (ii) and (iii) of clause regarding Delivery. (b) hereof and/or to recover from the Contractor, damages arising from such cancellation.

5. Sales Tax and/or other duties/levies legally leviable and intended to be claimed should be mentioned in the price bid template. If nothing is mentioned, then it will be presumed that the rate quoted is inclusive of all taxes/duties.

6. TERMS & CONDITIONS OF TENDER

7. TEST CERTIFICATE: Wherever required, test certificates should be sent along with the despatch documents.

8. The Purchaser reserves the right to place order on the successful tenderer for additional quantity up to 25% of the quantity offered by them at the rates quoted.

9. The authority of the person signing the tender, if called for, should be produced.

10. 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 tenderers shall supply the same at the rates quoted.

11. (a) All available technical literature, catalogues and other data in support of the specifications and details of the items should be furnished along with the offer.

(b) Samples, if called for, should be submitted free of all charges by the tenderer and the Purchaser shall not be responsible for any loss or damage thereof due to any reason whatsoever. In the event of nonacceptance of tender, the tenderer will have to remove the samples at his own expense.

(c) Approximate net and gross weight of the items offered shall be indicated in your offer. If dimensional details are available the same should also be indicated in your offer.
(d) Specifications: Stores offered should strictly conform to our specifications. Deviations, if any, should 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 quotations. Test Certificates, wherever necessary, should be forwarded along with supplies. Wherever options have been called for in our specifications, the tenderer should address all such options. Wherever specifically mentioned by us, the tenderer could suggest changes to specifications with appropriate response for the same.

12. The tenderer should supply along with his tender, the name of his bankers as well as the latest Income-Tax clearance certificate duly countersigned by the Income-Tax Officer of the Circle concerned under the seal of his office, if required by the Purchaser.

13. The term Contractor shall mean, the person, firm or company with whom or with which the order for the supply of Stores is placed and shall be deemed to include the Contractor's successors, representative, heirs, executors and administrators unless excluded by the Contract.

14. The term Purchaser shall mean the President of India or his successors or assigns.

15. (a) All available technical literature, catalogues and other data in support of the specifications and details of the items should be furnished along with the offer.

(b) Samples, if called for, should be submitted free of all charges by the tenderer and the Purchaser shall not be responsible for any loss or damage thereof due to any reason whatsoever. In the event of nonacceptance of tender, the tenderer will have to remove the samples at his own expense.

(c) Approximate net and gross weight of the items offered shall be indicated in your offer. If dimensional details are available the same should also be indicated in your offer.

(d) Specifications: Stores offered should strictly confirm to our specifications. Deviations, if any, should 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 quotations. Test Certificates, wherever necessary, should be forwarded along with supplies. Wherever options have been called for in our specifications, the tenderer should address all such options. Wherever specifically mentioned by us, the tenderer could suggest changes to specifications with appropriate response for the same.

16. ACCEPTANCE OF STORES:

(a) The stores shall be tendered by the Contractor for inspection at such places as may be specified by the purchaser at the Contractor's own risk, expense and cost.

(b) It is expressly agreed that the acceptance of the stores Contracted for, is subject to final approval by the purchaser, whose decision shall be final.

(c) If, in the opinion of the purchaser, all or any of the stores do not meet the performance or quality requirements specified in the Purchase Order, they may be either rejected or accepted at a price to be fixed by the purchaser and his decision as to rejection and the prices to be fixed shall be final and binding on the Contractor.

(d) If the whole or any part of the stores supplied are rejected in accordance with Clause No. (c) above, the purchaser shall be at liberty, with or without notice to the Contractor, to purchase in the open market at the expense of the Contractor stores meeting the necessary performance and quality Contracted for in place of those rejected, provided that either the purchase, or the agreement to purchase, from another supplier is made within six months from the date of rejection of the stores as aforesaid.

17. As a Government of India Department, this office is exempted from payment of Octroi and similar local levies. Tenderers shall ensure that necessary Exemption Certificates are obtained by them from the Purchase Officer concerned to avoid any payment of such levies.

18. **DESPATCH:** The Contractor is responsible for obtaining a clear receipt from the Transport Authorities specifying the goods despatched. The consignment should be despatched with clear Railway Receipt/Lorry Receipt. If sent in any other mode, it shall be at the risk of the Contractor. Purchaser will take no responsibility for short deliveries or wrong supply of goods when the same are booked on 'said to contain' basis. Purchaser shall pay for only such stores as are actually received by them in accordance with the Contract.

19. GUARANTEE & REPLACEMENT:

(a) The Contractor shall guarantee that the stores supplied shall comply fully with the specifications laid down, for material, workmanship and performance.

(b) For a period of twelve months after the acceptance of the stores, if any defects are discovered therein or any defects therein found to have developed under proper use, arising from faulty stores design or workmanship, the Contractor shall remedy such defects at his own cost provided he is called upon to do so within a period of 14 months from the date of acceptance thereof by the purchaser who shall state in writing in what respect the stores or any part thereof are faulty.

(c) If, in the opinion of the purchaser, it becomes necessary to replace or renew any defective stores such replacement or renewal shall be made by the Contractor free of all costs to the purchaser, provided the notice informing the Contractor of the defect is given by the purchaser in this regard within the said period of 14 months from the date of acceptance thereof.

(d) Should the Contractor fail to rectify the defects, the purchaser shall have the right to reject or repair or replace at the cost of the Contractor the whole or any portion of the defective stores.

(e) The decision of the Purchaser notwithstanding any prior approval or acceptance or inspection thereof on behalf of the Purchaser, as to whether or not the Stores supplied by the Contractor are defective or any defect has developed within the said period of 12 months or any other period or as to whether the nature of defects requires renewal or replacement, shall be final, conclusive and binding on the Contractor.

(f) To fulfill guarantee conditions outlined in (a) to (e) above, the Contractor shall, at the option of the Purchaser, furnish a Bank Guarantee (as prescribed by the Purchaser)

20. **PACKING FORWARDING & INSURANCE:** 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 of the Contractor. The purchaser will not pay separately for transit insurance, all risks in transit being exclusively of the Contractor and the Purchaser shall pay only for such stores as are actually received in good condition in accordance with the Contract.

21. **PRICES:** Tender offering firm prices will be preferred. Where a price variation clause is insisted upon by a tenderer, quotation with a reasonable ceiling should be submitted. Such offers should invariably be supported by the base price taken into account at the time of tendering and also the formula for any such variation/s.

22. a) Your offer should be valid for 90 days from the date of opening of the tender.
- b) 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 sets of units must be furnished.
23. d) The term 'Purchase Order' shall mean the communication signed on behalf of the Purchaser by an Officer duly authorised intimating the acceptance on behalf of the Purchaser on the terms and conditions mentioned or referred to in the said communication accepting the tender or offer of the Contractor for supply of stores or plant, machinery or equipment or part thereof.
8. Wherever Security Deposit (SD) & Performance Bank Guarantee (PBG) are mentioned in the tender. It should of 3% of the total order value instead of 10% mentioned therein. This is as per Latest Govt. of India Guidelines.

C. Bid Templates

C.1 Technical Bid - Glass sealing furnace

1. Integrated Fully Automatic Electrically Heated Muffle Furnace

Document : Technical specification with terms and conditions

Common Specifications (Applicable for all items)

SI No	Specification	Value	Compliance	Offered Specification	Remark
1	Scope of work	Design, fabrication, supply, installation and commissioning of a custom built, compact, ergonomically designed an integrated fully auto mode electrically heated muffle furnace to carry out glass-to-metal sealing operation.	Yes / No / Explain		
2	Functional requirement	The proposed furnace is meant for glass-to-metal sealing operation. The components to be sealed are loaded in a graphite crucible, which in turn is kept inside the muffle unit. The muffle has a leak tight door having O-ring seal. Provision for cooling water circulation is provided around the O-ring to prevent overheating. Pre-heated furnace is then moved over the stationary muffle and kept for definite time to effect heat transfer to the specimens ensuring the sealing process. During the sealing operation, inert atmosphere is maintained inside the muffle circulating with high pure nitrogen at a controlled flow rate.	Yes / No / Explain		

3	Furnace : Type	Fully automatic electrically heated muffle furnace	Yes / No / Explain		
4	Furnace:Shape and size	Rectangular cuboid. Heating zone size to suit the muffle unit, overall dimensions of the muffle are given in Annexure-1.2	Yes / No / Explain		
5	Furnace:Power supply	3 phase 50 Hz , 415V +/- 15%	Yes / No / Explain		
6	Furnace temperature (max.)	1200 oC	Yes / No / Explain		
7	Furnace:Operating temperature (max.)	1100 oC	Yes / No / Explain		
8	Furnace:Heating element	<p>Kanthal A1 grade/APM, preferably low voltage heater.</p> <p>The heating elements shall be fixed suitably to obtain uniform temperature over the entire hot zone. Supports for heating element shall be made of high strength, shock resistant, high purity ceramic material for insulation and to prevent sagging or short-circuiting between the rows of elements. It must have long service life and high heating efficiency. The mounting is such that replacement of the elements could be carried out easily. Heating zone shall be arranged in such a way that the gap between the working zone and front & rear side is 300 mm (min) and the working assembly can be placed these zone. Party also shall give the furnace chamber cross section schematic.</p>	Yes / No / Explain		
9	Furnace:Rate of heating	10 oC to 100 oC per minute, user programmable	Yes / No / Explain		

10	Furnace:Temperature control accuracy	+/- 1 oC	Yes / No / Explain		
11	Furnace:Temperature uniformity	+/- 5 oC or better	Yes / No / Explain		
12	Furnace:Temperature control	PID Controller based Temperature Control (Eurotherm/Yokogawa) with thyristor controlled heating (Eurotherm), with provision for manual override. Interface to PLC based automation controller with SCADA console.	Yes / No / Explain		
13	Furnace:Thermocouple	<p>R type (sheathed & 20 SWG). Quantity and location as specified below:</p> <p>PID Controller (with redundant ones) : 2 nos. Over temperature control : 1 No. Furnace temp. monitoring (2 locations) 2 Nos. Additional thermocouple ports (minimum 3) shall be provided in the furnace for calibration purpose. K-type (Sheathed type) Job temperature monitoring inside muffle : 3 Nos. Proper routing shall be provided with easy assembly/disassembly.</p> <p>The R-type & K-Type thermocouples shall be reputed brands. Party shall mention the brand name. Calibration certificate shall be provided.</p>	Yes / No / Explain		

14	Furnace:Insulation	<p>Advanced, multi layer insulation system (environmental friendly) to maintain skin temperature below 40 oC.</p> <p>In addition, suitable long standing thermal coating shall be provided in the inner face of outer shell of the furnace for maintaining skin temperature below 40 oC. (manufacture specified)</p>	Yes / No / Explain		
15	Furnace:Outer shell	<p>Outer casing shall be made of heavy gauge best quality galvanized steel sheet, suitably reinforced. Additional reinforcement/extra heavy gauge steel shall be provided in the muffle tube entry side to prevent bending due to exposure of high temperature while opening of the furnace door. Entire outer shell (exterior) shall be powder coated or heat resistant aluminium painted.</p>	Yes / No / Explain		

16	Furnace mounting and movement	<p>The base of the furnace shall be provided with wheels that roll on suitable sturdy stand, ensuring its free forward and backward movement (Refer Annexure-1.1). The movement system shall have the following features:</p> <p>Automatic motorized lead screw type mechanism with programmable speed control. Higher speed during the forward movement of the furnace to bring it closer to the muffle (to reduce heat loss with the furnace door kept open), which slows down as it approaches the muffle flange and seals. This is to avoid slamming of the furnace against the muffle flange. Programmable sequencing of this movement with the glass sealing cycle must be possible. Also, provision for manual movement (opening and closing) of the furnace shall be provided.</p>	Yes / No / Explain		
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17	Furnace Door	<p>Insulated furnace door incorporating suitable mechanism for automatic opening/closing, to ensure minimum heat loss from the furnace during the admit of the muffle into the furnace. Prior to movement of the furnace towards the muffle, the door shall be quickly moved to the fully retracted condition.</p> <p>Programmatic sequencing of this movement with the glass sealing cycle must be possible. The system must have safety interlocks. Provision shall be there for the manual movement of the furnace door as well.</p>	Yes / No / Explain		
18	Furnace:External pendant	For furnace and door movements, a compact external pendant with suitable controls (including provision for inching) shall be supplied, for operating these movements standing near to the furnace.	Yes / No / Explain		
19	Muffle Unit :Construction details	<p>Muffle primarily comprises of muffle tube, flange, muffle door, water cooling system, vacuum suction port (KF25), support structure and inert gas flow system. The support structure shall be rugged, heavy duty and lasting. Overall dimensions of the muffle unit are fixed and are given in Annexure-1.2. These basic dimensions shall be strictly adhered to.</p>	Yes / No / Explain		

20	Muffle Unit : Muffle tube	<p>Material: INCONNEL-600</p> <p>Dimensions:</p> <p>Internal diameter : 160 mm</p> <p>Wall thickness : 10 mm (min.)</p> <p>Furnace engaging length : 700 mm</p> <p>Muffle shall be made with two options:</p> <p>1. Seamless tube (wall thick 10 mm). Tube shall be welded with end dome.</p> <p>2. Bending 10 mm plate to hollow cylinder and the same shall be welded with end dome</p> <p>In price bid the prices for both options shall mention separately.</p>	Yes / No / Explain		
21	Muffle Unit : Muffle door	<p>Muffle door with sturdy and convenient opening/closing mechanism (manual) with safety interlock. Air tight closing of the door by flange joint incorporating O-ring seal (viton).</p> <p>Continuous water circulation through a jacket around the O-ring to prevent overheating. Indication on control console to ensure uninterrupted water circulation.</p> <p>Safety features shall be provided.</p> <p>A suitable chiller unit (Refer 2.6) shall be provided for above system. The system shall be a standalone unit and power shall be integrated with furnace.</p> <p>Provision for fixing of thermocouples (3 nos.) for job temperature monitoring and recording inside the muffle.</p>	Yes / No / Explain		

22	Muffle Unit Inert gas flow system	<p>Provision for continuous flowing of high pure nitrogen gas through the muffle to maintain inert atmosphere during sealing operation. An Inconel gas tube (ID 8mm, Length 700 mm) shall be provided.</p> <p>A panel board with proper thermal protection for housing the flow line and flow controller unit.</p> <p>The system shall include in-line digital mass flow controller at the inlet. The plumb lines shall be made with graded SS 316 L.</p> <p>A digital pressure gauge (working range 0-12 bar) shall be supplied with system.</p> <p>Sketch is provided in Annexure-1-5.</p> <p>Programmable control, monitoring and recording for the inert gas system shall be provided. All gas flow controllers and pressure gauges used in the gas flow line shall have interface to SCADA system</p> <p>The in-line digital mass flow controller (ALICAT make) to broadly confirm to the following specifications:</p> <p>Fluid: Gaseous N2 (99.999%)</p> <p>Flow rate : 0-200 SLPM</p> <p>Media pressure at the inlet of pressure controller: 10 bar (max)</p> <p>Flow controller must work at low and high range.</p>	Yes / No / Explain		
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23	Graphite Crucible	<p>A tray of graphite with curved base matching muffle profile/radius and top level machined as per drawing given in Annexure-1.3.</p> <p>Graphite specification (equivalent LM grade)</p> <p>Density : Greater than 1.7 gm/cc.</p> <p>Compressive strength : Greater than 80 MPa</p> <p>Material data sheet shall be provided.</p>	Yes / No / Explain		
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24	Water Chiller Unit	<p>Custom designed suitable for cooling chamber door 'o' ring during heating the muffle to a maximum of 1050 deg. C. The chiller unit shall be worked as standalone and shall be integrated with furnace systems. Necessary safety features shall be provided. The specification of chiller unit:</p> <ol style="list-style-type: none"> 1. System : CFC Free, Air cooled industrial process chiller 2. Media to be cooled : Water 3. Liquid quantity: 25 litres 4. Flow rate : 15 LPM @ 4 Bar (minimum). Bypass option shall be provided. 5. Inlet temperature to chiller: 28 oC to 35 oC 6. Outlet temperature from chiller : 15 oC to 20 oC 7. Refrigeration load : 1 TR (3,000 Kcal/hr) 8. Condenser type : Air cooled 9. Refrigerant : R-134a/407c -Eco friendly, CFC free 10. Control : Fully automatic 11. Temperature controller : Dixell/Sub-Zero or better 12. End connection: 1" BSP. 13. Safety interlocks <ol style="list-style-type: none"> 13.1). L.P.switch 13.2 H.P.switch 13.3). Digital temperature control 13.4 . Compressor and pump over load Trip 13.5). Water level low trip 14 Compressor Make : Danfoss or equivalent brand <p>Power supply : 400 / 3 / 50 hz Protection : IP 54 Design temperature : 45 oC ambient</p>	Yes / No / Explain		
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		<p>Noise level : Less than 75 db at 1.0 m distance</p> <p>Condenser fan control: Automatic</p> <p>Condenser fan type : Axial, vertical flow</p> <p>15. Real time monitoring of temperature shall be provided</p> <p>16. 25 meter braded hoses shall be supplied with necessary hose clips etc.</p>			
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25	Control & data acquisition system: Control System	<p>The control system shall enable three modes of operation of the Furnace ; Full auto mode, Semi auto mode & Manual mode. In full auto mode, the system shall function without any operator intervention, once the process start button is initiated. The system shall function as per the program loaded in the system. It shall take care of all safety requirements for the operation personnel as well as for the system. In semi auto mode, there shall be provision to modify the programmable parameters during operation. This will be used for the characterising of parameters for full auto mode operation and also to be used during the maintenance mode. The system shall take care of all safety requirements for the operation personnel as well as for the system. In manual mode, all the operations will be done using push buttons and manual parameter entering. Additionally, a selectable bypass contactor shall be provided for bypassing the thyristor controller, to operate using the over temperature controller for completing the current cycle of operation. This would enable operation of the furnace in the event of thyristor controller/PID controller failure as well. Essential and critical safety systems must be in place during manual mode</p>	Yes / No / Explain		
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		operation as well.			
26	Control & data acquisition system: Control panel	Stand alone, remotely located comprehensive control panel housing all control components, indicators, switches, meters, etc. with air-conditioned cabinet. Cable length of minimum 12 m shall be provided between furnace and the remote control panel. In the semi-automatic or manual mode, these controllers shall be settable from the panel. Independent movement of the furnace and the furnace door must be possible from the panel. At a time, either operation from the panel or that using the pendant only shall be active to ensure safety of the operating personnel.	Yes / No / Explain		

27	Control & data acquisition system: Control and monitoring	<p>The temperature/power of the furnace shall be measured and controlled by a thyrister controller of Eurotherm make. PID temperature controller shall be used for controlling the temperature profile of the furnace (Make: Eurotherm/ Yokogawa) .</p> <p>In the Full and Semi auto mode, the operation shall be through PLC based automation controller with SCADA console. (Make: Siemens/Alan Bradly)</p> <p>SCADA to include recipe based programming for selecting and setting the furnace temperature range, profile (heating and cooling rates, dwell and holding time, etc), inert gas flow, programmatic sequencing of furnace door opening, furnace movement towards muffle, forward and reverse speed for the furnace movement, etc. Provision for real-time monitoring and recording of process parameters like furnace and muffle temperatures, inert gas flow, furnace movement, etc. (A typical sealing cycle with associated events is shown in Annexure-1.4)</p> <p>In case of the primary control thermocouple failure during operation, provision shall be available for selecting the redundant control thermocouple. Over temperature protection device shall be incorporated</p>	Yes / No / Explain		
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		(Make: Eurotherm/Yokogawa) . Also, provision shall be there for detecting the failure of thermocouples. A chartless recorder (24 channels minimum, expandable) for recording of process parameters.			
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28	Control & data acquisition system: Supervisory control and data acquisition (SCADA)	<p>An Industrial PC based (latest i7 or higher end processor, 1 TB HDD, 16 GB RAM, 23 inch LED touch screen color monitor and colour laser printer) control and data acquisition system with suitable user friendly software (Customized as per VSSC requirement). The operating system shall be windows 10 (or latest version)..End-to-end programming of the sealing cycle (temperature range, heating and cooling rates, holding time, inert gas flow, furnace movement, etc) and real time monitoring, display and recording of process parameters (temperatures of the furnace, muffle and over temperature controller, inert gas flow rate, furnace movement, etc) shall be possible from the PC. An additional I/O feed ports (6 Nos.) shall be provided in the system for adding future requirements. There shall be an alarm level and trip level for all major and critical parameters. Any deviation in parameters shall be indicated with an audio alarm when the alarm level is crossed, and the system should trip when the parameter exceeds the trip level. Programme shall be designed such that the furnace operation shall be done in manual as well as programme mode. On power failure, restart should take place only on command. Previous test data</p>	Yes / No / Explain		
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		<p>shall be stored in hard disk as an archive, which could be retrieved for analysis/report generation. It shall also keep a few earlier set programmes in memory for execution whenever required.</p> <p>On-Line UPS (make : GE/Leibert/APC) of sufficient rating shall be provided for the PC, PLC, gas flow controller, pressure gauge and related control system with 30 minutes backup.</p> <p>Remote diagnosis feature shall be provided in the system.</p> <p>Uploading/downloading of PLC software feature shall be provided.</p> <p>An additional CCTV monitor (HDMI with 28 or higher size) shall be provided at furnace room to monitor the event. This shall have wall mount features with thermal protection case since furnace room expose to high temperature.</p>			
29	Control & data acquisition system: Software	<p>Any software developed for this application will be a property of VSSC. It shall be handed over to VSSC in installable CD media.</p> <p>An image of the System Hard Disk shall be supplied to VSSC to put back the system into operation during a HDD Failure.</p> <p>All Software used in the system along with the required drivers for the additional hardware used in the system shall be given to VSSC along with licence.</p>	Yes / No / Explain		

30	General : Safety features	<p>All statutory safety requirements for the equipment shall be complied.</p> <p>Safety interlocks shall be provided wherever possible (e.g. opening of furnace door and furnace movement, water flow, gas flow etc.)</p> <p>Audio visual alarm warning on fault conditions like interruption in inert gas flow, over-temperature, cooling water circulation etc.</p> <p>Emergency push stop button.</p> <p>Audio indication during furnace movement.</p>	Yes / No / Explain		
31	General : Trouble shooting	<p>Full system real time mimic diagram shall be displayed on the screen so that the fault conditions are visible to the operator. Alarm system for warning the operator of any malfunction/variation in service conditions shall be provided. This shall help in the following:</p> <p>Monitoring of all process parameters while the furnace is in operation</p> <p>Constant monitoring of inert gas flow and cooling water circulation around the muffle door gasket.</p> <p>Facility to monitor all I/O conditions in PLC and facility to force the I/O conditions in the maintenance mode.</p>	Yes / No / Explain		

32	General : Calibration	Third party calibration certificate of the furnace from an approved certifying agency for minimum 4 set points. Also, mention the calibration procedure of the temperature sensors. Mass flow controller, thermocouples and temperature indicators shall be calibrated by NABL accredited agencies. Third party calibration shall be done the time of installation.	Yes / No / Explain		
33	Spares	Graphite crucible (Refer drawing): 5 Nos. Inconel gas tube : 2 Nos. Heating element : 1 set Silicon O'ring for muffle door – 5 Nos. Thermo couple : R-Type – 2 Nos & K-Type : - 12 Nos. Gas Flow controller (ALICAT make branded) with flow rate 1-200 SLPM – 1 unit Gas Flow controller (ALICAT make branded) : with flow rate 1-20 SLPM range – 1 unit.	Yes / No / Explain		
34	Optional Accessories :	1.Standalone Industrial type fan (heavy duty, compact) with safety guards shall be provided for fast cooling of hot muffle. A suitable sturdy stand (easily movable on floor) shall be provided. 2.Muffle unit without muffle door & stand (refer drawing annexure-1-2) 3.Auto Diagnostic for Maintenance	Yes / No / Explain		

35	Terms & conditions : Two part bid	<p>Party shall submit the offer in two parts – technical bid and price bid</p> <p>Technical bid: This shall contain all the design and technical details in conformity with the specification requirements and other features stipulated in Annexure-1.</p> <p>Price bid: This part of the offer shall contain all the price details of the furnace and spares (showing split-ups wherever possible). Price quoted shall include expenditures on packing, forwarding, installation, commissioning and training.</p>	Yes / No / Explain		
36	Terms & conditions : Credentials:	The party shall have proven experience in construction of similar muffle furnace. Also they shall have supplied similar muffle furnace working satisfactorily for reputed Aerospace industries. Credentials to this effect shall be provided along with the quote.	Yes / No / Explain		
37	Terms & conditions : Configuration review:	It shall be arranged within short time of placement of supply order, in which every aspect of the work with proper drawings shall be explained to our engineers. Necessary changes suitable for improvement of the system performance/functional ity within the scope of supply as suggested by VSSC engineers shall be incorporated. Drawings and design must be approved by VSSC engineers before commencing the proposed work.	Yes / No / Explain		

38	Terms & conditions : Input power supply and utilities:	Input Voltage : 3 phase, 415 VAC \pm 15%, 50 Hz Pneumatic connections will be provided at site (7 bar maximum) Foundation requirements must be clearly indicated Any other requirement needed for installing & commissioning the machine must be clearly mention.	Yes / No / Explain		
39	Terms & conditions : Warranty	The entire furnace inclusive of all systems / accessories shall be under comprehensive warranty for two years from the date of commissioning and acceptance against design, material or manufacturing defects. The supplier has to make minimum four free visits as customer support programme during the warranty period. Minor Software modifications if required shall be carried out during the warranty period.	Yes / No / Explain		
40	Terms & conditions : Delivery schedule	The delivery of the equipment shall be completed within 6 months after the approval of design drawings submitted by the party to VSSC. The design drawing s shall be submitted within a month after placement of PO.	Yes / No / Explain		

41	Terms & conditions : AMC:	Annual Maintenance contract is mandatory and party shall be able to provide Annual Maintenance Contract with spare support for the equipment for 5 years after the expiry of warranty period. Also supplier shall guarantee supply of spares, service and extend AMC support for a period of 10 years from the date commissioning and acceptance of the furnace. The offer shall include list of spares/ consumables for the trouble free operation of the furnace.	Yes / No / Explain		
42	Terms & conditions : Pre-dispatch inspection & acceptance:	Performance validation of the muffle furnace shall be carried out in the presence of VSSC representatives at the OEM's. The furnace has to be fully assembled and erected for this purpose. It shall meet all technical specification mentioned in the Technical description, Sl.No 1 to 4 of Annexure-1. The demonstration of the muffle furnace (Job prove out) shall be carried out. Dispatch clearance shall be provided by VSSC representatives based on satisfactory pre-dispatch inspection and testing at OEM site.	Yes / No / Explain		
43	Terms & conditions : Packing:	The supplier shall provide faultless seaworthy packing of the goods as is required to prevent their damage or deterioration during transit to their final destination.	Yes / No / Explain		

44	Terms & conditions : Installation and commissioning at VSSC site & final acceptance	<p>The supplier has to perform installation, testing & commissioning at VSSC site. The supplier shall inform logistic requirements at site required for installation of the equipment well in advance. The furnace shall be inspected at VSSC for the following:</p> <ol style="list-style-type: none"> 1. Furnace operation with various parameters 2. Trial sealing 3. Demonstration of the furnace capability 4. Software features. 5. Operational maintenance training. <p>The acceptance of the furnace shall be based on the satisfactory completion of installation, job prove out and third party calibration. An extensive training on operation of furnace with various sealing parameters, software features, troubleshooting and basic maintenance of the furnace shall be provided</p>	Yes / No / Explain		
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45	Terms & conditions : Documentation:	Two sets of the following documents shall be supplied along with the furnace: Operator manual Circuit diagram of the PCBs Electrical wiring diagram Design calculation of furnace heating load including thermal analysis data. Spare parts list Preventive maintenance check list, trouble shooting charts and guidelines Documents of all bought out items Technical literature/catalogue (in English) illustrating the operation and maintenance of the furnace & accessories. Metric system of measurement shall be used in the system documentation, specifications drawings, manuals etc.	Yes / No / Explain		
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Supporting Documents required from Vendor

1. Data sheet and catalogue relevant to the proposed furnace
2. Credential of party. and documents related to similar items supplied
3. Local Content Declaration
4. Your Quotation in PDF format WITH PRICE MASKED
5. Any other documents

5 additional documents can be uploaded by the vendor

C.2 Commercial Terms / Bid

Sl. No.	Description	Compliance	Vendor Terms
1	Pre-delivery inspection at party site by VSSC engineers before dispatch. Full payment after successful installation and commissioning at VSSC.	Yes / No / Explain	
2	The Class-I & II local supplier should provide a Self Certification along with your offer in PDF format indicating that the item offered meets the minimum local content as called for in the tender as mentioned above and provide the % of local content along with details of the location(s) at which the local value addition is made. In case of two part tenders, it is mandatory to indicate compliance to MLC(minimum local content) in technical bid itself. Confirm attachment of Self declaration along with the offer.	Yes / No / Explain	
3	PO Ordering Address with Name and Contact Details of Sales Person concerned (e-mail and phone number).	Yes / No / Explain	
4	Any Other Terms	Yes / No / Explain	
5	Taxes and other costs, if any . [Note: VSSC is a Public Funded Research Institution under the administrative control of Department of Space and is eligible for partial exemption of IGST @5% vide Notfn No. 45/2017, 47/2017 dt 14.11.2017 respectively. Necessary IGST EXEMPTION CERTIFICATE shall be issued.]	Yes / No / Explain	
6	Security Deposit (Applicable if Offer Value is Rs. 5 Lakhs or above. MSME/NSIC Units are NOT EXEMPTED from the payment of SD. Bank Guarantee @ 3% of Order Value valid till 60 days from the date of supply to be submitted. Mandatory compliance required. Only Government Bodies/PSUs/PSEs can submit Indentity Bond in lieu of BG. In the event of non-performance of contractual obligations, SD will be forfeited).	Yes / No / Explain	
7	Delivery Terms.	Yes / No / Explain	

8	Delivery Period	Yes / No / Explain	
9	Liquidated Damages (Applicable beyond the delivery period mentioned in this tender @ 0.5% per week or part thereof on the undelivered portion subject to a maximum of 10% of the contract value. Mandatory compliance required).	Yes / No / Explain	
10	Warranty	Yes / No / Explain	
11	Performance Bank Guarantee (PBG) Bank Guarantee @ 3% of Order Value valid till the completion of warranty period plus 2 months claim period to be submitted. Mandatory compliance required. Only Government Bodies/PSUs/PSEs can submit Indemnity Bond in lieu of BG. In the event of non-performance of warranty obligations, PBG will be forfeited).	Yes / No / Explain	
12	Payment Term: (Our Default payment term: For indigenous orders: 100% within 30 days after receipt and acceptance of item at our site. NOTE: CONSEQUENT TO COVID 19 PANDEMIC AND AS PER EXISTANT GUIDELINES FROM DEPARTMENT OF SPACE, NO ADVANCE PAYMENT IS PAYABLE TO THIS TENDER).	Yes / No / Explain	
13	Definitions: A supplier or service provider, whose goods, services or works offered for procurement, has local content: a) Equal to or more than 50% : Class-I local supplier. b) More than 20% but less than 50% : Class-II local supplier. c) Less than or equal to 20% : Non-local supplier. Mention your category.	Yes / No / Explain	
14	Local content means the amount of value added in India (i.e. indigenous items/services added in the offered products/services/works) be the total value of the item offered (excluding net domestic indirect taxes) minus the value of imported content in the item (including all customs duties/IGST) as a proportion of the total value (excluding net domestic indirect taxes), in percent. Indicate extent of Minimum Local Content in offered product/service and location of such value additions.	Yes / No / Explain	

15	Country of Origin of the offered product	Yes / No / Explain	
16	Foreign vendors are not permitted to quote. Only Class-I and Class-II Local suppliers as per Make in India Policy are eligible to participate in the bid. Please Note & Confirm.	Yes / No / Explain	

C.3 Price Bid

Sl. No.	Item	Quantity	Unit Price	Currency	Total Price	Remark
1	Integrated Fully Automatic Electrically Heated Muffle Furnace	1.00 Nos.		-		

Common charges (Applicable for all items)

P&F Charges	
Freight charge	
Installation Charges	
Documentation & Handling charges	
Other Charges (If any)	

Technical specification for Custom built auto mode electrically heated muffle furnace**1. Scope of work**

Design, fabrication, supply, installation and commissioning of a custom built, compact, ergonomically designed an integrated fully auto mode electrically heated muffle furnace to carry out glass-to-metal sealing operation.

2. Functional requirement

The proposed furnace is meant for glass-to-metal sealing operation. The components to be sealed are loaded in a graphite crucible, which in turn is kept inside the muffle unit. The muffle has a leak tight door having O-ring seal. Provision for cooling water circulation is provided around the O-ring to prevent overheating. Pre-heated furnace is then moved over the stationary muffle and kept for definite time to effect heat transfer to the specimens ensuring the sealing process. During the sealing operation, inert atmosphere is maintained inside the muffle circulating with high pure nitrogen at a controlled flow rate.

3. General layout of the furnace

The envisaged general layout of the furnace and accessories are shown Annexure-1.1

4. Details of Specifications:

Sl. No.	Parameter	Specification
1	FURNACE	
1.1	Type	Fully automatic electrically heated muffle furnace.
1.2	Shape and size	Rectangular cuboid. Heating zone size to suit the muffle unit, overall dimensions of the muffle are given in Annexure-1.2
1.3	Power supply	3 phase 50 Hz , 415V \pm 15%
1.4	Furnace temperature (max.)	1200 °C
1.5	Operating temperature (max.)	1100 °C
1.6	Heating element	<p>Kanthal A1 grade/APM, preferably low voltage heater.</p> <p>The heating elements shall be fixed suitably to obtain uniform temperature over the entire hot zone. Supports for heating element shall be made of high strength, shock resistant, high purity ceramic material for insulation and to prevent sagging or short-circuiting between the rows of elements. It must have long service life and high heating efficiency. The mounting is such that replacement of the elements could be carried out easily.</p> <p>Heating zone shall be arranged in such a way that the gap between the working zone and front & rear side is 300 mm (min) and the working assembly can be placed these zone.</p> <p>Party also shall give the furnace chamber cross section schematic.</p>
1.7	Rate of heating	10 °C to 100 °C per minute, user programmable
1.8	Temperature control accuracy	\pm 1°C

1.9	Temperature uniformity	$\pm 5^{\circ}\text{C}$ or better
1.10	Temperature control	PID Controller based Temperature Control (Eurotherm/Yokogawa) with thyristor controlled heating (Eurotherm), with provision for manual override. Interface to PLC based automation controller with SCADA console.
1.11	Thermo-couple	<p>R type (sheathed & 20 SWG). Quantity and location as specified below:</p> <ul style="list-style-type: none"> ▪ PID Controller (with redundant ones) : 2 nos. ▪ Over temperature control : 1 No. ▪ Furnace temp. monitoring (2 locations) : 2 Nos. <p>Additional thermo-couple ports (minimum 3) shall be provided in the furnace for calibration purpose. K-type (Sheathed type)</p> <ul style="list-style-type: none"> ▪ Job temperature monitoring inside muffle : 3 Nos. <p>Proper routing shall be provided with easy assembly/disassembly. The R-type & K-Type thermocouples shall be reputed brands. Party shall mention the brand name. Calibration certificate shall be provided.</p>
1.12	Insulation	<p>Advanced, multi layer insulation system (environmental friendly) to maintain skin temperature below 40°C.</p> <p>In addition, suitable long standing thermal coating shall be provided in the inner face of outer shell of the furnace for maintaining skin temperature below 40°C. (manufacture specified)</p>
1.13	Outer shell	<ul style="list-style-type: none"> ▪ Outer casing shall be made of heavy gauge best quality galvanized steel sheet, suitably reinforced. Additional reinforcement/extra heavy gauge steel shall be provided in the muffle tube entry side to prevent bending due to exposure of high temperature while opening of the furnace door. Entire outer shell (exterior) shall be powder coated or heat resistant aluminium painted.
1.14	Furnace mounting and movement	<p>The base of the furnace shall be provided with wheels that roll on suitable sturdy stand, ensuring its free forward and backward movement (Refer Annexure-1.1). The movement system shall have the following features:</p> <ul style="list-style-type: none"> ▪ Automatic motorized lead screw type mechanism with programmable speed control. Higher speed during the forward movement of the furnace to bring it closer to the muffle (to reduce heat loss with the furnace door kept open), which slows down as it approaches the muffle flange and seals. This is to avoid slamming of the furnace against the muffle flange. Programmable sequencing of this movement with the glass sealing cycle must be possible. ▪ Also, provision for manual movement (opening and closing) of the furnace shall be provided.
1.15	Furnace door	<ul style="list-style-type: none"> ▪ Insulated furnace door incorporating suitable mechanism for automatic opening/closing, to ensure minimum heat loss from the furnace during the admit of the muffle into the

		<p>furnace. Prior to movement of the furnace towards the muffle, the door shall be quickly moved to the fully retracted condition. Programmatic sequencing of this movement with the glass sealing cycle must be possible. The system must have safety interlocks.</p> <ul style="list-style-type: none"> Provision shall be there for the manual movement of the furnace door as well.
1.16	External pendant	For furnace and door movements, a compact external pendant with suitable controls (including provision for inching) shall be supplied, for operating these movements standing near to the furnace.
2. Muffle Unit		
2.1	Construction details	<ul style="list-style-type: none"> Muffle primarily comprises of muffle tube, flange, muffle door, water cooling system, vacuum suction port (KF25), support structure and inert gas flow system. The support structure shall be rugged, heavy duty and lasting. Overall dimensions of the muffle unit are fixed and are given in Annexure-1.2. These basic dimensions shall be strictly adhered to.
2.2	Muffle tube	<ul style="list-style-type: none"> Material: INCONEL- 600 Dimensions: <ul style="list-style-type: none"> Internal diameter : 160 mm Wall thickness : 10 mm (min.) Furnace engaging length : 700 mm <p>Muffle shall be made with two options:</p> <ol style="list-style-type: none"> Seamless tube (wall thick 10 mm). Tube shall be welded with end dome. Bending 10 mm plate to hollow cylinder and the same shall be welded with end dome <p>In price bid the prices for both options shall mention separately.</p>
2.3	Muffle door	<ul style="list-style-type: none"> Muffle door with sturdy and convenient opening/closing mechanism (manual) with safety interlock. Air tight closing of the door by flange joint incorporating O-ring seal (viton). Continuous water circulation through a jacket around the O-ring to prevent overheating. Indication on control console to ensure uninterrupted water circulation. Safety features shall be provided. A suitable chiller unit (Refer 2.6) shall be provided for above system. The system shall be a standalone unit and power shall be integrated with furnace. Provision for fixing of thermocouples (3 nos.) for job temperature monitoring and recording inside the muffle.
2.4	Inert gas flow system	<ul style="list-style-type: none"> Provision for continuous flowing of high pure nitrogen gas through the muffle to maintain inert atmosphere during sealing operation. An Inconel gas tube (ID 8mm, Length 700 mm) shall be provided. A panel board with proper thermal protection for housing the flow line and flow controller unit. The system shall include in-line digital mass flow controller at the inlet. The plumb lines shall be made with graded SS 316 L. A digital pressure gauge (working range 0-12 bar)

		<p>shall be supplied with system. Sketch is provided in Annexure-1-5.</p> <ul style="list-style-type: none"> ▪ Programmable control, monitoring and recording for the inert gas system shall be provided. All gas flow controllers and pressure gauges used in the gas flow line shall have interface to SCADA system ▪ The in-line digital mass flow controller (ALICAT make) to broadly confirm to the following specifications: <ul style="list-style-type: none"> - Fluid: Gaseous N₂ (99.999%) - Flow rate : 0-200 SLPM - Media pressure at the inlet of pressure controller: 10 bar (max) - Flow controller must work at low and high range.
2.5	Graphite Crucible	<p>A tray of graphite with curved base matching muffle profile/radius and top level machined as per drawing given in Annexure-1.3.</p> <p>Graphite specification (equivalent LM grade)</p> <p>Density : Greater than 1.7 gm/cc.</p> <p>Compressive strength : Greater than 80 MPa</p> <p>Material data sheet shall be provided.</p>

2.6. Water chiller unit : It shall be custom designed suitable for cooling chamber door o'ring during heating the muffle to a maximum of 1050 deg. C. The chiller unit shall be worked as standalone and shall be integrated with furnace systems. Necessary safety features shall be provided.	
1. System	: CFC Free, Air cooled industrial process chiller
2. Media to be cooled	: Water
3. Liquid quantity	: 25 litres
4. Flow rate	: 15 LPM @ 4 Bar (minimum). Bypass option shall be provided.
5. Inlet temperature to chiller	: 28°C to 35°C
6. Outlet temperature from chiller	: 15 °C to 20 °C
7. Refrigeration load	: 1 TR (3,000 Kcal/hr)
8. Condenser type	: Air cooled
9. Refrigerant	: R-134a/407c -Eco friendly, CFC free
10. Control	: Fully automatic
11. Temperature controller	: Dixell/Sub-Zero or better
12. End connection	: 1" BSP.
13. Safety interlocks	
13. 1). L.P.switch	
13.2 H.P.switch	
13.3). Digital temperature control	
13.4 . Compressor and pump over load Trip	
13.5). Water level low trip	
14 Compressor	
Make	: Danfoss or equ brand
Power supply	: 400 / 3 / 50 hz
Protection	: IP 54
Design temperature	: 45 °C ambient
Noise level	: Less than 75 db at 1.0 m distance
Condenser fan control	: Automatic
Condenser fan type	: Axial, vertical flow
15. Real time monitoring of temperature	shall be provided
16. 25 meter braded hoses	shall be supplied with necessary hose clips etc.

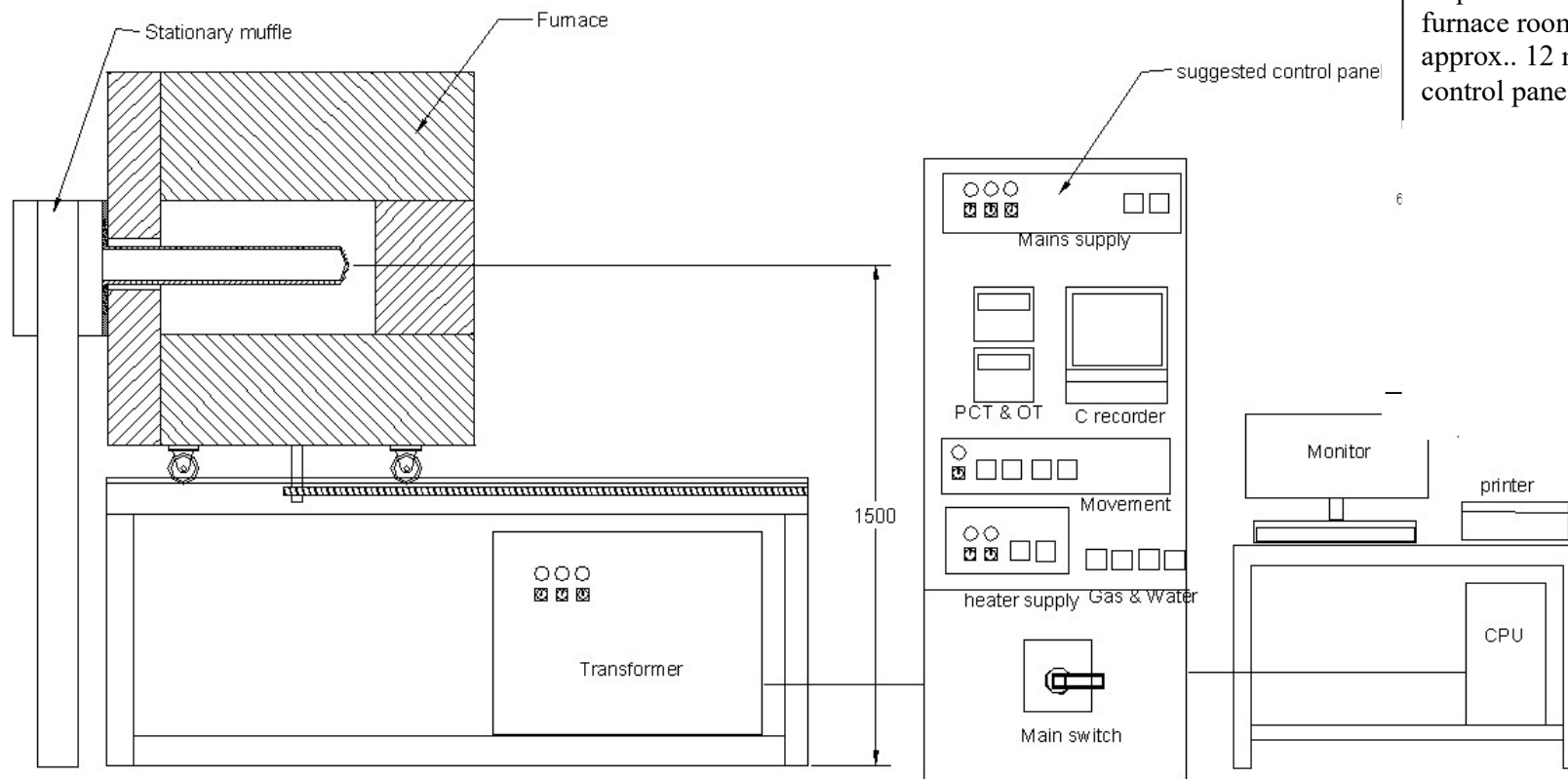
3 Control and data acquisition system.		
3.1	Control System	<ul style="list-style-type: none"> ▪ The control system shall enable three modes of operation of the Furnace <ul style="list-style-type: none"> - Full auto mode - Semi auto mode - Manual mode <p>In full auto mode, the system shall function without any operator intervention, once the process start button is initiated. The system shall function as per the program loaded in the system. It shall take care of all safety requirements for the operation personnel as well as for the system.</p> <p>In semi auto mode, there shall be provision to modify the programmable parameters during operation. This will be used for the characterising of parameters for full auto mode operation and also to be used during the maintenance mode. The system shall take care of all safety requirements for the operation personnel as well as for the system.</p> <p>In manual mode, all the operations will be done using push buttons and manual parameter entering. Additionally, a selectable bypass contactor shall be provided for bypassing the thyristor controller, to operate using the over temperature controller for completing the current cycle of operation. This would enable operation of the furnace in the event of thyristor controller/PID controller failure as well.</p> <p>Essential and critical safety systems must be in place during manual mode operation as well.</p>
3.2	Control panel	<ul style="list-style-type: none"> ▪ Standalone, remotely located comprehensive control panel housing all control components, indicators, switches, meters, etc. with air-conditioned cabinet. Cable length of minimum 12 m shall be provided between furnace and the remote control panel. In the semi-automatic or manual mode, these controllers shall be settable from the panel. ▪ Independent movement of the furnace and the furnace door must be possible from the panel. At a time, either operation from the panel or that using the pendant only shall be active to ensure safety of the operating personnel.
3.3	Control and monitoring	<ul style="list-style-type: none"> ▪ The temperature/power of the furnace shall be measured and controlled by a thyristor controller of Eurotherm make. ▪ PID temperature controller shall be used for controlling the temperature profile of the furnace (Make: Eurotherm/ Yokogawa) . ▪ In the Full and Semi auto mode, the operation shall be through PLC based automation controller with SCADA console. (Make: Siemens/Alan Bradley) ▪ SCADA to include recipe based programming for selecting and setting the furnace temperature range, profile (heating and cooling rates, dwell and holding time, etc), inert gas flow, programmatic sequencing of furnace door opening, furnace movement towards muffle, forward and reverse speed for the furnace movement, etc. Provision for real-time monitoring and

		<p>recording of process parameters like furnace and muffle temperatures, inert gas flow, furnace movement, etc. (A typical sealing cycle with associated events is shown in Annexure-1.4)</p> <ul style="list-style-type: none"> ▪ In case of the primary control thermocouple failure during operation, provision shall be available for selecting the redundant control thermocouple. ▪ Over temperature protection device shall be incorporated (Make: Eurotherm/Yokogawa). Also, provision shall be there for detecting the failure of thermocouples. ▪ A chartless recorder (24 channels minimum, expandable) for recording of process parameters.
3.4	Supervisory control and data acquisition (SCADA)	<ul style="list-style-type: none"> ▪ An Industrial PC based (latest i7 or higher end processor, 1 TB HDD, 16 GB RAM, 23 inch LED touch screen color monitor and colour laser printer) control and data acquisition system with suitable user friendly software (Customized as per VSSC requirement). The operating system shall be windows 10 (or latest version)..End-to-end programming of the sealing cycle (temperature range, heating and cooling rates, holding time, inert gas flow, furnace movement, etc) and real time monitoring, display and recording of process parameters (temperatures of the furnace, muffle and over temperature controller, inert gas flow rate, furnace movement, etc) shall be possible from the PC. An additional I/O feed ports (6 Nos.) shall be provided in the system for adding future requirements. ▪ There shall be an alarm level and trip level for all major and critical parameters. Any deviation in parameters shall be indicated with an audio alarm when the alarm level is crossed, and the system should trip when the parameter exceeds the trip level. ▪ Programme shall be designed such that the furnace operation shall be done in manual as well as programme mode. ▪ On power failure, restart should take place only on command. ▪ Previous test data shall be stored in hard disk as an archive, which could be retrieved for analysis/report generation. It shall also keep a few earlier set programmes in memory for execution whenever required. <ul style="list-style-type: none"> • On-Line UPS (make : GE/Leibert/APC) of sufficient rating shall be provided for the PC, PLC, gas flow controller, pressure gauge and related control system with 30 minutes backup. • Remote diagnosis feature shall be provided in the system. • Uploading/downloading of PLC software feature shall be provided. ▪ An additional CCTV monitor (HDMI with 28 or higher size) shall be provided at furnace room to monitor the event. This shall have wall mount features with thermal protection case since furnace room expose to high temperature.

4. General		
4.1	Safety features	<ul style="list-style-type: none"> ▪ All statutory safety requirements for the equipment shall be complied. ▪ Safety interlocks shall be provided wherever possible (e.g. opening of furnace door and furnace movement, water flow, gas flow etc.)

		<ul style="list-style-type: none"> ▪ Audio visual alarm warning on fault conditions like interruption in inert gas flow, over-temperature, cooling water circulation etc. ▪ Emergency push stop button. ▪ Audio indication during furnace movement.
4.2	Trouble shooting	<p>Full system real time mimic diagram shall be displayed on the screen so that the fault conditions are visible to the operator. Alarm system for warning the operator of any malfunction/variation in service conditions shall be provided. This shall help in the following:</p> <ul style="list-style-type: none"> - Monitoring of all process parameters while the furnace is in operation - Constant monitoring of inert gas flow and cooling water circulation around the muffle door gasket. - Facility to monitor all I/O conditions in PLC and facility to force the I/O conditions in the maintenance mode.
4.3	Calibration	<p>Third party calibration certificate of the furnace from an approved certifying agency for minimum 4 set points. Also, mention the calibration procedure of the temperature sensors. Mass flow controller, thermocouples and temperature indicators shall be calibrated by NABL accredited agencies.</p> <p>Third party calibration shall be done the time of installation.</p>
4.4	Spares	<ul style="list-style-type: none"> - Graphite crucible (refer drawing): 5 Nos. - Inconel gas tube : 2 Nos. - Heating element : 1 set - Silicon O'ring for muffle door – 5 Nos. - Thermo couple : R-Type – 2 Nos. - K-Type : - 12 Nos. - Gas Flow controller (ALICAT make branded) with flow rate 1-200 SLPM – 1 unit - Gas Flow controller (ALICAT make branded) : with flow rate 1-20 SLPM range – 1 unit . -
4.5	Optional Accessories :	<ol style="list-style-type: none"> 1. Standalone Industrial type fan (heavy duty, compact) with safety guards shall be provided for fast cooling of hot muffle. A suitable sturdy stand (easily movable on floor) shall be provided. 2. Muffle unit without muffle door & stand (refer drawing annexure-1-2) 3. Auto Diagnostic for Maintenance
4.6	Software	<ul style="list-style-type: none"> ▪ Any software developed for this application will be a property of VSSC. It shall be handed over to VSSC in installable CD media. ▪ An image of the System Hard Disk shall be supplied to VSSC to put back the system into operation during a HDD Failure. ▪ All Software used in the system along with the required drivers for the additional hardware used in the system shall be given to VSSC along with licence.

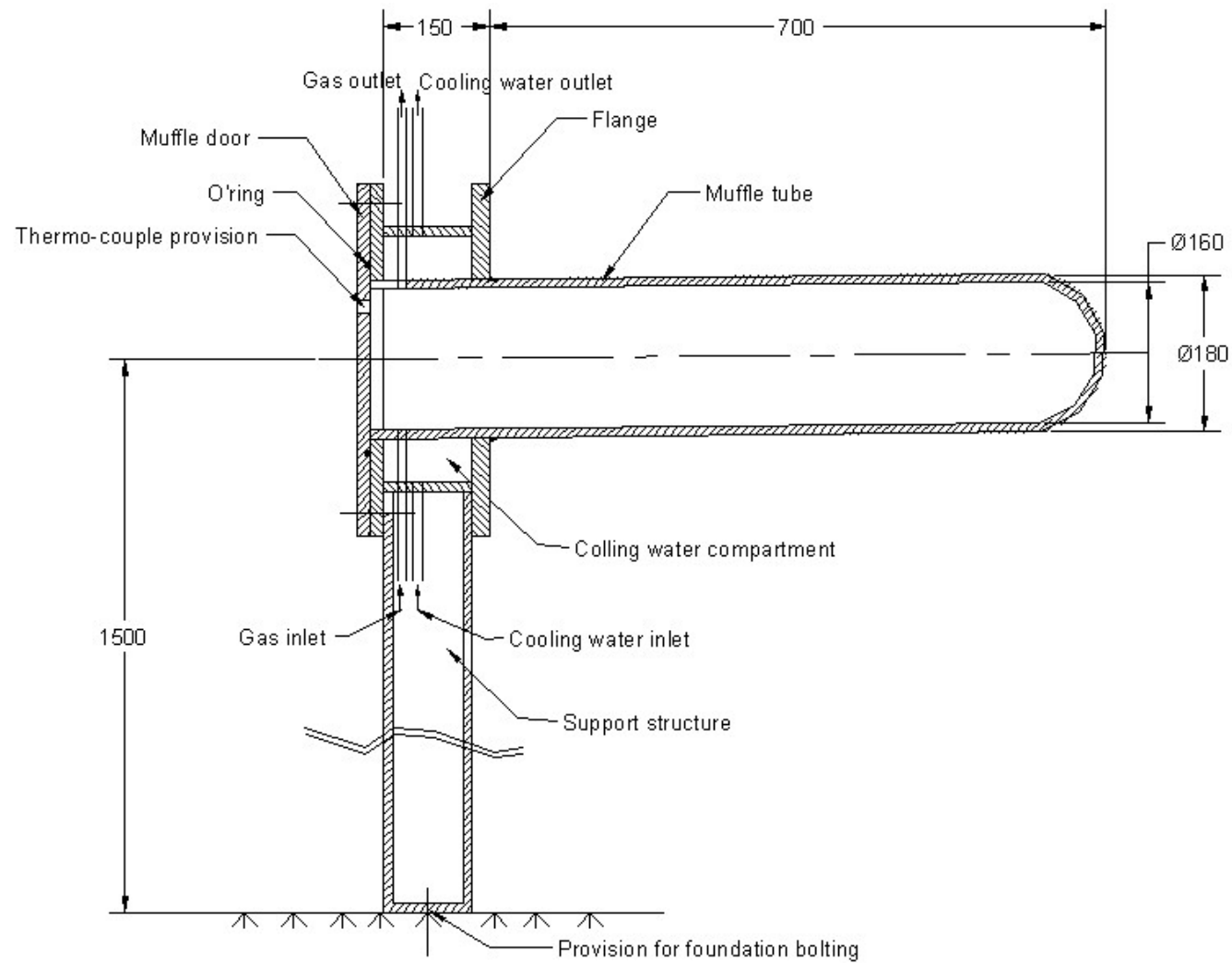
Annuxure-1.1



Layout : Control panel and PC system shall be positioned at control room adjacent to the furnace room. Sufficient cable length (approx.. 12 meters shall be provided from control panel to the furnace

Dimensions in mm

Muffle furnace : Typical layout

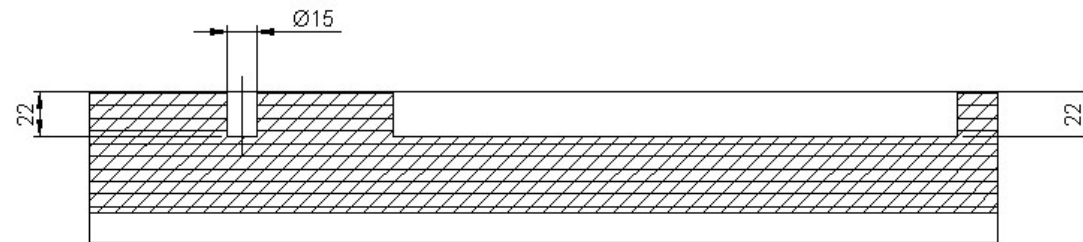
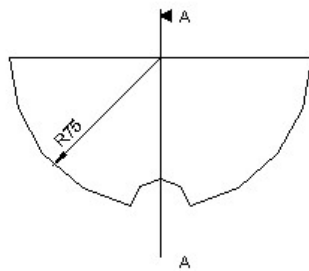
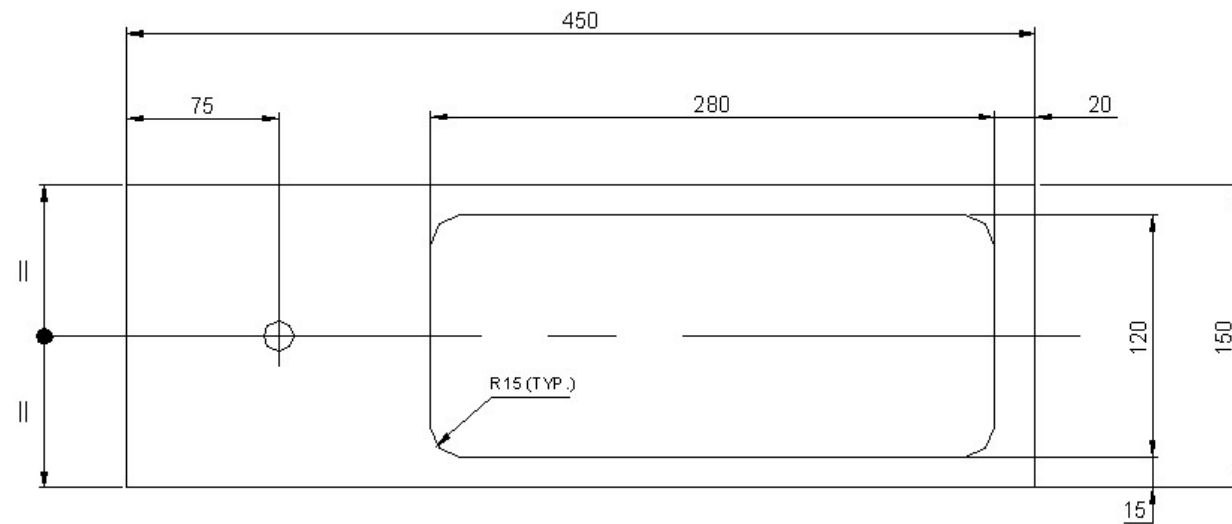


Annuxure-1.2

Stationary muffle

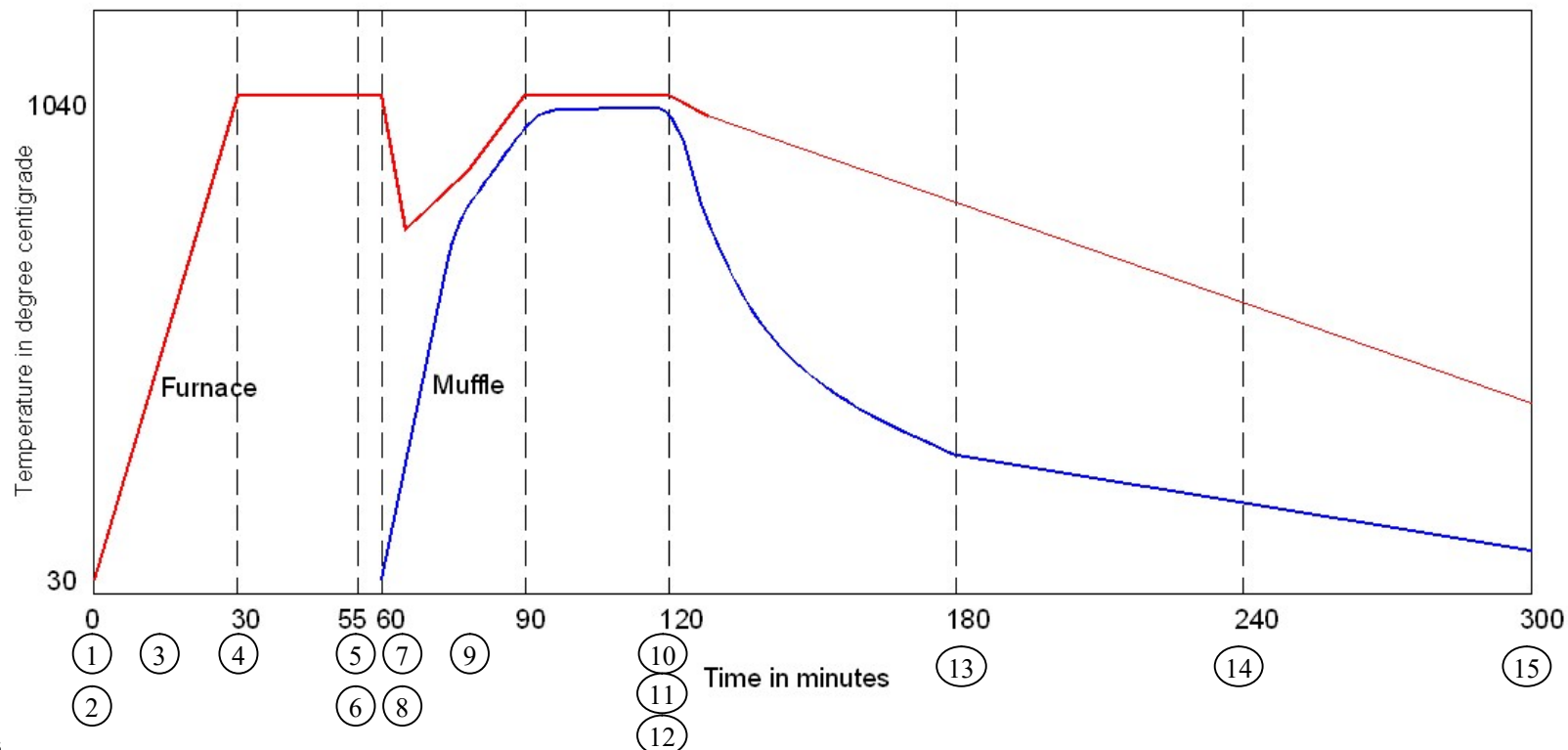
Dimensions in mm

Annuxure-1.3



Graphite crucible

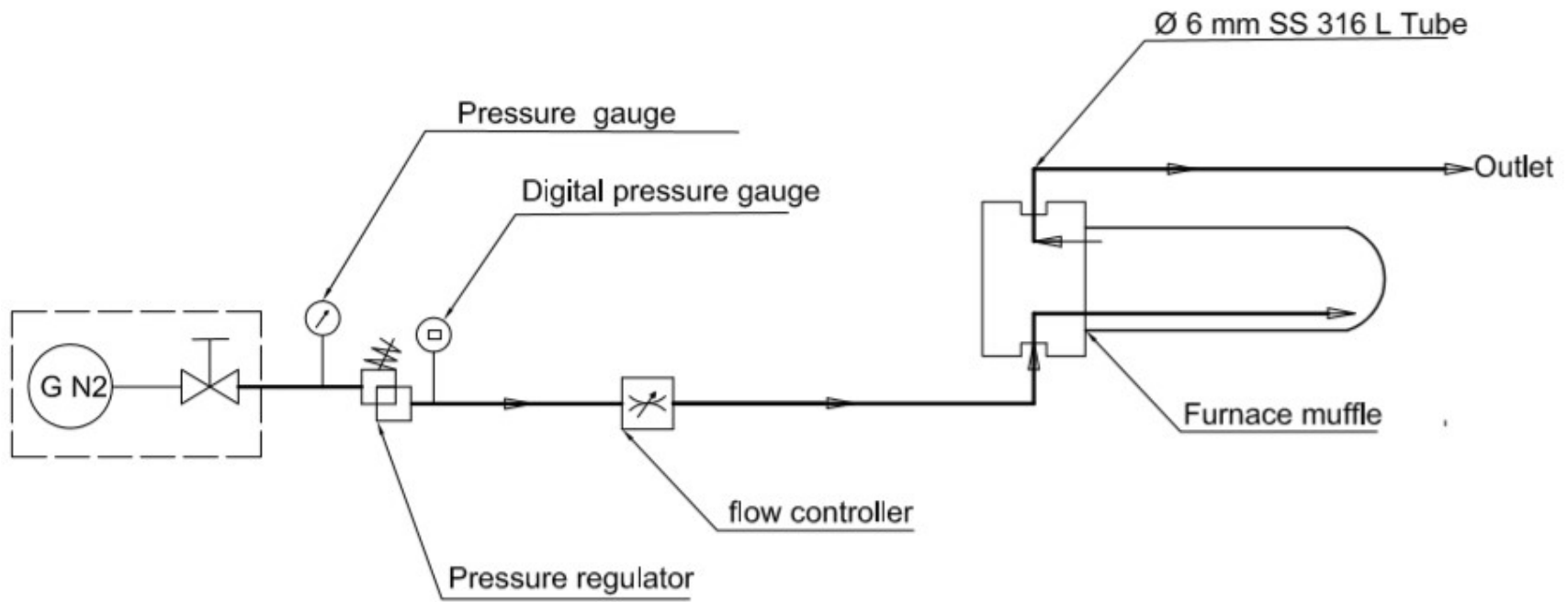
Dimensions in mm



Events

Event No.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
In Furnace		Heater on	Heating to set temp.	Start holding for stabilisation			Furnace door opening	Furnace movement	Heat transfer stage (heating & soaking)	Heater off	Withdraw furnace	Closure of furnace door			
In Muffle	Job loading & muffle door closure				Start gas flow	Start water circulation							Shut gas flow	Close water circulation	Muffle door opening

Typical sealing cycle with associated events



Typical Inert gas flow setup

General terms and conditions

1. **Two part bid:** Party shall submit the offer in two parts – technical bid and price bid.
 - a) Technical bid: This shall contain all the design and technical details in conformity with the specification requirements and other features stipulated in Annexure-1.
 - b) Price bid: This part of the offer shall contain all the price details of the furnace and spares (showing split-ups wherever possible). Price quoted shall include expenditures on packing, forwarding, installation, commissioning and training.
2. **Credentials:** The party shall have proven experience in construction of similar muffle furnace. Also they shall have supplied similar muffle furnace working satisfactorily for reputed Aerospace industries. Credentials to this effect shall be provided along with the quote.
3. **Configuration review:** It shall be arranged within short time of placement of supply order, in which every aspect of the work with proper drawings shall be explained to our engineers. Necessary changes suitable for improvement of the system performance/functionality within the scope of supply as suggested by VSSC engineers shall be incorporated. Drawings and design must be approved by VSSC engineers before commencing the proposed work.
4. **Input power supply and utilities:**
 - Input Voltage : 3 phase, 415 VAC \pm 15%, 50 Hz
 - Pneumatic connections will be provided at site (7 bar maximum)
 - Foundation requirements must be clearly indicated
 - Any other requirement needed for installing & commissioning the machine must be clearly mention.
5. **Warranty:** The entire furnace inclusive of all systems / accessories shall be under comprehensive warranty for two years from the date of commissioning and acceptance against design, material or manufacturing defects. The supplier has to make minimum four free visits as customer support programme during the warranty period. Minor Software modifications if required shall be carried out during the warranty period.
6. **Delivery schedule :** The delivery of the equipment shall be completed within 6 months after the approval of design drawings submitted by the party to VSSC. The design drawing s shall be submitted within a month after placement of PO.
7. **AMC:** Annual Maintenance contract is mandatory and party shall be able to provide Annual Maintenance Contract with spare support for the equipment for 5 years after the expiry of warranty period. Also supplier shall guarantee supply of spares, service and extend AMC support for a period of 10 years from the date commissioning and acceptance of the furnace. The offer shall include list of spares/ consumables for the trouble free operation of the furnace.
8. **Pre-dispatch inspection & acceptance:**

Performance validation of the muffle furnace shall be carried out in the presence of VSSC representatives at the OEM's. The furnace has to be fully assembled and erected for this purpose. It shall meet all technical specification mentioned in the Technical description, SI.No 1 to 4 of Annexure-1. The demonstration of the muffle furnace (Job prove out) shall be carried out. Dispatch clearance shall be provided by VSSC representatives based on satisfactory pre-dispatch inspection and testing at OEM site.
9. **Packing:** The supplier shall provide faultless seaworthy packing of the goods as is required to prevent their damage or deterioration during transit to their final destination.

10. Installation and commissioning at VSSC site & final acceptance

The supplier has to perform installation, testing & commissioning at VSSC site. The supplier shall inform logistic requirements at site required for installation of the equipment well in advance. The furnace shall be inspected at VSSC for the following:

1. Furnace operation with various parameters
2. Trial sealing
3. Demonstration of the furnace capability
4. Software features.
5. Operational maintenance training.

The acceptance of the furnace shall be based on the satisfactory completion of installation, job prove out and third party calibration. An extensive training on operation of furnace with various sealing parameters, software features, troubleshooting and basic maintenance of the furnace shall be provided.

11. Documentation: Two sets of the following documents shall be supplied along with the furnace:

- Operator manual
- Circuit diagram of the PCBs
- Electrical wiring diagram
- Design calculation of furnace heating load including thermal analysis data.
- Spare parts list
- Preventive maintenance check list, trouble shooting charts and guidelines
- Documents of all bought out items
- Technical literature/catalogue (in English) illustrating the operation and maintenance of the furnace & accessories.
- Metric system of measurement shall be used in the system documentation, specifications drawings, manuals etc.