

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

**Tender for Supply, Installation, Testing and Commissioning of
60kV/4kW Electron Beam Welding Machine**

Bids to be submitted online

Tender No.: VSSC/PURCHASE UNIT III (SPRE)/VS202200297801 dated 08-05-2023

A. Tender Details

Tender No :	VSSC/PURCHASE UNIT III (SPRE)/VS202200297801
Tender Date :	08-05-2023
Tender Classification:	GOODS
Purchase Entity :	PURCHASE UNIT III (SPRE)
Centre :	VIKRAM SARABHAI SPACE CENTRE (VSSC)

Supply, Installation, Testing and Commissioning of 60kV/4kW Electron Beam Welding Machine

This tender is for the Supply, Installation, Testing and Commissioning of 60kV/4kW Electron Beam Welding Machine .

PLEASE NOTE: This is a GLOBAL PUBLIC TENDER. All classes of vendors (i.e. Class-I, Class-II and Non-Local Suppliers as described in DPIIT order dated 16-09-2020 on MII Purchase Preference Policy) can participate in this tender. The currency of the bid can be in INR or in FE. However, Class-I local suppliers can avail purchase preference if their offer falls within the margin of Purchase Preference with respect to the lowest bid.

Tenderers are advised NOT TO UPLOAD any documents revealing the price of the main equipment, accessories, spares or AMC etc. They are however, requested to upload UNPRICED BIDS (i.e. Price details masked) showing appropriate break-up of components of main equipment, individual accessories and spares as desired.

This is a TWO-PART tender i.e. Techno-Commercial Bid (Part-I) and Price Bid (Part-II) shall be submitted separately. All technical and commercial terms and conditions shall be furnished in the Techno-Commercial Bid while price shall be indicated only in the Price Bid or Documents having the tag: Price Bid Related (if seen while bidding) only. Uploading price details anywhere else other than the price-bid shall lead to unconditional rejection of the tender. Please make note of the same.

Purchase preference to eligible vendors are applicable as per extant notifications issued by the Government of India. 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. Non-Local Suppliers can indicate the applicable percentage of local content in the offered items.

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.

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.

Technical Bids will be opened at the scheduled due date & time. No further intimation will be sent in this regard. The schedule for price bid opening shown is only indicative. Price bids will only be opened in the case of parties who have been techno-commercially accepted, the details of which will be communicated at a later stage.

A.1 Tender Schedule

Bid Submission Start Date : **08-05-2023 17:00**

Bid Clarification Due Date : **31-05-2023 10:00**

Bid Submission Due Date : **08-06-2023 10:00**

Bid Opening Date : **08-06-2023 10:01**

Price Bid Opening Date : **12-06-2023 15:00**

B. Tender Attachments

NA

Instructions To Vendors

1. Conditions for BIDDER FROM A COUNTRY WHICH SHARES LAND BORDER WITH INDIA

1. Any bidder from a country which shares a land border with India will be eligible to bid in this tender, only if the bidder is registered with the Competent Authority.

Competent Authority for the purpose of registration shall be the Registration Committee constituted by the Department for Promotion of Industry and Internal Trade (DPIIT).

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

3.

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

2. Specific Terms and Conditions to Tender (GTE Compliant)

1. (I) Please quote applicable GST separately.

2. (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.

3. (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). In case of Foreign quote standard payment term is 100% Sight Draft with bank charges to respective accounts.

4. (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.

5. (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.

6. (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.

7. (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 Guarantee towards SD/PBG.

8. (VIII) Please upload the Technical Details / Catalogue / Data Sheets (wherever applicable)

9. (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).

10. (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.

11. (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.

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

13. (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.
14. (XIV) Purchase preference to eligible vendors are applicable as per extant notifications issued by the Government of India.
15. (XV-a) This tender is open for all class of suppliers i. e Class I, Class II and non local suppliers as defined in DPIIT order on Make In India initiative dtd 16/09/2020 and its revisions. Purchase preference as per extant guidelines will be applicable for Class I local suppliers.
16. (XV-b) Foreign OEMs/Agents quoting on behalf of Foreign OEMs are permitted to quote. High Sea Sales Quotes not preferred generally. The bids shall be in INR/appropriate foreign currency.
17. (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)Minimum 20% but less than 50% : Class-II local supplier. c) Less than 20% : Non-local supplier.
18. (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.
19. (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.
20. (XIX) 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.
21. (XX) 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.

22. (XXI) 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.

23. (XXII) 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.

24. 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.

3. INSTRUCTIONS TO TENDERERS AND TERMS & CONDITIONS OF TENDER for imported stores items

1. I. INSTRUCTIONS TO TENDERERS

1. The Tenderers should submit quotations in duplicate in a sealed envelope, super scribing the Tender No. and due date of opening and complete in all respects with technical specifications, including pamphlets and catalogues.
2. A Proforma Invoice may also be given which should contain the following information:
 - a) The FOB/FCA value, the C & F value for import by Sea freight / Air freight up to and for air parcel post up to should be separately indicated.
 - b) Agency Commission: The amount of commission included in the price and payable to the Indian Agent of the Contractor shall be paid directly to the Indian Agent by the Purchaser in equivalent Indian Rupees on the basis of an Invoice from him applying T.T. buying rate of exchange ruling on the date of placement of the Purchase Order and which shall not be subject to any further exchange variations. This payment will be released to the Indian Agent immediately after Customs clearance of the goods in India.
 - c) The Contractor shall invoice only for the net amount payable to him, after deducting the amount of Agency Commission included in the invoice which will be paid to the Indian Agent directly by the Purchaser. However, the Contractor's invoice should separately reflect the amount of commission payable to his Indian Agent.
 - d) The earliest delivery period and country of origin of the Stores.
 - e) Banker's name, address, telephone/fax Nos. & e-Mail ID of the Contractor.

- f) The approximate net and gross weight and dimensions of packages / cases.
- g) Recommended spares for satisfactory operation for a minimum period of one year.
- h) Details of any technical service, if required for erection, assembly, commissioning and demonstration.
3. The FOB/FCA and C & F prices quoted should be inclusive of all taxes, levies, duties arising in the tenderer's country.
4. The offer should be valid for a minimum period of 120 days from the due date of opening of the tender.
5. Samples, if called for, should be sent free of all charges.
6. Late and delayed tenders will not be considered. Quotations by cable must be followed by detailed offers.
7. Offers made by Indian Agents on behalf of their Principals, should be supported by the proforma invoice of their Principals.
8. The details of Import Licence will be furnished in the Purchase Order.
9. The authority of person signing the tender, if called for, shall be produced.
10. Instructions / Operation Manual containing all assembly details including wiring diagrams should be sent wherever necessary in duplicate. All documents / correspondence should be in English language only.
11. The Purchaser reserves the right to accept or reject the lowest or any offer in whole or part without assigning any reason.
12. It is expressly agreed that the acceptance of the Stores Contracted for is subject to final approval in writing by the Purchaser.
13. a) Part shipment is not allowed unless specifically agreed to by us.
b) As far as possible stores should be despatched by Indian Flag Vessels / Air India through any Agency nominated by us.
14. Inspection / Test Certificate should be provided for the goods after testing it thoroughly at the Contractor's works. If any Inspection by Lloyds or any other testing agency is considered necessary, it shall be arranged by Contractors.
15. Where erection or assembly or commissioning is a part of the Contract, it should be done immediately on notification. The Contractor shall be responsible for any loss/damage sustained due to delay in fulfilling this responsibility.
16. For items having shelf life, those with maximum shelf life should be supplied if order is placed.

II. TERMS AND CONDITIONS

1. DEFINITIONS:

- (a) The term 'Purchaser' shall mean the President of India or his successors or assignees.
- (b) 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, representatives, heirs, executors and administrators unless excluded by the Contract.
- (c) 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 of plant, machinery or equipment of part thereof.

(d) The term 'Stores' shall mean what the Contractor agrees to supply under the Contract as specified in the Purchase Order.

2. PRICES:

Tenders offering firm prices will be preferred. Where a price variation clause is insisted upon by a tenderer, quotations 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 variations.

3. TERMS OF PAYMENT:

3.1 Being a Department of the Government of India, the normal terms of payment are by Sight Draft. However other terms of payment like establishment of Letter of Credit may be considered by the Purchaser on such terms and conditions as may be agreed upon.

3.2 The Sight Draft / Letter of Credit will be operative on presentation of the undermentioned documents:

a) Original Bill of Lading / Airway Bill b) Commercially certified invoices describing the stores delivered, quantity, unit rate and their total value, in triplicate. The invoice should indicate the discounts, if any, and Agency Commission separately. c) Packing List showing individual dimensions and weight of packages. d) Country of Origin Certificate in duplicate. e) Test Certificate. f) Declaration by the Seller that the contents in each case are not less than those entered in the invoices and the quality of the Stores are guaranteed as per the specifications asked for by the Purchaser.

g) Warrantee and guarantee Certificate/s vide Clause 20 hereinbelow

4. IMPORTANT LICENCE:

Reference to Import License No. & date and Contract number & date shall be prominently indicated in all the documents vide para 3.2

5. DEMURRAGE:

Supplier shall bear demurrage charges, if any, incurred by the purchaser due to delayed presentation of shipping documents as prescribed in para 3.2 to the bankers within a reasonable time (say within 10-12 days) from the date of bill of lading for sea consignments and within 3-4 days from the date of Air Way Bill for air consignments.

6. ADDRESS OF INDIAN AGENTS:

7. GUARANTEED TIME DELIVERY:

The time for and the date of delivery stipulated in the Purchase Order shall be deemed to be the essence of the Contract. Delivery must be completed within the date specified therein.

8. INSPECTION AND ACCEPTANCE TEST:

8.1 The Purchaser's representatives shall also be entitled at all reasonable times during manufacture to inspect, examine and test on the Contractor's premises the material and workmanship of all stores to be supplied under this Contract and if part of the said stores is being manufactured on other premises, the Contractor shall obtain for the purchaser's representative permission to inspect, examine and test as if the equipment were being manufactured on the Contractor's premises. Such inspection, examination and testing shall not release the Contractor from the obligations under this Contract.

8.2 For tests on the premises of the Contractor or of any of his subcontractors, the Contractor shall provide free of cost assistance, labour, material, electricity, fuel and instruments as may be required or as may be reasonably needed by the purchaser's representative to carry out the tests efficiently.

8.3 When the stores have passed the specified test, the purchaser's representative shall furnish a

certificate to the effect in writing to the Contractor. The Contractor shall provide copies of the test/s certificates to the purchaser as may be required.

9. MODE OF DESPATCH:

Generally, stores should be despatched through Indian Flagged Vessel / Air India or through any other Agency nominated by the purchaser. A copy of the invoice and packing list should invariably be kept inside each of the packages.

10. PORT OF ENTRY:

Thiruvananthapuram/Chennai/Mumbai/Hyderabad/Bangalore

11. CONSIGNEE:

Purchase & Stores Officer, Stores, _____,

12. SHIPPING MARKS.

The mark on the shipping documents such as invoice, bill of lading and on the packages should be as follow:

PURCHASE ORDER NO. DATED. GOVERNMENT OF INDIA DEPARTMENT OF SPACE
..... (name of the Centre/Unit) Destination: & Port of Entry:
.....

13. INSURANCE OF THE STORES:

The necessity or otherwise of insurance will be as indicated in the Purchase Order.

14. CONTRACTOR'S DEFAULT LIABILITY:

14.1 The purchaser may upon written notice of default to the Contractor terminate the Contract in whole or in part in circumstances detailed hereunder:

a) If in the judgement of the Purchaser the Contractor fails to make delivery of Stores within the time specified in the Contract/agreement or within the period for which extension has been granted by the Purchaser to the Contractor.

b) If in the judgment of the Purchaser the Contractor fails to comply with any of the other provisions of this Contract.

15. In the event the Purchaser terminates the Contract in whole or in part as provided in Clause 14 the Purchaser reserves the right to Purchase, upon such terms and in such a manner as he may deem appropriate, stores similar to that terminated and the Contractor shall be liable to the Purchaser for any additional costs for such similar stores and/or for liquidated damages for delay as defined in Clause 19 until such reasonable time as may be required for the final supply of stores.

15.1 If this Contract is terminated as provided in Clause 14 the Purchaser in addition to any other rights provided in this Article, may require the Contractor to transfer title and deliver to the Purchaser under any of the following clauses in the manner and as directed by the Purchaser:

a) Any completed stores.

b) Such partially completed stores, drawing, information and Contract rights (hereinafter called manufacturing material) as the Contractor has specifically produced or acquired for the performance of the Contract as terminated. The Purchaser shall pay to the Contractor the Contract price for completed stores delivered to and accepted, by the purchaser and for manufacturing material delivered and accepted.

15.2 In the event the Purchaser does not terminate the Contract as provided in Clause 14, the

Contractor shall continue the performance of the Contract in which case he shall be liable to the purchaser for liquidated damages for delay as set out in Clause 19 until the stores are accepted.

16. REPLACEMENT:

If the stores or any portion thereof is damaged or lost during transit, the Purchaser shall give notice to the Contractor setting forth particulars of such stores damaged or lost during transit. The replacement of such stores shall be effected by the Contractor within a reasonable time to avoid unnecessary delay in the intended usage of the Stores. In case the purchaser agrees, the price towards replacement items shall be paid by the purchaser on the basis of original price quoted in the tender or as reasonably worked out from the tender.

17. REJECTION:

In the event that any of the stores supplied by the Contractor is found defective in material or workmanship or otherwise not in conformity with the requirements of the Contract specifications, the purchaser shall either reject the stores or request the Contractor, in writing, to rectify the same. The Contractor, on receipt of such notification, shall either rectify or replace the defective stores free of cost to the purchaser. If the Contractor fails to do so, the purchaser may at his option either

- a) replace or rectify such defective stores and recover the extra cost so involved from the Contractor, or
- b) terminate the Contract for default as provided under clause 14 above, or
- c) acquire the defective stores at a reduced price considered equitable under the circumstances. The provision of this article shall not prejudice the Purchaser's rights under clause 19.

18. EXTENSION OF TIME:

If the completion of supply of stores is delayed due to reason of force majeure such as acts of god, acts of public enemy, acts of Government, fires, floods, epidemics, quarantine restriction, strikes, freight embargoes, etc., the Contractor shall give notice within 15 days to the purchaser in writing of his claim for an extension of time. The purchaser on receipt of such notice after verification, if necessary, may agree to extend the Contract delivery date as may be reasonable but without prejudice to other terms and conditions of the Contract.

19. DELAY IN COMPLETION / LIQUIDATED DAMAGES:

If the Contractor fails to deliver the stores within the time specified in the Contract or any extension thereof, the purchaser shall recover from the Contractor as liquidated damages a sum of one-half of one percent (0.5 percent) of the Contract price of the undelivered stores for each calendar week of delay. The total liquidated damages shall not exceed ten percent (10 percent) of the Contract price of the unit or units so delayed. Stores will be deemed to have been delivered only when all their component parts are also delivered. If certain components are not delivered in time, the stores will be considered as delayed until such time as the missing parts are delivered.

20. 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 are found to have developed under proper use arising from faulty materials, 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 parts thereof are faulty.

c) If in the opinion of the purchaser it becomes necessary to replace or renew any defective stores, such replacements or renewals 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 defects has developed within the said period of 12 months or as to whether the nature of the defects requires renewal or replacement shall be final, conclusive and binding on the Contractor.

f) To fulfil guarantee conditions outlined in Clause 20 (a) to (e) above, the Contractor shall, at the option of the purchaser, furnish a Bank Guarantee (as prescribed by the purchaser - Bank Guarantee format enclosed) from a Bank approved by the purchaser for an amount equivalent to 10% of the value of the Contract along with first shipment documents. On the performance and completion of the Contract in all respects, the Bank Guarantee will be returned to the Contractor without any interest.

g) All the replacement stores shall also be guaranteed for a period of 12 months from the date of arrival of stores at purchaser's site.

h) Even while the 12 months guarantee applies to all stores, in case where a greater period is called for by our specifications, then such a specification shall apply, and in such cases, the period of 14 months referred to in Clause 20 (b) and (c) shall be asked for guarantee period plus two months.

21 REQUIREMENTS OF ADDITIONAL NUMBERS OF THE STORES/SPARE PARTS ORDERED:

The Contractor shall also undertake the supply of additional number of items covered by the order as considered necessary by the purchaser at a later date, the actual price to be paid shall be mutually agreed to after negotiations.

22. PACKING:

a) The Contractor wherever applicable shall pack and crate all stores for sea / air shipment as applicable in a manner suitable for export to a tropical humid climate, in accordance with internationally accepted export practices and in such a manner so as to protect it from damage and deterioration in transit by road, rail or sea for space qualified stores. The Contractors shall be held responsible for all damages due to improper packing.

b) The Contractor shall ensure that each box / unit of shipment is legible and properly marked for correct identification. The failure to comply with this requirement shall make the Contractor liable for additional expenses involved.

c) The Contractor shall notify the purchaser of the date of shipment from the port of embarkation as well as the expected date of arrival of such shipment at the designated port of arrival.

d) The Contractor shall give complete shipment information concerning the weight, size, content of each packages, etc.

e) Transshipment of equipment shall not be permitted except with the written permission of the purchaser.

f) Apart from the despatch documents negotiated through Bank, the following documents shall also be airmailed to the purchaser within 7 days from the date of shipment by sea and within 3 days in case of air-consignments: a) Commercial Bill of Lading / Air Way Bill / Post parcel Receipt. (Two non-negotiable copies) b) Invoice (3 copies) c) Packing List (3 copies) d) Test Certificate (3 copies) e) Certificate of Origin.

The Contractor shall also ensure that one copy of the packing list is enclosed in each case.

23. ARBITRATION:

If at any time any question, dispute or difference whatsoever shall arise between the purchaser and the Contractor upon or in connection with this Contract, either party may forthwith give to the other notice in writing of the existence of such question, dispute or difference and the same shall be referred to the adjudication of two arbitrators, one to be nominated by purchaser, other by a Contractor and in the event of any difference of opinion, the arbitrators will refer the matter to the umpire. The arbitration shall be conducted in accordance with the rules and procedure for arbitration of the International Chamber of Commerce at Paris. The expenses of the arbitrators and umpire shall be paid as may be determined by them. However, the venue of such arbitration should be in India.

24. LANGUAGE AND MEASURES:

All documents pertaining to the Contract including specification, schedule, notice, correspondence, operating and maintenance instructions, drawings or any other writings shall be written in English language. The metric system of measurement shall be used exclusively in the Contract.

25. INDEMNITY:

The Contractor shall warrant and be deemed to have warranted that all Stores supplied against this Contract are free and clean of infringement of any patent, copyright or trade mark and shall at all times indemnify the purchaser against all claims which may be made in respect of stores for infringement of any right protected by Patent, Registration of design or Trade Mark, and shall take all risk of accident or damage which may cause a failure of the supply from whatever cause arising and the entire responsibility for the sufficiency of all the means used by him for the fulfilment of the Contract.

26. COUNTER TERMS AND CONDITIONS OF SUPPLIERS:

Where counter terms and conditions/printed or cyclostyled conditions have been offered by the supplier, the same shall not be deemed to have been accepted by the purchaser unless specific written acceptance thereof is obtained.

27. SECURITY INTEREST:

On each item to be delivered under this Contract, including an item of work in progress in respect of which payments have been made in accordance with the terms of the Contract, purchaser shall have a security interest in such items which shall be deemed to be released only at the time when the applicable deliverable item is finally accepted and delivered to the purchaser in accordance with the terms of the Contract. Such security interest of the purchaser shall constitute a prior charge as against any other charge or interest created in respect of such items by any entity.

28. BANK CHARGES:

While the purchaser shall bear the bank charge payable to his Bankers (State Bank of India), the Contractor shall bear the Bank charges payable to his Bankers including the cheques towards advising amendment commissions.

29. TRAINING: The Contractor shall, if required by the purchaser, provide facilities for the practical training of Purchaser's engineering / technical personnel from India and for their active association on the manufacturing processes throughout the manufacturing period of the Contract / stores, number of such personnel to be mutually agreed upon.

30. APPLICABLE LAW:

The Contract shall be interpreted, construed and governed by the laws of India.

4. 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. (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.

2. (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.

3. 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.

4. 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.

5. 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.

6. 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.

7. 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. 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)

9. 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.

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

11. 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.

12. 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.

13. 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.

14. 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.

15. TERMS & CONDITIONS OF TENDER

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

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

18. 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.

19. 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.

20. 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.

21. 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.

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

23. 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.

5. Conditions for BIDDER FROM A COUNTRY WHICH SHARES LAND BORDER WITH INDIA

1. Any bidder from a country which shares a land border with India will be eligible to bid in this tender, only if the bidder is registered with the Competent Authority. Competent Authority for the purpose of registration shall be the Registration Committee constituted by the Department for Promotion of Industry and Internal Trade (DPIIT).

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

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

6. Instructions to Vendors

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.

C. Bid Templates

C.1 Technical Bid - Supply, Installation, Testing and Commissioning of 60kV/4kW Electron Beam Welding Machine

1. ELECTRON BEAM WELDER

Item specifications for ELECTRON BEAM WELDER

Sl No	Specification	Value	Compliance	Offered Specification	Remark
1	1. Electron Gun:	The electron gun shall be suitable for a 60 kV/4 kW power rating Electron beam welding machine. The electron gun shall be mounted externally on the welding chamber of size 600 mm x 500 mm x 600 mm with specifications as explained below.	Yes / No / Explain		
2	1.1 Electron Gun type	Triode	Yes / No / Explain		
3	1.2 Number of electron gun	1 No.	Yes / No / Explain		
4	1.3 Beam Power	4 kW(minimum)	Yes / No / Explain		
5	1.4 Accelerating Voltage	10 to 60 kV (in steps of 1kV) It shall comply the following specifications as per ISO 14744: 1. Ripple : 2% (peak to peak value) 2. Stability : ±1% 3. Reproducibility: ±1%	Yes / No / Explain		

6	1.5 Beam current	<p>1.5.1 Specification of High and Low beam current: 1. High beam Current Range: 0-67 mA (in steps of 0.1mA) 2. Low beam Current Range: 0-10 mA (in steps of 0.01mA) 1.5.2 Beam current shall comply the following specification as per ISO 14744: 1. Ripple: 5% (peak to peak value) 2. Stability: ±1% (Maximum) 3. Reproducibility: ±1% (Maximum)</p>	Yes / No / Explain		
7	1.6 Slope in and slope out	Adjustable up to 1250 mA/sec.	Yes / No / Explain		
8	1.7 Mounting of Electron gun	<p>1. Electron gun shall be mounted on the top of welding chamber vertically centred. [Refer Figure. 1] 2. The Electron gun system shall be fitted externally to the welding chamber with a dedicated mechanical sealing system under static and dynamic conditions. 3. EBW machine shall be maintained maximum vacuum level (better than 5 x 10⁻⁵mbar) in welding chamber, during gun in movement with beam 'ON' condition.</p>	Yes / No / Explain		

9	1.8 External gun carriage stroke.	<p>1. ± 175 mm (nominal). (175 mm on both sides from centre of welding chamber)</p> <p>2. Gun movement shall be parallel to X-axis. [Refer Figure-1]</p> <p>3. In CNC program gun movement shall be taken as U-axis.</p> <p>4. Linear speed shall be 10-3000 mm/min. (nominal).</p> <p>5. It shall be driven by servo motor with CNC control.</p> <p>6. Positional accuracy shall be ± 0.03mm.</p> <p>7. Provision shall be made for gun alignment of ± 5mm in normal Y-axis direction.</p> <p>8. Manual override shall be provided for manual jogging of gun axis during initialisation/resetting of machine</p>	Yes / No / Explain		
10	1.9 Gun cable	Sharp bending of cables shall be avoided by providing suitable support.	Yes / No / Explain		
11	2. Gun vacuum pumping system:	The Electron gun shall have a separate vacuum pumping system with the following specifications:	Yes / No / Explain		
12	2.1 Working Vacuum Level and duration	The working vacuum level of 1×10^{-5} mbar (from atmosphere) shall be reached in lesser than 5 minutes.	Yes / No / Explain		

13	2.2 Pumping system	<p>1. A suitable pumping system shall be used for achieving the above specifications stipulated in SI.No.2.1</p> <p>2. Turbo molecular pump shall be used in the pumping system.</p> <p>3. Party shall submit a flow diagram of gun and work chamber vacuum pumping system.</p>	Yes / No / Explain		
14	2.3 Vacuum Measurement and Instrumentation.	Vacuum measurement shall be measured by Pirani/Penning/Wide range gauge.	Yes / No / Explain		
15	2.4 Isolation Valve	Pneumatic operated cut-off valve shall be provided to ensure the vacuum level in the electron gun is maintained when the welding chamber is vented.	Yes / No / Explain		
16	2.5 Source/manufacturer of pumps, gauges and valves	<p>1. All pumps, gauges and valves used for the system shall be from same source of manufacturer and a reputed brand like Edwards/Leybold/Pfeiffer/VAT/GNB shall be used.</p> <p>2. Calibration certificate, manufacturing date, make and model of all pumps, valves and gauges shall be mentioned in the technical offer.</p>	Yes / No / Explain		

17	3 High voltage power supply	<p>High voltage power supply shall be with Switch mode power supply (SMPS), variable bias supply for beam current control with an adjustable and stabilized supply for filament heating and it shall have following features.</p> <ol style="list-style-type: none"> 1. The power supply shall have ANTI-FLASH protection. 2. Less power dissipation. 3. High voltage proof. 4. Short circuit proof. 5. Zero beam current during HV recovery (Defocusing of beam to avoid miss welding and loss of expensive work piece) 6. Oil filled tanks and top lid be easily removable for maintenance. 	Yes / No / Explain		
18	4 Electron beam capability:	<p>This shall include Beam focusing, beam deflection, function generator for generating different beam patterns through programming signals, beam alignment and beam viewing system. Each system shall have the following specifications and features as per 4.1 to 4.5.</p>	Yes / No / Explain		

19	4.1 Beam focusing system	<p>4.1.1: The electron beam shall be focused on the point to be welded using electromagnetic lens. The system shall allow focusing of the beam with the welding points. Beam focusing shall have the following features:</p> <ol style="list-style-type: none"> 1. Beam focus control: By electromagnetic lens. 2. Focus current : Adjustable 3. Focus length control :CNC controlled 4. Focal Distance :50 to 500 mm (Focus shall be ensured with the job manipulation system assembly) <p>4.1.2:Beam focusing system shall comply the following specification as per ISO 14744:</p> <ol style="list-style-type: none"> 1. Ripple: 0.5% (peak to peak value) 2. Stability: $\pm 0.5\%$ 3. Reproducibility: $\pm 0.5\%$ 	Yes / No / Explain		
20	4.2 Beam deflection system	<p>A set of X and Y magnetic coils shall be used for the oscillation of the electron beam relative to its neutral position. The system shall consist the following operational specifications:</p> <ol style="list-style-type: none"> 1. X deflection angle: $\pm 3^\circ$ 2. Y deflection angle: $\pm 3^\circ$ 3. Setting of X and Y signals: Independent 4. Frequency: 0.1 to 2000 Hz 5. Beam deflection control :CNC controlled 	Yes / No / Explain		

21	4.3 Function generator	<p>The function generator shall have the following programmable signals:</p> <ol style="list-style-type: none"> 1. Sine, square, triangle, circle, ellipse, saw tooth and ∞. 2. Two axes sine wave outputs for deflecting the beam in a circular pattern. 3. Two axes DC deflection for positioning of the electron beam. 4. Square wave forms for different workspace ratio. 5. DC deflection shall be superimposed on the AC outputs to provide for centering the circle during welding operation. 	Yes / No / Explain		
22	4.4 Viewing and Beam Alignment system	<p>The viewing and electron beam aligning system shall have the following specifications:</p> <ol style="list-style-type: none"> 1. The viewing/beam aligning system shall have a video device composed of an LED colour monitor (23"/24") and colour CCD camera designed to achieve a magnification of 10X (minimum) at shooting distance (auto focus) from 50mm to 500 mm inside the chamber. 2. A cross hair shall be superimposed over the image to allow the position of the beam on the joint for precise adjustment before welding. 3. Suitable vapour protection for optics shall be provided. 	Yes / No / Explain		

23	4.5 Teach-in- and replay	Add on software shall be provided to sense the point to point of weld joint and to determine the path for the electron beam to follow the joint with linear and circular interpolation (X-axis, Y-axis with Rotary axis and beam deflection) by incorporating weld parameters.	Yes / No / Explain		
24	5 Welding Chamber	As per 5.1 to 5.7	Yes / No / Explain		
25	5.1 Chamber wall material	Non-magnetic Stainless steel	Yes / No / Explain		
26	5.2 Inside dimension of welding chamber	1. Width: 600 mm 2. Depth: 500 mm 3. Height:600 mm 4. The width, depth and height shall be referred in X, Y and Z axis direction when viewed from chamber door.[Refer Figure1]	Yes / No / Explain		
27	5.3 Wall thickness	The thickness of the chamber walls shall be designed to block X-ray radiation in accordance with international regulations. (<1µSv/h measured 100 mm away from the walls).	Yes / No / Explain		
28	5.4 Front access door	1. Non-magnetic Stainless steel 2. Wall thickness shall be designed similar to welding chamber (Refer 5.3) 3. The opening and closing of door shall be motorized with necessary safety interlocks. 4. For opening and closing of door, a simple and ergonomic design shall be provided.	Yes / No / Explain		

29	5.5 View port	<p>1. A view port with lead glass shall be provided centrally on the front door.</p> <p>2. The size of view port shall be Ø200 mm (minimum).</p> <p>3. A vapour protective removable glass for easy replacement shall be provided.</p> <p>4. One spare lead glass shall be provided</p>	Yes / No / Explain		
30	5.6 Sealing System	<p>1. The interface joints of chamber door, access ports and pumping system shall be provided with 'O'-ring seals.</p> <p>2. All the interfaces shall be capable of maintaining an ultimate vacuum level of 5×10^{-5} mbar in the chamber.</p>	Yes / No / Explain		
31	5.7 Illumination system	The welding chamber shall have an illumination system inside for 500 lux illumination level at floor level.	Yes / No / Explain		
32	6 Chamber vacuum Pumping system	The Welding chamber shall have a separate vacuum pumping system with following specifications as per 6.1 to 6.8	Yes / No / Explain		
33	6.1 Working Vacuum Level & duration	The working vacuum level of 5×10^{-4} mbar (from atmosphere) shall be reached less than 5 minutes.	Yes / No / Explain		
34	6.2 Ultimate vacuum level and duration	The ultimate vacuum level of 5×10^{-5} mbar from atmosphere shall be reached in 20 minutes (Nominal).	Yes / No / Explain		

35	6.3 Vacuum pumps, valves and vacuum lines	<p>1. A suitable pumping system shall be used for achieving the specifications stipulated in SI.No.6.1&6.2</p> <p>2. Turbo molecular pump shall be used in the pumping system.</p> <p>3. All vacuum lines shall be made of stainless steel</p> <p>4. Party shall submit a flow diagram of gun and work chamber vacuum pumping system.</p>	Yes / No / Explain		
36	6.4 Vacuum Measurement and Instrumentation	<p>1. Vacuum measurement shall be measured by Pirani/Penning/Wide range gauge.</p> <p>2. Vacuum level shall be displayed in the HMI display unit.</p>	Yes / No / Explain		
37	6.5 Source/manufacturer of pumps, gauges and valves	<p>1. All pumps, gauges and valves used for the chamber vacuum system as well as gun vacuum system (refer 2.5) shall be from same source of manufacturer and a reputed brand like Edwards/Leybold/Pfeiffer/VAT/GNB shall be used.</p> <p>2. Make and model of all pumps, valves and gauges shall be mentioned in the technical offer.</p> <p>3. Calibration certificate/Manufacturing date of pumps, valves and gauges shall be provided along with machine.</p>	Yes / No / Explain		
38	6.6 Leak detection ports	Leak detection ports shall be provided in the vacuum pumping line.	Yes / No / Explain		

39	6.7 Over-ride	<p>1. Manual override provision shall be given for vacuum pumps and valves through man-machine interface.</p> <p>2. This provision shall be available when the system is in maintenance mode.</p>	Yes / No / Explain		
40	6.8 Port for connecting external device	<p>Extra ports shall be made in the welding chamber for connecting external devices using feed through for monitoring the following:</p> <p>1. Job temperature during welding (6 pin feed through minimum)</p> <p>2. Voltage out rate for max 230V (10 pin feed through minimum)</p>	Yes / No / Explain		
41	7 Work Handling System	<p>1. The work handling system shall consist with following viz. 'T'- Slotted Bed, CNC Table unit(X & Y-axis), Combined manipulator (Vertical, horizontal & Tilt) and tailstock.[Refer Figure-2]</p> <p>2. Combined manipulator shall supply with 3 jaw & 4 jaw rotary chucks. All chucks shall be interchangeable.</p> <p>3. All the work handling system shall be made of non-magnetic stainless steel. The specification and features of the work handling systems are given below.</p>	Yes / No / Explain		

42	7.1 'T'-slotted bed	<p>The 'T'-slotted bed shall have the following specifications.</p> <ol style="list-style-type: none"> 1. 'T'-slotted bed shall be capable to hold the CNC table unit/ Combined manipulator 2. Material : Non-magnetic Stainless steel 3. Thickness of bed : 20 mm (minimum) 4. Size of bed : 560 mm x 460 mm (in X and Y axis direction) 5. The 'T'-slotted bed shall be centrally located. 6. It shall rigidly be fixed on bottom of welding chamber. For fine adjustment an allowance of ± 10 mm shall be provided in Y axis direction. 7. Load carrying capacity : 250 kg 8. Standard 'T'-slots shall be provided for mounting CNC table unit, rotary manipulators and tailstock. 9. 5 nos. of 'T'-slots (M8 size) shall be provided in the X-axis direction and it shall be equally spaced starting from centre of the bed. 10. CNC table and combined manipulator shall be provided with tenon, which shall be smoothly sliding along the 'T'-slot of the bed. 11. While mounting the combined manipulator on the 'T'-slotted bed, the axis of the manipulator shall be aligned with gun axis within an accuracy of 0.03 mm. 12. The flatness of 'T'-slotted bed shall 	Yes / No / Explain		
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		be as per DIN 867, Grade II (0.04/1000 mm)			
43	7.2 CNC table unit (Detachable type)	As per 7.2.1 to 7.2.8	Yes / No / Explain		
44	7.2.1 CNC table mounting	1. The CNC table unit shall have a CNC controlled X & Y axis movement. 2. CNC table unit shall be easily mountable & detachable from the 'T'-slotted bed using tenon. 3. Suitable locking provision shall be provided for mounting the CNC table unit on the 'T'-slotted bed. 4. The top of table unit shall have a M8 size 'T'-slotted plate with 20 mm thickness for mounting job fixtures, manipulators etc.	Yes / No / Explain		
45	7.2.2 Table size	300 mm x 300 mm	Yes / No / Explain		
46	7.2.3 Axis stroke	X-Axis : 150 mm Y-axis : 150 mm	Yes / No / Explain		
47	7.2.4 Accuracy	X-axis : 20 µm Y-axis : 20 µm	Yes / No / Explain		
48	7.2.5 Speed of X axis and Y axis	1-3000mm/min	Yes / No / Explain		
49	7.2.6 Drive system	Brushless type servo Motor with encoder (CNC controlled)	Yes / No / Explain		
50	7.2.7 Load carrying capacity	15 kg.	Yes / No / Explain		
51	7.2.8 Electrical feed through	Suitable D-connector shall be provided with sufficient cable length.	Yes / No / Explain		
52	7.3 Combined rotary manipulator (Vertical, Horizontal & inclined/Tilt mode)	As per 7.3.1 to 7.3.9	Yes / No / Explain		

53	7.3.1 General	<p>1. Tilt rotary manipulator shall be standalone unit.</p> <p>2. Material : Non-magnetic Stainless steel</p> <p>3. Combined rotary manipulator shall be used for circular face welding & radial welding. In circumferential welding, the manipulator head with chuck shall be positioned in horizontal axis. In Vertical face welding, manipulator head with chuck shall be in vertical direction. Provision shall be made for height adjustment with lock. During inclined welding, manipulator shall permit to tilt from 0 to 90 degree by manually. Manipulator shall permit tilting and rotation of the work pieces about the tilt axis(Refer figure-2)</p> <p>4. The combined rotary manipulator shall be mounted directly on the 'T'-slotted bed. Suitable tenon shall be provided in the manipulator for sliding along the 'T'-slot.</p> <p>5. Suitable simple locking provision shall be provided.</p>	Yes / No / Explain		
54	7.3.2 Reference axis for rotation (CNC controlled)	C-Axis	Yes / No / Explain		
55	7.3.3 Rotating Speed	Rotary speed adjustable from 1 rpm to 60 rpm.	Yes / No / Explain		
56	7.3.4 Speed stability	±1% of set speed (ISO 14744)	Yes / No / Explain		
57	7.3.5 Spindle face out	0.02 mm (maximum)	Yes / No / Explain		

58	7.3.6 Loading Capacity	20 kg (Maximum)	Yes / No / Explain		
59	7.3.7 Height of manipulator	300 mm (maximum), when the manipulator is positioned vertically upright. The height shall be calculated from bottom face of manipulator to top surface of chuck.	Yes / No / Explain		
60	7.3.8 Chuck for mounting job	1. Nonmagnetic high precision 70mm & 120 mm size 3 jaw self centering chucks shall be provided. 2. Nonmagnetic high precision 70mm & 120 mm size 4 jaw self centering chucks shall be provided.	Yes / No / Explain		
61	7.3.9 Electrical feed through	Powering the manipulator unit shall be made by easily pluggable D-connector. Sufficient cable length shall be provided.	Yes / No / Explain		
62	7.4 Tailstock	As per 7.4.1 to 7.4.6	Yes / No / Explain		
63	7.4.1 General	1. Tailstock shall be integrated with welding chamber. 2. Material: Non-magnetic Stainless steel 3. Tailstock shall be mounted directly on the side of the chamber wall. 4. Suitable simple locking provision shall be provided. 5. Axis alignment accuracy between live centre (manipulator) and dead centre shall be ± 0.020 mm.	Yes / No / Explain		

64	7.4.2 Mounting position of tailstock	Tailstock shall be suitably mounted on the side of the wall and axis centre (dead centre) shall be aligned with centre of rotary manipulator (horizontal mode).[Refer figure-2]	Yes / No / Explain		
65	7.4.3 Spindle/quill stroke	300 mm with locking device	Yes / No / Explain		
66	7.4.4 Spindle traverse mechanism	By hand wheel	Yes / No / Explain		
67	7.4.5 Spindle Run-out	0.02 mm (maximum)	Yes / No / Explain		
68	7.4.6 Maximum load	20 kg	Yes / No / Explain		
69	8. General control system with PC supervisor system and CNC system	As per 8.1 to 8.8	Yes / No / Explain		
70	8.1 General	<p>1. The control system shall be based on industrial HMI (Human Machine Interface), an Industrial PC and Numerical Control system which shall be of latest windows-based CNC system.</p> <p>2. Control system shall be designed for operating the machine in master and remote-control mode.</p> <p>3. Provision shall be available to upload and download PLC software at site.</p> <p>4. Facility shall be provided to force the PLC I/Os to high and low in the maintenance mode.</p>	Yes / No / Explain		

71	8.2 Master and Remote operation	<p>Control system shall be designed for operating the machine in master and remote-control mode with the following features:</p> <p>1. The master and remote console shall be table top arrangement accommodating with following.</p> <ul style="list-style-type: none"> • PC with conventional keyboard and mouse • 23"/24" Touch screen color monitor for PC • CCTV color monitor (23"/24" HD LED type) for viewing / Beam aligning • A compact unit containing control buttons and jog wheels for CNC operation and beam setting and welding operation. <p>2. Remote console shall be provided for remotely operating the machine and shall have all the features of the master console.</p> <p>3. Necessary safety interlock shall be provided between master control and remote-control operations.</p> <p>4. The master console shall be located near to the welding chamber in the machine room and remote console shall be located in a room adjacent to the machine room. Proper cable routing (15 meters length) shall be provided between master console and remote console.</p>	Yes / No / Explain		
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72	8.3 PC	<p>1. Industrial PC shall be provided for the operator interface in dialog mode.</p> <p>2. The operating system shall be windows 11 (or latest version). The minimum technical features of the industrial PC:</p> <ul style="list-style-type: none"> • 1 TB SATA Hard disk • RAM-8 GB (minimum) • USB ports – 4 Nos. • Ethernet port – 2 Nos. • Serial ports – 2 Nos. <p>3. Industrial PC shall be of latest generation and with specification at the time of supply.</p> <p>4. 23"/24" Touch screen color monitor, keyboard and mouse – 2 Nos. (wireless) for Master and remote-control operation (referred in 8.2.1 & 8.2.2)</p> <p>5. Industrial PC supplied should have service support availability in India.</p>	Yes / No / Explain		
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73	8.4 PLC	<p>The industrial PLC working with industrial HMI-PC supervisory system with SCADA software system shall be able to control following parameters of Electron Beam Welding Machine:</p> <ol style="list-style-type: none"> 1. Welding chamber vacuum Sequence. 2. Electron gun Vacuum Sequence. 3. Electron gun Isolation valve control. 4. Electric supply of gun. 5. Safety interlocks/Security system 6. CNC Interface. 7. Alarms and Security. 8. Auto Diagnostic for Maintenance. 9. Uploading/downloading of PLC software. 10. PLC make shall be from reputed brands like Siemens / Allen Bradley / Omron 11. PLC shall comply with Open Platform Communication (OPC). 	Yes / No / Explain		
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74	8.5 PC supervisory system	<ul style="list-style-type: none"> • CNC system shall work with industrial PC, providing the operator interface in dialog mode with an industrial HMI (Human Machine Interface) standard supervisor system. • The supervision program uses standard software on latest version of Windows. It shall be responsible for the overall management of the machine and include the following: <ol style="list-style-type: none"> 1. Management of start-up modes: immediate or deferred. 2. Management of gun settings, including conditioning and space charge, if required. 3. Management of the video and cross-hairs. 4. The displays of pump units, power supplies for the gun, mechanical movements etc., 5. Management of faults, with history. 6. Tracking the duration of use of various components, including cathode counter (hours), filament, pumps, etc., in order to facilitate preventive maintenance. 7. Troubleshooting with access to each PLC input/output variable. 	Yes / No / Explain		
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75	8.6 CNC system	<p>The welding programs shall be managed by CNC system with the following specifications:</p> <ol style="list-style-type: none"> 1. Shall have a dedicated keypad (wireless) and screen 2. The welding programs shall be created, executed and stored by CNC system working to meet the requirements of standards such as ISO. 3. A compact unit containing control buttons and jog wheels for CNC operations, beam setting and welding operation. 2 units shall be supplied, one for master and another for remote operation. (Refer 8.2) 4. Programming language shall meet relevant standards in vogue such as ISO. 5. Supervision program shall be with standard software on latest version of windows-based operating system. 6. The CNC system shall be capable of control of mechanical welding axes; <ol style="list-style-type: none"> (a) CNC table : X & Y -Axis (b) Gun-axis : U-Axis (c) Rotary-axes: C - Axis (e) Electrical settings for the beam (Accelerating voltage in kV, Beam current in mA, Focus current in mA, X and Y beam deflection 	Yes / No / Explain		
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		<p>amplitude in A).</p> <p>(f) Linear speed in U-axis in mm/min, rotary-axis speed in rpm and mm/min.</p> <p>7. The welding programs shall include all the data required to carry out the full welding cycle. The complete welding program shall be able to set ramp up, dwell time, ramp down.</p> <p>8. A suitable provision shall be made for loading, storing and retrieval of CNC programs. The PC's hard disk shall be capable of mass storage.</p>		
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76	8.7 Parameters display	<p>Following operating parameters shall be displayed at the control panel:</p> <ol style="list-style-type: none"> 1. Wide range gauge display for vacuum level in welding chamber and gun in mbar unit. 2. Speed and position of manipulators and X & Y-axis Table. 3. Speed and position of gun movement. 4. Accelerating voltage. 5. Beam current. 6. Focus current. 7. Beam deflection signal (by oscilloscope). 8. Status indicators for pump and valve operations 9. Audio-visual display (Alarm) for system/air/water failure. 10. Programming with HMI (Human Machine Interface) shall include mimic display, alarm status, quality data recording, error indicators, operation screen for tooling, vacuum and weld cycle recipes. 11. Programs shall be linked to build up a fully automatic program consisting of tracking, penetration, cosmetic pass, deflection, stirring, etc. 	Yes / No / Explain		
77	8.8 Working environment of EBW machine	<p>All the wirings and PCB's shall be suitable to the following environmental conditions and shall be with conformal coating.</p> <ol style="list-style-type: none"> i. Temperature : 40 °C (maximum) ii. Humidity :90%(maximum) 	Yes / No / Explain		

78	9. Safety interlocks and security system	<p>1. Radiation levels shall be measured in accordance with the ISO standard-14744 or equivalent standards</p> <p>2. The chamber shielding shall ensure radiation levels of less than 1µSv/hour, at a distance of 100mm from any external surface, with a defocused beam of maximum power.</p> <p>3. Radiation shield in the machine shall meet the requirement of annual whole-body dose limit of 30 mSv (maximum).</p> <p>4. Illumination of red warning light when the high voltage to the gun is on.</p> <p>5. Water flow, water temperature and air pressure switches to protect the vacuum pumping system against power supply failure. Audible warning of failure shall be provided.</p> <p>6. All rotary devices shall be fully protected by safety guards.</p> <p>7. Noise from the machine shall be less than 70 dB.</p> <p>8. Safety interlocks for preventing accidental energizing of high-voltage without required vacuum level, opening of isolation valve etc., shall be incorporated.</p> <p>9. Beam shall not be "ON" without sufficient vacuum in gun and chamber.</p> <p>10. System shall have automatic tripping for over kV, over mA, filament</p>	Yes / No / Explain		
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		failure and auto-diagnostic system. 11. Emergency stop button shall be provided in the master and slave control panels.			
79	10. Job temperature measurement	<p>Job temperature measurement shall be provided inside the welding chamber with the following specification and features.</p> <p>1. The temperature measurement of job shall be done during welding or after venting the chamber 2. The maximum job temperature (surface) to be measured shall be 500oC. 3. Replaceable flexible thermocouple of suitable type shall be used with sufficient length. 4. On-line monitoring (stand-alone display unit or through PC system) and recording of temperature shall be provided.</p>	Yes / No / Explain		

80	11. Online data monitoring and storage	<p>A package for on-line data monitoring and storage shall be included in the supply scope. This system shall be fitted with the equipment and shall have the following features:</p> <p>11.1 The system shall have a minimum number of channels and shall allow storing of the data of the actual welding parameters as well to plot the curves for each parameter all along the welding cycle.</p> <p>11.2 PC shall be equipped with a software program to record the welding data with a minimum sampling interval of 0.05 seconds. The data recorded for each weld shall be provided in an Excel spreadsheet. The following parameters are to be recorded,</p> <ol style="list-style-type: none"> 1. Accelerating voltage (kV). 2. Beam current (mA). 3. Focus current (mA). 4. Linear Gun table speed (mm/min). 5. X&Y table welding speed (mm/min) 6. Rotary welding speed (rpm). 7. Vacuum level in gun & chamber (mbar). 	Yes / No / Explain		
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81	12. Cooling system	Based on the configuration of EBW, necessary closed circuit water chiller unit shall be provided. Details of the chiller unit, which include power supply, flow rate, working temperature range, display system showing temperature & flow rate shall be provided.	Yes / No / Explain		
82	13. On-line UPS system	Online UPS of sufficient rating with 15 minutes backup shall be supplied along with machine. Backup shall be included to power PC, PLC, NC and penning gauges control units power supply etc.	Yes / No / Explain		
83	14. Maintenance tools & Servo controlled voltage stabilizer and isolation transformer	14.1 Necessary tools required for Filament setting, Gun maintenance, mechanical & electrical tool kit and other systems including multi-meter, gauss meter shall be supplied along with machine 14.2 Servo controlled voltage stabilizer and isolation transformer of sufficient rating shall be provided with machine	Yes / No / Explain		
84	15. Type of material to be welded and Achievable depth of penetration	As per 15.1 to 15.3	Yes / No / Explain		

85	15.1 Type of Material	<p>The following material shall be possible to weld:</p> <ul style="list-style-type: none"> • Stainless steel & Stainless-steel based alloys • Titanium and Titanium based alloys • Copper and copper based alloys • Aluminum and Aluminum based alloys • Nickel based super alloys & • Niobium & Niobium based alloys.(bring to the introduction) 	Yes / No / Explain		
86	15.2 Depth of penetration	<p>Achievable depth of penetration shall be 10 mm (minimum) with the following conditions.</p> <ul style="list-style-type: none"> • Material : AISI 304 – Solid rod • Accelerating voltage : 60 kV • Beam current : Set to get the 10 mm weld depth. • Travel speed: 800 mm/min. • Gun-Work distance :350 mm • Beam Focus condition: Sharp focus • Chamber and Gun vacuum level: 5 x 10⁻⁴ mbar & 1 x 10⁻⁵ 	Yes / No / Explain		
87	15.3 Acceptance	<p>Party shall demonstrate the specified depth of penetration during pre-delivery inspection in the presence of VSSC personnel.</p>	Yes / No / Explain		
88	16. Test data, Technical documentation and software	As per 16.1 to 16.3	Yes / No / Explain		

89	16.1 Test data:	<p>1. Complete test data of the machine shall be submitted along with the machine delivery. The above test, together with any additional test or trials agreed shall be repeated during the presence of VSSC engineers during the pre-dispatch inspection.</p> <p>2. Relevant ISO or equivalent standards shall be followed for the construction of various sub systems of the machine.</p>	Yes / No / Explain		
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90	16.2. Technical documentation	<p>The following documents (in English) shall be provided along with the machine:</p> <ol style="list-style-type: none"> 1. Instruction manual – 2 sets 2. Maintenance manual – 2 sets 3. Diagrams for all mechanical assemblies with parts lists 4. Mechanical, Electrical and Electronic circuit diagrams. 5. Technical documentation (in English) for the main components purchased. 6. One soft copy of all the manuals and diagrams in PDF format, as well as the specific programs (PLC, CNC and man-machine interface) in CD. 7. Calibration certificate for all the vacuum gauges shall be provided. 8. Metric system of measurement should be used in the system documentation, specifications drawings, manuals etc. 	Yes / No / Explain		
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91	16.3. Software	<p>1. All software provided shall be licensed to VSSC for life-long use (Perpetual License).</p> <p>2. All software/programs/drivers/OS shall be supplied in installable Medias with special interface cables if applicable.</p> <p>3. Licensed version software CD and replaceable hard disk installed with all the software shall be included.</p> <p>4. Maintenance, Enhancement, automatic up-gradation, and Support for three years for all software.</p> <p>5. One re-installation CD for the PC.</p>	Yes / No / Explain		
92	17. Pre-Dispatch Inspection:	As per 17.1 to 17.4	Yes / No / Explain		
93	17.1. Inspection and Calibration Certificates	<p>The inspection and calibration certifications for compliance to specified requirements for EB gun system, control system, X-ray radiation safety and other requirements as per specifications shall be conducted in presence of VSSC personnel. The pre-dispatch inspection shall be based on the ISO 14744 requirement/specifications</p>	Yes / No / Explain		

94	17.2. Functional demonstration	<p>EB gun system, high voltage power supply unit, rotary manipulator, required controls and other supply items shall be demonstrated by integrating with work chamber as given below:</p> <ol style="list-style-type: none"> 1 Maximum accelerating voltage and stability. 2 Maximum beam current and stability. 3 Maximum beam power 4 Beam focus range 5 Beam deflection and function generator capabilities. 6 Depth of penetration prove-out on different materials as specified. 7 Alignment accuracies of gun elements and its movement. 8 Alignment accuracies of rotary manipulators. 9 CCTV and seam tracking system (Teach-in mode). 10 Data monitoring and acquisition system. 	Yes / No / Explain		
95	17.3. Job Prove out	<p>Enough specimens shall be welded to prove the capability, consistency and reliability of the EBW machine. Sufficient weld samples will be supplied by VSSC free of cost.</p>	Yes / No / Explain		
96	17.4. Despatch Clearance	<p>Dispatch clearance shall be provided by VSSC representatives based on satisfactory pre-dispatch inspection and testing at OEM site.</p>	Yes / No / Explain		

97	18. Training of VSSC personnel:	<p>1. Training for two VSSC Engineers shall be provided, for duration of 1-2weeks during pre-dispatch inspection.</p> <p>2. The training shall cover the operation of the machine, supervisory system, CNC programming. Mechanical and electrical system maintenance.</p> <p>3. Purchaser shall bear to/fro air travel, boarding and other incidentals.</p>	Yes / No / Explain		
98	19. Packaging and Delivery	<p>Machine along with all the necessary systems shall be delivered to VSSC with following conditions:</p> <p>1. Seaworthy packing of machine shall be under supplier's scope.</p> <p>2. Delivery schedule shall be 8 months (maximum) from the date of placement of purchase order.</p>	Yes / No / Explain		
99	20. Installation, commissioning at VSSC/ISRO, Thiruvananthapuram and Final Acceptance testing	As per 20.1 to 20.5	Yes / No / Explain		
100	20.1 Installation	The installation of the specified equipment/ systems shall be carried out at VSSC, Thiruvananthapuram .	Yes / No / Explain		

101	20.2 Requirements	<p>20.2.1 Electric power supply to the equipment will be provided by VSSC at installation site as per the following specifications:</p> <p>1. Voltage: 415±10%, Three phase and Neutral 2. Power: kVA shall be specified by supplier 3. Frequency: 50Hz ± 1% 4. Earth: ≤2W. Party shall specify any special earthing is required and Shall give the details for the same in advance.</p> <p>20.2.2 Pneumatic supply will be provided, supplier to indicate pressure and flow requirements.</p>	Yes / No / Explain		
102	20.3 Tele-maintenance	<p>Manufacturer shall provide facility for tele-maintenance support on the equipment.</p>	Yes / No / Explain		
103	20.4 Acceptance	<p>Final acceptance shall be signed only after satisfactory erection of the entire system including EB gun system, high voltage power source, vacuum pumping system, control system, cabling, wiring, complete integration, testing and commissioning at VSSC site.</p>	Yes / No / Explain		

104	20.5 Commissioning	<p>On commissioning at our site, the following operations are to be demonstrated in addition to the demonstration of items specified during pre-dispatch inspection: 1. Operation of Vacuum pumping system 2. Operation of Manipulators 3. Manual over ride for pumps, valves, etc. of chamber vacuum system 4. Safety interlocks 5. QA package for on-line data acquisition and storage 6. Demonstration of specified penetration in stainless steel material, Aluminium and Titanium 7. Demonstration of CCTV and seam tracking (TEACH IN & REPLAY) system operation</p>	Yes / No / Explain		
105	21. Training at VSSC during commissioning and acceptance of machine	<p>One week training shall be given to VSSC personnel at VSSC, Thiruvananthapuram, after Installation, Commissioning, Testing & Acceptance</p>	Yes / No / Explain		
106	22. Safety and Certifications	<p>All the necessary safety regulations such as CE compliance, low voltage directives, EMC regulations compliance details, Alarms and emergency switch-off in case of any malfunctioning must be provided. The system must be equipped with all the necessary safety interlocks.</p>	Yes / No / Explain		

107	23. Warranty:	<p>The complete system and its associated hardware / software shall have a warranty of 36 months from the date of Installation, Commissioning and Acceptance of the system at VSSC. Maintenance/ repair /replacement of any hardware or software component of the system during warranty period to be done free of cost (including expenses of Engineer from OEM).</p> <p>1. Supplier modification(s) / Software upgrades shall be intimated and same will be made available free of cost during the warranty period.</p>	Yes / No / Explain		
108	24. Essential Spares and Consumables	<p>The party shall supply adequate quantity of spares including electronics spares, vacuum components, gauges, etc. and also adequate quantity of consumables required for 2 years of operation of the machine on two shift basis. The list of spares and consumables with quantities shall be clearly indicated in Part I: Offer. Price breakup shall be provided in Part II: Offer.</p>	Yes / No / Explain		
109	25. Non-Comprehensive Annual Maintenance Contract (NC-AMC)	As per 25.1 to 25.8	Yes / No / Explain		

110	25.1 General:	<p>1. The party shall undertake Non-comprehensive AMC for a period of minimum FIVE years, after the expiry of warranty period. Details as per Annexure-1</p> <p>2. The quote for AMC is mandatory and shall be in Indian Rupees since it is envisaged that the Non-Comprehensive AMC is to be carried out by the authorized Indian Service Provider of the manufacturer.</p> <p>3. The scope shall be for two preventive maintenance visits per year. For each preventive maintenance, duration shall be of 3 days per visit. Breakdown maintenance cost by the Indian agent shall be quoted separately per man day basis. In case of any major breakdowns which would need the intervention of original equipment manufacturer (OEM), the quote shall include per visit cost for the same.</p> <p>Note: Do not to include AMC cost along with part-I technical specification</p>	Yes / No / Explain		
111	25.2 Type of Contract:	The proposed Annual Maintenance Contract shall be of Non-Comprehensive type.	Yes / No / Explain		
112	25.3 Period of contract:	The contract shall be valid for a period of 5 years.	Yes / No / Explain		

113	25.4 Preventive maintenance:	<p>i. The authorized Indian service provider shall perform two half-yearly preventive maintenance visits in one year i.e., three days per visit (two service engineers shall be assigned, one from mechanical and other from electrical/electronics background). Total number of preventive maintenance visits for 5 years shall be 10.</p> <p>ii. The party shall quote for per man-day basis, which shall be all inclusive price, including for boarding, lodging & travel etc.</p>	Yes / No / Explain		
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114	25.5 Breakdown maintenance:	<p>i. The authorized Indian Service Provider shall attend to any number of breakdown calls per year, immediately within 24 hours of intimation during the contract period.</p> <p>ii. The party shall quote for per man-day basis, which shall be all inclusive price, including for boarding, lodging & travel etc. In the event of major breakdown of the machine which requires intervention from original manufacturer based outside India, the same shall be quoted by the party in terms of foreign currency for per man-day basis, which shall be all inclusive price, including boarding, lodging & internal travel etc. However, to and fro airfare shall be paid at actual on production of documentary proof as applicable.</p>	Yes / No / Explain		
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115	25.6 Payment terms:	<p>i. Maintenance charges shall be paid after every half yearly service on pro-rata basis on completion of each satisfactory service.</p> <p>ii. However, at the end of each service, a Service Report duly signed by Contractor, Facility in-charge and Division Head shall be obtained from the user section/division to the effect that the welding machine has been serviced and is working satisfactorily and shall be submitted to the Purchase & Stores Officer, Unit 3, VSSC, Thiruvananthapuram 695022, along with bill/invoice in duplicate with a copy to Accounts Officer.</p>	Yes / No / Explain		
116	25.7 Damage/injury-1	In the event of damages to our property or injury to our personnel due to the negligence of the supplier's employees, the responsibility shall solely rest with the supplier.	Yes / No / Explain		
117	25.8 Damage/Injury-2	The Department shall not be responsible for any injury to supplier's personnel, or damage to his equipment caused at our site.	Yes / No / Explain		
118	26. Guarantee for supply of spares & Service support:	The supplier shall guarantee supply of spares, service and extend AMC support for a period of 15 years from the date commissioning and acceptance of the machine.	Yes / No / Explain		

119	27. Heritage of EBW machines built for aerospace users:	The party shall have supplied similar EBW machine (60 kV machine) working satisfactorily for reputed Aerospace industries in India and the address and details of the company (year of supply, commissioning date & customer feedback) where they have supplied shall be mentioned in their offer. Further suppliers should have their own design and proven electron gun being used at least for the last 5 years.	Yes / No / Explain		
120	28. Authorized service team in India:	Foreign suppliers shall have authorized team of trained service personnel in India for extending service and for undertaking Annual Maintenance Contract for the supplied machine.	Yes / No / Explain		
121	29. General requirements and conditions:	As per 29.1 to 29.22	Yes / No / Explain		
122	29.1 Optional spares	Optional spares: Suppliers shall indicate the comprehensive list of optional spares with price breakup of each.	Yes / No / Explain		
123	29.2 Delivery schedule	Delivery schedule shall be 8 months maximum from date of purchase order.	Yes / No / Explain		
124	29.3 Quality of supplied products	All supplied assemblies/ systems and components shall be state-of-the art technology and standard parts shall be from reputed make/ brands.	Yes / No / Explain		

125	29.4 Standards	The supplied systems/equipment shall comply with required relevant standards in vogue.	Yes / No / Explain		
126	29.5 Colour coding	Colour coding shall be followed for each system in the equipment as per the relevant standards.	Yes / No / Explain		
127	29.6 System Integration	The total system shall be fully integrated within a robust steel framework with removable covers and accessible panels.	Yes / No / Explain		
128	29.7 Site requirements	The overall dimensions of the system, requirements of civil works and material handling system if needed, to be informed to VSSC well in advance	Yes / No / Explain		
129	29.8 Foundation requirements	Foundation requirements for the machine if needed, including drawings shall be communicated to purchaser within one month of ordering to ready machine installation site.	Yes / No / Explain		
130	29.9 Electrical requirements	Suppliers shall indicate the total electrical power supply capacity in KVA rating for readying the same at Installation site.	Yes / No / Explain		
131	29.1 Pneumatic supply	Pneumatic supply will be provided by purchaser, if necessary. Supplier to indicate the pressure and flow requirements.	Yes / No / Explain		
132	29.11 Earthing requirements	Earthing requirements, if any, shall be projected to purchaser.	Yes / No / Explain		

133	29.12 Maintenance Manuals	Three sets of operation and maintenance manuals (in English) for the supplied system with electrical circuit diagrams and mechanical drawings for jigs etc., to be supplied	Yes / No / Explain		
134	29.13 Units of measurements	Metric system of measurement shall be followed in all specifications, drawings, manuals, etc.	Yes / No / Explain		
135	29.14 Language	All documents, manuals, drawings, communications, etc. shall be in English language only.	Yes / No / Explain		
136	29.15 Packing standards	Seaworthy packing of machine shall be under supplier's scope.	Yes / No / Explain		
137	29.16 Installation site	Installation and commissioning at Purchaser's site at VSSC, India.	Yes / No / Explain		
138	29.17 Installation and commissioning	Installation and commissioning of the equipment shall be carried out at our site by the trained engineer from the principal. All the tools, tackles, manpower and equipment for installation and commissioning are under supplier's scope.	Yes / No / Explain		
139	29.18 Training	The training for VSSC Engineers at manufacturers site shall be given free of cost with preliminary modules.	Yes / No / Explain		
140	29.19 Warranty	Items shall have a warranty period of 36 months from the date of commissioning at our site.	Yes / No / Explain		

141	29.20 Annual Maintenance Contract (AMC)	The party shall undertake Non-comprehensive Annual Maintenance Contract (AMC) for five years, after the expiry of warranty period.	Yes / No / Explain		
142	20.21 AMC conditions	Though, quotations are also sought for Annual Maintenance Contract (AMC), it is to be noted that the AMC will be based on the Indian Service Provider and in Indian Rupees after completion of warranty period, Accordingly, the prices quoted for the AMC shall be valid till such time.	Yes / No / Explain		
143	20.22. Configuration review:	It shall be arranged within short time of placement of supply order, in which every aspect of the work shall be explained to our engineers. Necessary changes suitable for improvement of the system performance/functionality within the scope of supply as suggested by our engineers shall be incorporated	Yes / No / Explain		

Document : Technical and Commercial Specifications of EBW machine

Supporting Documents required from Vendor

1. Detailed Cost split up for the machine, installation & commissioning, spares and AMC (Price Bid Related)
2. 3. List of essential spares and consumables with quantities required for 2 years of operation of the machine
3. 2. Data sheets of the offered machine clearly indicating the specifications
4. 1. Compliance to specifications

5. OEM Authorization Certificate

6. UNPRICED LIST of Spares during 5 Years AMC Period

7. UNPRICED NC-AMC Bid for 5 Years with Detailed Scope

8. Declaration regarding the percentage of local content (or value addition) in the item with Break-up details and Location offered.

9. UNPRICED TECHNICAL BID showing appropriate break-up of Equipment offered

5 additional documents can be uploaded by the vendor

C.2 Commercial Terms / Bid

Sl. No.	Description	Compliance	Vendor Terms
1	Final acceptance will be after successful installation, testing and commissioning at VSSC site as per specifications.	Yes / No / Explain	
2	Taxes and other costs,	Yes / No / Explain	
3	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	
4	Delivery Terms.	Yes / No / Explain	
5	Delivery Period A. TIME REQUIRED FOR SUPPLY OF ITEM. B. TIME REQUIRED FOR COMPLETING INSTALLATION AND COMMISSIONING. Time period required for both stages should be mentioned separately.	Yes / No / Explain	
6	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	
7	Warranty (min. 3 years from the date of installation and commissioning at our site).	Yes / No / Explain	

8	<p>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).</p>	Yes / No / Explain	
9	<p>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 EXTANT GUIDELINES FROM DEPARTMENT OF SPACE, NO ADVANCE PAYMENT IS PAYABLE TO THIS TENDER).</p>	Yes / No / Explain	
10	<p>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.</p>	Yes / No / Explain	
11	<p>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.</p>	Yes / No / Explain	

12	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	
13	PO Placement Address (with Name and Contact Details of sales person concerned).	Yes / No / Explain	
14	Any Other Terms	Yes / No / Explain	
15	Offer Validity (min. 180 days from the date of opening of technical bid).	Yes / No / Explain	
16	IMPORTANT: Please ensure that all price related documents shall be merged as a SINGLE PDF FILE and uploaded against Detailed Cost split up for the machine, installation & commissioning, spares and AMC (Price Bid Related) TAB. Only UNPRICED BIDS (Price masked) shall be uploaded elsewhere. Uploading Price Bid Documents elsewhere will lead to rejection of tender.	Yes / No / Explain	
17	Detailed Compliance Matrix shall be uploaded for Evaluation of Technical Bid without which the bid will not be evaluated. Confirm.	Yes / No / Explain	
18	Note: This tender is open to all classes of Suppliers (i.e. Class-I/Class-II and Non-Local) as described in DPIIT order dtd 16/09/2020 and its revisions on Make in India initiative. Purchase preference to eligible vendors are applicable as per extant notifications issued by the Government of India.	Yes / No / Explain	
19	The bids can be in INR by the Indian Manufacturer or in FE quoted directly by foreign OEM/Agent quoting on behalf of Foreign OEM. The currency of the bid shall be in one currency only.	Yes / No / Explain	

20	Bidders may ensure that only the basic cost of each item is entered against the unit price column in the price bid. All the other charges entered will be treated as extra. In case of local offers, please mention applicable tax percentage against each item category which will be extra. The quote will be evaluated on this basis only and bidders cannot claim they have entered all inclusive price, at a later stage. Hence bidders are advised to exercise due diligence while quoting.	Yes / No / Explain	
21	DECLARATION: "I have read the clause regarding restrictions on procurement from a bidder of a country which shares a land border with India; I certify that this bidder- is not from such a country or, if from such a country, has been registered with the Competent Authority. I hereby certify that this bidder fulfils all requirements in this regard and is eligible to be considered." Confirm.	Yes / No / Explain	
22	Non-Comprehensive AMC. You shall provide NC-AMC for a period of 5 years from the date of completion of warranty period. Detailed Scope of AMC with number of preventive/breakdown visits WITHOUT PRICE DETAILS shall be uploaded. Price shall be mentioned in Price Bid/Price Bid related document.	Yes / No / Explain	

C.3 Price Bid

Sl. No.	Item	Quantity	Unit Price	Currency	Total Price	Remark
1	ELECTRON BEAM WELDER	1.00 Nos.		-		

Common charges (Applicable for all items)

P&F Charges	
Freight charge	
AMC Charges for 1st Year after warranty period	

AMC Charges for 2nd Year after warranty period	
AMC Charges for 3rd Year after warranty period	
AMC Charges for 4th Year after warranty period	
AMC Charges for 5th Year after warranty period	
Essential Spares Cost (lumpsum)	
Installation & Commissioning Charges	
Any Other Charges (Amount)	
Documentation & Hadnling charges	