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

Tender for Supply, installation, commissioning and system prove out of an atmospheric plasma coating system

Bids to be submitted online

Tender No.: IPRC/PURGP2/IP202300161101 dated 01-05-2024

A. Tender Details

Tender No :	**IPRC/PURGP2/IP202300161101**
Tender Date :	**01-05-2024**
Tender Classification:	**GOODS**
Purchase Entity :	**PURGP2**
Centre :	**ISRO PROPULSION COMPLEX (IPRC)**

Supply, installation, commissioning and system prove out of an atmospheric plasma coating system

1.Foreign vendors are not permitted to quote.

2.THIS IS A TWO PART BID. HENCE, PRICE DETAILS ARE FURNISHED IN THE PRICE BID TEMPLATE AND PRICE BID RELATED BID FORMS ONLY. IF PRICE DETAILS OF ANY NATURE ARE FOUND IN THE TECHNICAL ANNEXURES , THE OFFER WILL BE REJECTED SUMMARILY. PRICE DETAILS SHALL BE MENTIONED IN THE REQUESTED FIELD ONLY. AMC CHARGES AND LIST OF SPARES AND PRICE ARE TO BE UPLOADED IN THE GIVEN PRICE BID RELATED FORMS ONLY.

3. Interested bidders shall be attended the pre-bid meeting Scheduled on 15.05.2024, 11.00 AM through Online Mode. IT MAY BE NOTED THAT, BIDDERS WHO HAVE ATTENDED THE PRE-BID MEETING ONLY CAN SUBMIT THEIR OFFER. THE OFFERS RECEIVED FROM THE BIDDERS WHO HAVE NOT PARTICIPATED IN THE PRE-BID MEETING WILL BE TREATED AS INVALID.

PRE-BID MEETING IS SCHEDULED ON 15.05.2024, 11.00 AM THROUGH ONLINE MODE. INTERESTED BIDDERS SHALL BE INTIMATED THEIR WILLINGNESS TO THE FOLLOWING MAIL ID; psogroup2@iprc.gov.in / na_priya@iprc.gov.in / spso@iprc.gov.in ON OR BEFORE 13.05.2024 THE MEETING LINK WILL BE PROVIDED AGAINST YOUR REQUEST.

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

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

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

5. MSE preference is applicable only against the claim of the manufacturer and production of documentary evidence by the manufacturer for the registration of particular item under MSE.

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

7. This is an E Tender. Hence Postal/Fax/Email tenders will not be accepted.

8. Acceptance of Guarantee / Warranty, Security Deposit, PBG & LD Clause shall be specified in your Offer.

9. Items as per the Tender is eligible for Concessional rate of GST (i.e., @ 5%) as per Ministry of Finance, Dept. of Revenue Notification No. 24/2018 Central Tax (Rate) Schedule-I; Sl. No. 243B dated 31.12.2018 (Amendment to Notification No. 6/2018 - Central Tax (Rate) dated 25.01.2018 and Notification No. 1/2017 dated 28.06.2017) and Government of Tamil Nadu, Commercial Taxes & Registration (B1) Department G.O(Ms) No.18 Dtd. 25/01/2018 & Schedule-I; Sl. No. 243 B as per the amendment dated 31.12.2018 (Amendment G.O(Ms)No.170 dated 31/12/2018). Necessary concessional GST certificate will be issued. Please confirm your acceptance.

10. Local content declaration as per the enclosed format shall be furnished along with your Offer.

A.1 Tender Schedule

Tender Publish Date :	**01-05-2024 15:10**
Bid Clarification Due Date :	**03-06-2024 14:00**
Bid Submission Start Date :	**15-05-2024 14:00**
Bid Submission Due Date :	**10-06-2024 14:00**
Bid Opening Date :	**10-06-2024 14:30**
Price Bid Opening Date :	**11-06-2024 12:00**

A.2 Pre-bid Meeting Details

Date :	**15-05-2024 11:00**

Place :	**IPRC, Mahendragiri (Meeting will be conducted through Online Mode)**
Location :	**Mahendragiri, Tirunelveli (Dist), Tamil Nadu - 627 133**
Centre :	**ISRO PROPULSION COMPLEX (IPRC), MAHENDRAGIRI, TAMIL NADU**
Details :	**Interested bidders shall be attended the pre-bid meeting Scheduled on 15.05.2024, 11.00 AM through Online Mode. IT MAY BE NOTED THAT, BIDDERS WHO HAVE ATTENDED THE PRE-BID MEETING ONLY CAN SUBMIT THEIR OFFER. THE OFFERS RECEIVED FROM THE BIDDERS WHO HAVE NOT PARTICIPATED IN THE PRE-BID MEETING WILL BE TREATED AS INVALID.** **PRE-BID MEETING IS SCHEDULED ON 15.05.2024, 11.00 AM THROUGH ONLINE MODE. INTERESTED BIDDERS SHALL BE INTIMATED THEIR WILLINGNESS TO THE FOLLOWING MAIL ID; psogroup2@iprc.gov.in / na_priya@iprc.gov.in / spso@iprc.gov.in ON OR BEFORE 13.05.2024 THE MEETING LINK WILL BE PROVIDED AGAINST YOUR REQUEST.**

B. Tender Attachments

NA

Instructions To Vendors

1. General Instructions

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

2. This is an E Tender. Hence Postal/Fax/Email tenders will not be accepted.

3. If a vendor is not able to submit bid against this tender due to any reason, such vendor is requested to post their REGRET message in the e-procurement portal with clear reasons or email to psogroup2@iprc.gov.in. Non submission of bids without regrets will be viewed seriously.

4. IPRC reserves the right to split the tendered quantity in part or whole on its sole discretion without assigning any reason.

5. IPRC has the right to cancel the tender without assigning any reason etc.

6. If any vendor submits forged / false documents along with the tender, offer of such vendors will be summarily rejected and such bidders will be blacklisted for all future tenders.

7. Option Clause:-The purchaser reserves the right to increase/decrease the ordered quantity by up to 25-30 percent at any time, till final delivery date (or the extended delivery date of the contract), by giving reasonable notice even though the quantity ordered initially has been supplied in full before the last date of the delivery period (or the extended delivery period)

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

1. 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.

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

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

4. Model Certificate for Tenders

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

5. 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.

3. Format for Self Certification under Preference to MAKE IN INDIA Policy CERTIFICATE

1. In line with Government Public Procurement Order No. P-45021/2/2017-BE-II dt. 15.06.2017, as amended from time to time and as applicable on the date of submission of tender, we hereby certify that we M/s. _____(supplier name) are local supplier meeting the requirement of minimum Local content _____% as defined in above orders for the materials against Tender Enquiry No. _____Dt:_____ The items considered for local value addition are:

2. 1. ----------

2. ----------

3. ----------

(if required add more rows and items)

Details of location at which local value addition will be made is as follows:

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3. We also understand, false declarations will be in breach of the Code in Integrity under Rule 175(1) (i) (h) of the General Financial Rule for which a bidder or its successors can be debarred for up two years as per Rule 151 (iii) of the General Financial Rules along with such other actions as may be permissible under law.

4. For (COMAPANY NAME)

Authorized Signatory

4. STANDARD TERMS AND CONDITIONS (DOS PM: 20)

1. 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. 8 (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.

2. DELIVERY:

(a) The time for and the date of delivery of the stores stipulated in the Purchase Order shall be deemed to be the essence of the Contract and delivery must be completed on or before the specified dates.

(b) Should the Contractor fail to deliver the stores or any consignment thereof within the period prescribed for such delivery, the purchaser shall be entitled at his option either.

(i) to recover from the Contractor as agreed liquidated damages and not by way of penalty, a sum of 0.5% per week of the price of any stores which the Contractor has failed to deliver as aforesaid or during which the delivery of such store may be in arrears subject to a minimum of 10%, or

(II) to purchase from elsewhere, without notice to the Contractor on the account and at the risk of the Contractor, the stores not delivered or others of a similar description (where others exactly complying with the particulars, are not, in the opinion of the purchaser, readily procurable, such opinion being final) without cancelling the Contract in respect of the consignment (s) not yet due for delivery, or

(iii) to cancel the Contract or a portion thereof and if so desired to purchase or authorise the purchase of stores not so delivered or others of a similar description (where others exactly if complying with the particulars are not, in the opinion of the purchaser, readily procurable, such opinion final) at the risk and cost of the Contractor.

In the event of action being taken under sub-clause (ii) & (iii) of clause 10 (b) above, the Contractor shall be liable for any loss which the purchaser may sustain on that account, provided that the re-purchase or if there is an agreement to re- purchase then such agreement is made within six months from the date of such failure. But the Contractor shall not be entitled to any gain on such re-purchase made against default. The manner and method of such re-purchase shall be at the discretion of the purchaser, whose decision shall be final. It shall not be necessary for the purchaser to serve a notice of such re-purchase on the defaulting Contractor. This right shall be without prejudice to the right of the purchaser to recover damages for breach of Contract by the Contractor.

3. DISPATCH:

The Contractor is responsible for obtaining a clear receipt from the Transport Authorities specifying the goods dispatched. The consignment should be dispatched 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.

4. ERECTION OF PLANT & MACHINERY:

Wherever erection of a plant or machinery is the responsibility of the Contractor as per the terms of the Contract and in case the Contractor fails to carry out the erection as and when called upon

to do so within the period specified by the purchaser, the purchaser shall have the right to get the erection done through any source of his choice. In such an event, the Contractor shall be liable to bear any additional expenditure that the purchaser is liable to incur towards erection. The Contractor shall, however, not be entitled to any gain due to such an action by the purchaser.

5. EXTENSION OF TIME:

As soon as it is apparent that the Contract dates cannot be adhered to, an application shall be sent by the Contractor to the purchaser. If failure, on the part of the Contractor, to deliver the stores in proper time shall have arisen from any cause which the purchaser may admit as reasonable ground for an extension of the time (and his decision shall be final) he may allow such additional time as he considers it to be justified by circumstances, of the case without prejudice to the purchaser's right to recover liquidated damages under clause 10 thereof.

6. 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 as to whether the nature of the defects requires renewal or replacement, shall be final, conclusive and binding on the Contractor.

(f) To fulfill guarantee conditions outlined in clause 4 (a) to (e) above, the Contractor shall,

at the option of the purchaser, furnish a Bank Guarantee (as prescribed by the purchaser) from a Bank approved by the purchaser for an amount equivalent to 3% 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 the stores at purchaser 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 in such cases the period of 14 months referred to in para 4 (b) & (c) shall be the guarantee period plus two months.

7. PERFORMANCE BANK GUARANTEE:
Supplier has to submit an interest free Performance Bank Guarantee for an amount equivalent to 3% (THREE PERCENT) of order value obtained from any scheduled Banks executed on Rs.200/- non-judicial stamp paper and shall be valid for a period of sixty days beyond expiry date of warranty period. The same shall be submitted along with Invoice towards final payment.

8. 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.

9. 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.

10. REJECTED STORES:

Rejected stores will remain at destination at the Contractor 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.

11. SECURITY DEPOSIT(SD):
The Supplier shall provide Bank Guarantee for an amount equivalent to the 3% (Three PERCENT) of the total Order value towards Security Deposit for the due performance of the Purchase Order. The Security Deposit can be submitted in the form of Bank Guarantee (format enclosed) or Fixed Deposit receipt obtained from any Nationalized/ Scheduled Bank and it shall be kept valid for a period of sixty days beyond the date of completion of the Purchase Order. This Security Deposit will be returned to the Supplier only upon successful completion of all the contractual obligations or shall be adjusted/ forfeited against non-fulfilment of any of the contractual obligations. The Security Deposit shall be submitted within 30 days from the date of receipt of Purchase Order.

12. TEST CERTIFICATE:

Wherever required, test certificates should be sent along with the dispatch documents.

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

5. GENERAL TERMS AND CONDITIONS

1. a) Facility of after sales service to be confirmed with details.
b) Permanent Account Number (PAN) allotted by Income-Tax authorities shall be furnished with documentary proof. Otherwise, documentary proof for having applied for PAN should be provided. Also PAN should be in the name of Company/Firm, if quoted by the Company/Firm and in the name of Individual, if quoted by individual.
c) GST No.
d) PAN No.
e) Local office in Tirunelveli / Nagercoil is preferable.
Note: (b) to (e) are applicable for Indian Companies only.

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

3. GST where legally leviable and intended to be claimed should be distinctly shown separately in the tender.

4. Guarantee / Warranty period as applicable shall be indicated, along with the quote.
Guarantee/Warranty shall commence from the date of installation and acceptance of the complete equipment supplied under the contract/purchase order.

5. If an Indian agent submits bid on behalf of the Principal/OEM, the same Indian agent shall not

submit a bid on behalf of another Principal/OEM in the same tender for the same item/product

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

C. Bid Templates

C.1 Technical Bid - Supply, installation, commissioning and system prove out of an atmospheric plasma coating system

1. Plasma or Thermal Spray Equipment : Supply, installation, commissioning and system prove out of an atmospheric plasma coating system as per specifications mentioned.

Item specifications for Plasma or Thermal Spray Equipment

Sl No	Specification	Value	Compliance	Offered Specification	Remark
1	Scope of work	Supply, installation, commissioning and system prove out of an atmospheric plasma coating system as per specifications	Yes / No / Explain		
2	Over all System Description-1 Atmospheric plasma spraying system comprising of	Plasma control console, Power supply unit, powder feeder unit, Water chiller unit, Gas management unit, Junction and monitoring unit, Electrical distribution unit, Plasma gun, Robotic drive system with controller for plasma gun and hardware manipulation, Acoustic booth, Dust extraction system, Interconnection cables, ducts and hoses required for installation	Yes / No / Explain		
3	Over all System Description-2 Type	Non transferred arc plasma spraying system	Yes / No / Explain		
4	Over all System Description-3 Electrical standards	Plasma console : IEC 60529-IP50/latest equivalent Electrical systems : IEC 60204-11/latest equivalent	Yes / No / Explain		

5	Over all System Description-4 Control, monitoring and operation	PLC based system	Yes / No / Explain		
6	Over all System Description-5 Power rating	40kW (Nominal)	Yes / No / Explain		
7	Over all System Description-6 Coating Material form	Powder	Yes / No / Explain		
8	Over all System Description-7 Primary plasma gas	Nitrogen/Argon	Yes / No / Explain		
9	Over all System Description-8 Secondary plasma gas	Hydrogen	Yes / No / Explain		
10	Over all System Description-9 Powder carrier gas	Primary gas (Nitrogen/Argon)	Yes / No / Explain		
11	Over all System Description-10 Coating powders compatibility	Capable of coating all thermal spray powders, especially Nickel Aluminide, Zirconium oxide and chromium oxide. It shall be capable of coating other ceramic powders also.	Yes / No / Explain		
12	Plasma Control console- Technical specifications-1 : Control, monitoring and operation	PLC controlled (meeting the conditions given in 2.2.13 in technical specifications document)	Yes / No / Explain		
13	Plasma Control console- Technical specifications-2 : Type	Fully automatic	Yes / No / Explain		
14	Plasma Control console- Technical specifications-3 : Plasma power control capability	40kW (Nominal)	Yes / No / Explain		
15	Plasma Control console- Technical specifications-4 : Process gases	Argon, Nitrogen, Hydrogen	Yes / No / Explain		
16	Plasma Control console- Technical specifications-5 : Process gases flow rates	Hydrogen - 0 to 10 NLPM @ 6bar Nitrogen - 0 to 100 NLPM @ 6bar Argon – 0-100 NLPM@ 6bar	Yes / No / Explain		

17	Plasma Control console- Technical specifications-6 : Accuracy of gas flow rates	±2% of the set value	Yes / No / Explain		
18	Plasma Control console- Technical specifications-7 : Cooling gas	Compressed air	Yes / No / Explain		
19	Plasma Control console- Technical specifications-8 : Cooling gas Pressure	0 to 4bar	Yes / No / Explain		
20	Plasma Control console- Technical specifications-9 : Cabinet protection classification	IEC 60529:2013/latest equivalent	Yes / No / Explain		
21	Plasma Control console- Technical specifications-10 : Ingress protection	IP 54/latest equivalent (for electrical cabinet) IP 33/latest equivalent (for gas cabinet)	Yes / No / Explain		
22	Plasma Control console- Technical specifications-11 : Display panel	LED/LCD display	Yes / No / Explain		
23	Plasma Control console- Technical specifications-12 : Plasma gases regulation	Mass flow controller	Yes / No / Explain		
24	Plasma Control console- Technical specifications-13 : Process gases flow rates read out	Display unit	Yes / No / Explain		
25	Plasma Control console- Technical specifications-14 : Process gases pressure read out	Display unit	Yes / No / Explain		
26	Plasma Control console- Technical specifications-15 : Process voltage read out	Display unit	Yes / No / Explain		
27	Plasma Control console- Technical specifications-16 : Process current read out	Display unit	Yes / No / Explain		

28	Plasma Control console - Features and operational requirements -1	PLC based fully automatic system for the control, monitoring and operation of the entire atmospheric plasma spraying system	Yes / No / Explain		
29	Plasma Control console - Features and operational requirements -2	It shall be the operator console for setting the desired process parameters like current, primary gas flow rate and secondary gas flow rate	Yes / No / Explain		
30	Plasma Control console - Features and operational requirements -3	Also it shall be the display unit for displaying the actual process parameters and alarm signals during coating operation	Yes / No / Explain		
31	Plasma Control console - Features and operational requirements -4	Necessary Human Machine Interface (HMI) shall be made available in the console with touch screen	Yes / No / Explain		
32	Plasma Control console - Features and operational requirements -5	It shall be interfaced with and shall have control over the functioning of the other subsystems like junction unit, powder feeder unit, power supply unit, chiller plant, dust extraction unit, acoustic booth system and robotic drive system for gun and job manipulation	Yes / No / Explain		
33	Plasma Control console - Features and operational requirements -6	It shall be capable of lighting the gun, adjusting the plasma plume to preset parameters and automatically starting the powder feeders and also proper shut down of the system once the coating operation is over.	Yes / No / Explain		
34	Plasma Control console - Features and operational requirements -7	It shall enable soft start ignition using only Argon to maximize electrode and nozzle life.	Yes / No / Explain		

35	Plasma Control console - Features and operational requirements -8	It shall be self diagnostic and give alarm to the operator in case of any adverse conditions mentioned in under interlocks and alarms title	Yes / No / Explain		
36	Plasma Control console - Features and operational requirements -9	The control console shall continuously monitor the basic parameters like plasma gas pressures, cooling water temperature and pressure, cooling air pressure, current value and the entire spraying process including external alarms and external interfaces and shall be capable of shutting down the plasma gun in case of any abnormalities or interlock failures	Yes / No / Explain		
37	Plasma Control console - Features and operational requirements -10	It shall contain inbuilt emergency devices and relays	Yes / No / Explain		
38	Plasma Control console - Features and operational requirements -11	Shall be capable of storing the product process parameters in the form of recipes	Yes / No / Explain		
39	Plasma Control console - Features and operational requirements -12	Shall have provision to store 100 recipes	Yes / No / Explain		
40	Plasma Control console - Features and operational requirements -13	All the process parameters shall be logged and stored. The data shall be in retrievable from the system after completion of the coating process or after certain period of time. The system shall be capable of storing parameters of 1000hrs of operation at a sampling rate of 1s.	Yes / No / Explain		

41	Plasma Control console - Features and operational requirements -14	A suitable computer along with data acquisition software shall be provided along with the system. The computer shall be interfaced with the thermal spraying system towards the data acquisition and monitoring of the process parameters during coating. The system shall have provision to record the following process parameters (but not limited to) current, voltage, power, primary gas flow rate, secondary gas flow rate, carrier gas flow rate, powder parameters, cooling water inlet and outlet temperature. The data shall be in retrievable form was on when required. The computer shall also be loaded with necessary software in order to control the thermal spraying process so that this can act as a redundant to HMI system	Yes / No / Explain		
42	Plasma Control console - Features and operational requirements -15	All the display parameters shall follow both metric and British standards	Yes / No / Explain		
43	Powder Feeder - Technical specification -1 Capacity	5.0 -12.5 liters capacity (5.0 liters minimum)	Yes / No / Explain		
44	Powder Feeder - Technical specification -2 Working principle	Volumetric design	Yes / No / Explain		
45	Powder Feeder - Technical specification -3 Control	PLC controlled	Yes / No / Explain		
46	Powder Feeder - Technical specification -4 No of hoppers	2	Yes / No / Explain		

47	Powder Feeder - Technical specification -5 Powder feed rate	5 to 300 g/min (nominal)	Yes / No / Explain		
48	Powder Feeder - Technical specification -6 Powder particle size	micro to nano powders	Yes / No / Explain		
49	Powder Feeder - Technical specification -7 Accuracy	±1% (of the powder feed rate set value)	Yes / No / Explain		
50	Powder Feeder - Technical specification -8 Carrier gas compatibility	Nitrogen/Argon	Yes / No / Explain		
51	Powder Feeder - Technical specification -9 Carrier gas flow rate control	Mass flow controllers	Yes / No / Explain		
52	Powder Feeder - Technical specification -10 Material of construction of powder hopper	Aluminum- Silicon alloy/ other alloys which will not react with the spraying powders.	Yes / No / Explain		
53	Powder Feeder - Technical specification -11 Powder compatibility	All thermal spray powders (Nominal particle sizes - 90+53micron, -90+45micron, -53+11micron, -53+5micron). Shall be compatible for other micro and nano ceramic and metallic powders	Yes / No / Explain		
54	Powder Feeder - Features and operational requirements -1	Shall have closed loop feed rate monitoring and control for precise powder feed rate	Yes / No / Explain		
55	Powder Feeder - Features and operational requirements -2	Shall be compatible to wide range of powder morphologies like spherical, angular and blocky materials	Yes / No / Explain		
56	Powder Feeder - Features and operational requirements -3	An alarm shall be given in case the desired powder feed rate does not match with the actual powder feed rate	Yes / No / Explain		

57	Powder Feeder - Features and operational requirements -4	Must be interlocked with the plasma control console's PLC so that in case of any abnormalities the total spraying system will be shut down.	Yes / No / Explain		
58	Powder Feeder - Features and operational requirements -5	Must be able to operate the powder feeder unit remotely from the plasma control console	Yes / No / Explain		
59	Power Supply Unit - Technical Specifications -1 Output power	40 kW (Nominal)	Yes / No / Explain		
60	Power Supply Unit - Technical Specifications -2 Output current	0-550A DC	Yes / No / Explain		
61	Power Supply Unit - Technical Specifications -3 Ingress protection	IP42/Latest Equivalent	Yes / No / Explain		
62	Power Supply Unit - Technical Specifications -4 Type	Inverter based/IGBT	Yes / No / Explain		
63	Power Supply Unit - Technical Specifications -5 Accuracy	2% of the set value	Yes / No / Explain		
64	Power Supply Unit - Features and operational requirements-1	Shall give constant current regardless of ±10% voltage fluctuations and changes in electrical arc resistance	Yes / No / Explain		
65	Power Supply Unit - Features and operational requirements-2	The unit shall have a high resolution closed loop control system to produce the desired current and output power	Yes / No / Explain		
66	Power Supply Unit - Features and operational requirements-3	Shall have proper smoothening choke to provide low residual ripple for repeatable coating performance	Yes / No / Explain		
67	Power Supply Unit - Features and operational requirements-4	Shall have effective cooling and ventilation for continuous coating operations	Yes / No / Explain		

68	Power Supply Unit - Features and operational requirements-5	Shall initially start the plasma ignition with a preset current and then slowly buildup to the set parameters	Yes / No / Explain		
69	Power Supply Unit - Features and operational requirements-6	Shall be interfaced and interlocked with the PLC of the plasma control console	Yes / No / Explain		
70	Power Supply Unit - Features and operational requirements-7	The current value shall be set only from the plasma control console	Yes / No / Explain		
71	Power Supply Unit - Features and operational requirements-8	Shall be interlocked with all the subsystems so that in case of any abnormalities the plasma gun must be immediately switched off	Yes / No / Explain		
72	Power Supply Unit - Features and operational requirements-9	Proper earthing and other safety and emergency systems shall be inbuilt within the system	Yes / No / Explain		
73	Junction and monitoring unit-Technical specifications-1 Plasma power	40kW (Nominal)	Yes / No / Explain		
74	Junction and monitoring unit-Technical specifications-2 Cooling water flow range	As per plasma gun requirements	Yes / No / Explain		
75	Junction and monitoring unit-Technical specifications-3 Cooling water temperature range	As per plasma gun requirements	Yes / No / Explain		
76	Junction and monitoring unit-Technical specifications-4 Plasma gas pressure switch	As per plasma gun requirements	Yes / No / Explain		
77	Junction and monitoring unit-Technical specifications-5 Cooling water monitoring	Flow switch	Yes / No / Explain		

78	Junction and monitoring unit- Technical specifications-6 Power supply connection	From the plasma control console	Yes / No / Explain		
79	Junction and monitoring unit - Features and operational requirements -1	Shall measure and monitor the cooling water inlet temperature, outlet temperature and flow rate to the plasma gun	Yes / No / Explain		
80	Junction and monitoring unit - Features and operational requirements -2	Shall be completely interfaced and interlocked with the plasma control console	Yes / No / Explain		
81	Junction and monitoring unit - Features and operational requirements -3	Shall continuously measure and monitor plasma voltage and plasma gas pressure during the spraying operation	Yes / No / Explain		
82	Junction and monitoring unit - Features and operational requirements -4	Ignition shall occurs automatically from the control signal available from the plasma control console	Yes / No / Explain		
83	Junction and monitoring unit - Features and operational requirements -5	Shall be suitable for a wide range of plasma praying guns	Yes / No / Explain		
84	Gas Management Unit- Technical Specifications-1 Primary (Nitrogen) gas flow rate control	Mass flow controller, 0 to 100 NLPM @ 6bar	Yes / No / Explain		
85	Gas Management Unit- Technical Specifications-2 Primary (Argon) gas flow rate control	Mass flow controller 0 to 100 NLPM @ 6bar	Yes / No / Explain		
86	Gas Management Unit- Technical Specifications-3 Secondary (Hydrogen) gas flow rate control	Mass flow controller 0 to 10 NLPM @ 6bar	Yes / No / Explain		
87	Gas Management Unit- Technical Specifications-4 Compressed air pressure control	Proportional pressure control valve 0-4 bar	Yes / No / Explain		

88	Gas Management Unit- Technical Specifications-5 Accuracy	±2%	Yes / No / Explain		
89	Gas Management Unit-Features and operational requirements-1	This shall be a standalone system or shall be an integral part of plasma control console	Yes / No / Explain		
90	Gas Management Unit-Features and operational requirements-2	Necessary pressure switches to monitor the inlet gas pressures shall be provided in the system	Yes / No / Explain		
91	Gas Management Unit-Features and operational requirements-3	Necessary pressure governors, pressure gauges, mixing chamber etc shall be part of the system	Yes / No / Explain		
92	Gas Management Unit-Features and operational requirements-4	The gas hoses shall be designed suitably for the operating pressures	Yes / No / Explain		
93	Gas Management Unit-Features and operational requirements-5	The hoses carrying Hydrogen shall be steel hoses with braided covering	Yes / No / Explain		
94	Gas Management Unit-Features and operational requirements-6	Hydrogen sensor shall be provided in the system to monitor for any hydrogen leak during operation. The same shall be interlocked with the main PLC	Yes / No / Explain		
95	Gas Management Unit-Features and operational requirements-7	Since hydrogen gas is involved the electrical cabinet in the system shall be purged with compressed air/nitrogen maintaining positive pressure. The cabinet pressure shall be monitored and interlocked with the PLC	Yes / No / Explain		

96	Gas Management Unit-Features and operational requirements-8	The system shall be completely integrated with the plasma control console and the process gas flow rates shall be set from the HMI panel. The mass flow controllers shall control the process gas flow rates to the set value and feedback shall be given to the plasma control console. The same shall be monitored and interlocked during the entire spraying process	Yes / No / Explain		
97	Water Chiller unit-Technical Specifications-1 Type	Refrigerant type DM water chiller unit	Yes / No / Explain		
98	Water Chiller unit-Technical Specifications-2 Control	Micro controller/PLC controlled	Yes / No / Explain		
99	Water Chiller unit-Technical Specifications-3 Outlet pressure	As per Plasma gun requirements	Yes / No / Explain		
100	Water Chiller unit-Technical Specifications-4 Outlet temperature	As per Plasma gun requirements	Yes / No / Explain		
101	Water Chiller unit-Technical Specifications-5 Outlet flow rate	As per Plasma gun requirements	Yes / No / Explain		
102	Water Chiller unit-Technical Specifications-6 Cooling capacity	As per Plasma gun requirements	Yes / No / Explain		
103	Water Chiller unit-Features and operational requirements-1	This shall be the only chiller unit for the system operating in closed loop and no plant water circuit will be provided by IPRC	Yes / No / Explain		
104	Water Chiller unit-Features and operational requirements-2	Shall be designed to meet the plasma system requirement	Yes / No / Explain		

105	Water Chiller unit- Features and operational requirements-3	Shall be interfaced and interlocked with the plasma control console	Yes / No / Explain		
106	Water Chiller unit- Features and operational requirements-4	Shall be able to circulate and condition demineralised gun cooling water at a pressure and flow rate required to cool the plasma spray gun	Yes / No / Explain		
107	Water Chiller unit- Features and operational requirements-5	Shall be able to be operated remotely from the plasma control console through a PLC output signal	Yes / No / Explain		
108	Water Chiller unit- Features and operational requirements-6	Shall have automatic control of water temperature, pressure and flow rate	Yes / No / Explain		
109	Water Chiller unit- Features and operational requirements-7	Shall be able to monitor, control and send feedback signals to the plasma control console regarding the flow rate and temperature of the gun cooling water	Yes / No / Explain		
110	Electrical distribution unit - Features and operational requirements-1	This shall be the common power terminal for the entire spraying system	Yes / No / Explain		
111	Electrical distribution unit - Features and operational requirements-2	The electrical power required for various subsystems shall be distributed from this system	Yes / No / Explain		
112	Electrical distribution unit - Features and operational requirements-3	Fuses, ELCB's, MCB's etc designed for the suitable ratings shall be part of the system. The Fuses, ELCB's, MCB's etc shall be reputed make like Sneider/ L&T/ Allen Bradley/ Siemens/ ABB/ equivalent	Yes / No / Explain		
113	Electrical distribution unit - Features and operational requirements-4	The entire system's earthing (including body earthing) shall be terminated in the system	Yes / No / Explain		

114	Electrical distribution unit - Features and operational requirements-5	Additional power output provisions shall be provided as spare for future requirements	Yes / No / Explain		
115	Electrical distribution unit - Features and operational requirements-6	Necessary UPS system shall be introduced between the electrical distribution unit and the subsystems with control electronics and PLC systems with a minimum power backup of 20 minutes under full load. UPS is under the scope of supply by the party and to be installed along with the equipment	Yes / No / Explain		
116	Plasma gun - Technical specifications-1 Power rating	minimum 40kW	Yes / No / Explain		
117	Plasma gun - Technical specifications-2 Suitable for	Nitrogen/Hydrogen, Argon/Hydrogen plasma	Yes / No / Explain		
118	Plasma gun - Technical specifications-3 Current	500A (nominal)	Yes / No / Explain		
119	Plasma gun - Technical specifications-4 Hydrogen flow rate	0-20NLPM (nominal)	Yes / No / Explain		
120	Plasma gun - Technical specifications-5 Nitrogen flow rate	0-100NLPM (nominal)	Yes / No / Explain		
121	Plasma gun - Technical specifications-6 Argon flow rate	0-100NLPM (nominal)	Yes / No / Explain		
122	Plasma gun - Technical specifications-7 Ignition	soft ignition at lower current with argon	Yes / No / Explain		
123	Plasma gun - Technical specifications-8 Type	Machine mount	Yes / No / Explain		
124	Plasma gun - Technical specifications-9 Spray distance	Suitable for system prove out parameters	Yes / No / Explain		

125	Plasma gun - Technical specifications-10 Cooling type	water cooled	Yes / No / Explain		
126	Plasma gun - Technical specifications-11 Cooling water flow rate and temperature	As per plasma gun design requirements	Yes / No / Explain		
127	Plasma gun - Technical specifications-12 Arc initiation and electrode erosion	The plasma gun shall be designed in such a way that the arc initiation and electrode erosion happens in multiple locations to avoid excess wear at a single point leading to gun failure	Yes / No / Explain		
128	Plasma gun - Technical specifications-13 Continuous operation	The consumable elements in the plasma gun like electrode and nozzle shall be capable for minimum 2.5 hours of continuous non-stop operation at a nominal power of 40kW	Yes / No / Explain		
129	Plasma gun - Technical specifications-14 Life of electrode and nozzle	The life of electrode and nozzle used in the plasma guns shall be mentioned by the party. The life shall be considered for a nominal operating power of 40kW	Yes / No / Explain		
130	Plasma gun - Technical specifications-15 Material of electrode and nozzle	The preferred material of construction of electrode shall be tungsten coated copper and the nozzle shall be copper alloy.	Yes / No / Explain		
131	Plasma gun - Technical specifications-16	The plasma gun power rating is mentioned in plasma gun technical specification -1. Party shall quote for either one or more plasma guns meeting the technical requirements	Yes / No / Explain		

132	Plasma gun - Features and operational requirements-1	Shall be suitable for spraying powdered materials using atmospheric plasma spraying process and in no way should contaminate the powders	Yes / No / Explain		
133	Plasma gun - Features and operational requirements-2	Shall be compatible with the plasma control console, power supply unit, chiller unit and junction unit	Yes / No / Explain		
134	Plasma gun - Features and operational requirements-3	Operation of the plasma gun shall be controlled only from the plasma control console	Yes / No / Explain		
135	Plasma gun - Features and operational requirements-4	Perfect electrical insulation shall be provided between the spray gun and the gun manipulator	Yes / No / Explain		
136	Plasma gun - Features and operational requirements-5	Proper insulation and mounting brackets shall be supplied along with the plasma gun	Yes / No / Explain		
137	Plasma gun - Features and operational requirements-6	Shall be suitable for mounting the powder port directly on the gun with tight clearances	Yes / No / Explain		
138	Plasma gun - Features and operational requirements-7	Shall be suitable for mounting the cooling air jet nozzles on the plasma gun	Yes / No / Explain		
139	Plasma gun - Features and operational requirements-8	The party shall quote for suitable plasma gun which shall be used for coating of the thermal barrier and wear resistance coatings as per specifications	Yes / No / Explain		
140	Acoustic Booth-Technical specifications-1 Chamber size	Outside dimension : 10000mm x 3700mm x 3600mm (Approx) Inside dimension: 9800mm x 3500mm x 3500mm (Approx)	Yes / No / Explain		
141	Acoustic Booth-Technical specifications-2 Door opening	3500mm x 3500mm x 3500mm(on two sides ie one side and top) (Approx)	Yes / No / Explain		

142	Acoustic Booth-Technical specifications-3 Window sizes	1000mm x 1000mm (2 numbers on the door and fixed side wall) 1000mm x 1000mm (1 number on the back wall) (Approx)	Yes / No / Explain		
143	Acoustic Booth-Technical specifications-4 Lighting	Dust proof 40W twin tube lights with fixture 4Nos. are to be provided inside the chamber	Yes / No / Explain		
144	Acoustic Booth-Technical specifications-5 Ventilation	10000 m3/hr (approx) fresh air inlet with hood & filter.	Yes / No / Explain		
145	Acoustic Booth-Features and operational requirements-1	Construction: Double walled construction.	Yes / No / Explain		
146	Acoustic Booth-Features and operational requirements-2	Outer wall fabricated out of 16 Gauge (1.5mm) steel sheets stiffened wherever necessary	Yes / No / Explain		
147	Acoustic Booth-Features and operational requirements-3	Inner wall of the cabin consist of 18 gauge galvanized perforated steel sheet 3mm dia hole steel sheet	Yes / No / Explain		
148	Acoustic Booth-Features and operational requirements-4	In between these two walls 100mm thick Inert non consumable & vermin proof lightly resin bonded rock wool mattress with additional qualities for the application of thermal spray is to be lined which has high acoustic insulation properties. The insulation thickness shall be 100 mm minimum.	Yes / No / Explain		
149	Acoustic Booth-Features and operational requirements-5	All the windows shall be double glazed with UV protection films fixed on it with effective glare protection. The windows shall be vacuum filled and made of toughened glass	Yes / No / Explain		

150	Acoustic Booth-Features and operational requirements-6	All the side panels, roof panels and doors shall be of modular in design and shall be assembled on site and dismantled if necessary	Yes / No / Explain		
151	Acoustic Booth-Features and operational requirements-7	Rubber Gaskets shall be provided on the door frames and with each leaf properly to prevent any leakage of sound from door gaps	Yes / No / Explain		
152	Acoustic Booth-Features and operational requirements-8	Doors shall be equipped with rocker arm locking device	Yes / No / Explain		
153	Acoustic Booth-Features and operational requirements-9	Noise reduction: < 89DB measured one meter outside from wall as per industry specification for three hours exposure	Yes / No / Explain		
154	Acoustic Booth-Features and operational requirements-10	Special L- shape sliding door construction opens a section of the cabin giving easy crane access for loading & unloading large work pieces	Yes / No / Explain		
155	Acoustic Booth-Features and operational requirements-11	Door opening shall be motorized with geared motor All metallic surfaces shall be powder coated from outside. Perforated sheet shall be coated with paint	Yes / No / Explain		
156	Acoustic Booth-Features and operational requirements-12	Air inlet shall be equipped with suitable filter which will ensure clean air inside the chamber during spray operation	Yes / No / Explain		
157	Acoustic Booth-Features and operational requirements-13	Inlet and outlet conduits on the roof or on the side of sound proof cabin equipped with sound attenuators	Yes / No / Explain		

158	Acoustic Booth-Features and operational requirements-14	The acoustic booth shall be provided with limit switches for open/close sensing and the same shall be interfaced with the plasma control console	Yes / No / Explain		
159	Dust extraction system: Technical Specifications-1 Type	Dry filter cartridge type dust collection system	Yes / No / Explain		
160	Dust extraction system: Technical Specifications-2 Particulate to be removed	Dust/Powder	Yes / No / Explain		
161	Dust extraction system: Technical Specifications-3 Capacity	7650 CFM (nominal)	Yes / No / Explain		
162	Dust extraction system: Technical Specifications-4 Filtration area	greater than 250 m2	Yes / No / Explain		
163	Dust extraction system: Technical Specifications-5 Number of cartridges	15 -25 nos	Yes / No / Explain		
164	Dust extraction system: Technical Specifications-6 Dust emission level	10 mg/m3 (nominal)	Yes / No / Explain		
165	Dust extraction system: Technical Specifications-7 Fractional efficiency	99.999% on 0.5 micron particles	Yes / No / Explain		
166	Dust extraction system: Technical Specifications-8 Fan Motor capacity	35 HP (nominal)	Yes / No / Explain		
167	Dust extraction system: Technical Specifications-9 Method of cleaning	Online Pulse jet	Yes / No / Explain		
168	Dust extraction system: Technical Specifications-10 Exhaust fan	Ground mounted	Yes / No / Explain		
169	Dust extraction system: Technical Specifications-11 Dust removal system	Manual operated butterfly valve/cam lock dust bin	Yes / No / Explain		
170	Dust extraction system: Technical Specifications-12 Casing, Impeller, base frame	GI steel	Yes / No / Explain		

171	Dust extraction system: Technical Specifications-13 Hopper	GI steel	Yes / No / Explain		
172	Dust extraction system: Technical Specifications-14 Compresses air header	GI steel	Yes / No / Explain		
173	Dust extraction system: Technical Specifications-15 Filter bags	Non woven polyester spun bond/better	Yes / No / Explain		
174	Dust extraction system: Technical Specifications-16 Gaskets	Poly isoprene moulded closed cell gasket/better	Yes / No / Explain		
175	Dust extraction system: Features and operational requirements - 1	The dust collector will be kept in open atmosphere, hence suitable anti rust painting shall be provided in the dust collector system	Yes / No / Explain		
176	Dust extraction system: Features and operational requirements - 2	The dust collection system suction pressure shall be measured by a air flow switch and the same shall be integrated with the plasma control console	Yes / No / Explain		
177	Dust extraction system: Features and operational requirements - 3	Differential pressure transducer shall be installed in the dust collection system in order to check for the pressure drop across and enable cleaning of filter bags	Yes / No / Explain		
178	Dust extraction system: Features and operational requirements - 4	The dust collection system shall be remotely switched ON/OFF from the plasma control console	Yes / No / Explain		
179	Dust extraction system: Features and operational requirements - 5	Necessary star delta timer and other electrical systems shall be provided in the system	Yes / No / Explain		

180	Dust extraction system: Features and operational requirements - 6	The dust collection system shall have online air pulse jet system for shedding of the powders from bags and the same shall be collected in a collection bin through a valve. The system shall have provisions hassle free and safe operation during cleaning	Yes / No / Explain		
181	Drive system	Industrial Robot on linear track and Tilting turn table	Yes / No / Explain		
182	Plasma gun manipulator	Industrial robot mounted on linear track system	Yes / No / Explain		
183	Robot type	Six axis robot with linear track system	Yes / No / Explain		
184	Robot reach	2.4m (minimum). Robot and linear track systems together shall meet the requirement for coating 9 components envelop mentioned in Annexure-A. The mentioned 9 components are the minimum requirements for the system and the system shall be capable of coating other hardware also within the working envelope. The system shall be capable of coating, hardware which are 20% larger in dimensions (3 directions) as compared to the largest hardware mentioned in annexure-A. Length of robot track shall be selected accordingly considering the robot reach.	Yes / No / Explain		

185	Working envelope of gun manipulator	Suitable to coat all the 9 component envelop as mentioned in annexure-A	Yes / No / Explain		
186	Loading capacity of the robot	30kg minimum or suitable for the plasma gun quoted	Yes / No / Explain		
187	Positional Repeatability of Gun manipulator	±0.1mm or better	Yes / No / Explain		
188	Incremental movement of Gun manipulator	0.1mm or better	Yes / No / Explain		
189	Path repeatability of Gun manipulator at 1m/s	<0.4mm or better	Yes / No / Explain		
190	Control system of Gun manipulator	Control and drive module with controller software	Yes / No / Explain		
191	Built of Gun manipulator	Suitable for harsh thermal spray environment inside an acoustic sound booth	Yes / No / Explain		
192	Job manipulator	Tilting turn table	Yes / No / Explain		
193	Capacity of Tilting turn table	800 kg minimum	Yes / No / Explain		
194	Tilting angle of Tilting turn table	0 to 90 deg	Yes / No / Explain		
195	Tilting accuracy of Tilting turn table	±0.5 deg	Yes / No / Explain		
196	Tilting resolution of Tilting turn table	0.1 deg	Yes / No / Explain		
197	Rotation of Tilting turn table	0-200 RPM	Yes / No / Explain		
198	Rotation accuracy of Tilting turn table	±3 RPM	Yes / No / Explain		
199	Face plate diameter of Tilting turn table	1000mm diameter minimum	Yes / No / Explain		
200	Face plate thickness of Tilting turn table	35mm minimum	Yes / No / Explain		

201	Face plate tool fixture of Tilting turn table	To be suitable for fixing the hardware mentioned in Annexure-A. Additional 3 jaw manual chuck shall also be supplied for mounting small diameter hardware.	Yes / No / Explain		
202	Face plate run out of Tilting turn table	<0.1mm	Yes / No / Explain		
203	Offset/Eccentric loading on the Turn table	The drawings of the 9 components which shall be mounted on the turntable are attached in annexure. The drawing of the largest component along with centre of gravity is also given in annexure. The offset/eccentric loading on the turntable shall be calculated based on support design and turn table offset load carrying capacity shall be selected accordingly.	Yes / No / Explain		
204	Drive system - Features and operational requirements-1	The drive system shall be supplied with suitable control and drive modules along with HMI pendant and associated systems like measurement board and cables for the drive system	Yes / No / Explain		
205	Drive system - Features and operational requirements-2	The drive system shall be equipped with an absolute measurement system on all the axis. The position data shall be backed up so that after system power shutdown, no synchronization of the drive system is necessary on restarting	Yes / No / Explain		
206	Drive system - Features and operational requirements-3	The drive system shall be supplied with mechanically active brakes on all the axis	Yes / No / Explain		

207	Drive system - Features and operational requirements-4	The drive system shall automatically braked at emergency stops, power failure, manipulation failure, thermal spray failure, when taken to STAND BY mode or SYSTEM OFF mode	Yes / No / Explain		
208	Drive system - Features and operational requirements-5	The safety and emergency stop systems shall be interlocked with the thermal spray and manipulation system so that all emergency stop buttons, system errors etc the thermal spray gun and manipulator shall be stopped instantly in the case of failure or emergency stop.	Yes / No / Explain		
209	Drive system - Features and operational requirements-6	The control module shall be equipped with necessary I/O modules, analog modules, memory devices, software, operator controls etc for interfacing and interlocking with the thermal spray system	Yes / No / Explain		
210	Drive system - Features and operational requirements-7	The necessary interlocks shall be provided to stop the spraying process in case of any error/failure/malfunctioning in the drive system	Yes / No / Explain		
211	Drive system - Features and operational requirements-8	The drive system shall have error log, operation log and storage device for the same	Yes / No / Explain		
212	Drive system - Features and operational requirements-9	The drive system shall have provision to store 100 path programs	Yes / No / Explain		

213	Drive system - Features and operational requirements-10	The drive system shall have proper integration and interface for allowing process controls like start/stop plasma gun, selecting plasma spraying recipe, start/stop powder feeders, start/stop cooling air, start/stop turntable and set to desired RPM.	Yes / No / Explain		
214	Safety Aspects to be addressed in the system -1	The electrical installations shall be made in accordance with EN 60204-11 or other latest equivalent safety standards	Yes / No / Explain		
215	Safety Aspects to be addressed in the system -2	The pressure regulators and manometers are to be as per DIN EN ISO 2503 or latest equivalent standards	Yes / No / Explain		
216	Safety Aspects to be addressed in the system -3	At Hydrogen line, standardized safety devices like back flash arresters must be fitted in order to prevent gas flow - back and fire blow out	Yes / No / Explain		
217	Safety Aspects to be addressed in the system -4	Pipes for gases used in the system shall be made of chrome steel and must be checked for pressure leaks and seal tightness	Yes / No / Explain		
218	Safety Aspects to be addressed in the system -5	Proper earthing shall be provided with earth resistance value <1 ohms and neutral to earth voltage <2V	Yes / No / Explain		
219	Safety Aspects to be addressed in the system -6	Proper electrical insulation shall be provided in all the electrical installations	Yes / No / Explain		

220	Safety Aspects to be addressed in the system -7	Emergency push buttons shall be provided at various critical subsystems like spray controller, drive system controller, acoustic booth panel box etc and the same shall be interlocked with the PLC of plasma control console	Yes / No / Explain		
221	Safety Aspects to be addressed in the system -8	Necessary Pictograms shall be made available at different subsystem and various locations wherever required	Yes / No / Explain		
222	Interlocks and Alarm Conditions -1	The functional interlocks and the alarm conditions shall be monitored by the PLC in the plasma control console, either by the digital signals assisted by relay based circuits or by analog signals from the measurement transducers through remote Input/output modules.	Yes / No / Explain		
223	Interlocks and Alarm Conditions -2 The following are interlocks shall be provided in the system in addition to any other interlocks/shut down conditions provided by the party	-Emergency push buttons pressed -Gun cooling water flow rate too low -Gun cooling water outlet temperature too high -Plasma gas pressure too low -Nitrogen gas inlet pressure too low -Hydrogen gas inlet pressure too low -Argon gas inlet pressure too low	Yes / No / Explain		

224	Interlocks and Alarm Conditions -3 The following are interlocks shall be provided in the system in addition to any other interlocks/shut down conditions provided by the party	-Cooling air gas inlet pressure too low -Purge pressure in the electrical cabinet of the gas management unit too low -Improper and inappropriate parameter setting -Failure of any of the communication cable between the subsystems -Set process parameter does not match with the actual parameter -Carrier gas pressure too low -Large variations in voltage at the inlet of power supply unit	Yes / No / Explain		
225	Interlocks and Alarm Conditions -4 The following are interlocks shall be provided in the system in addition to any other interlocks/shut down conditions provided by the party	-Set current parameter does not match with the actual current value -Main power failure -Robotic drive system failure - Robotic drive system mode changed from Auto	Yes / No / Explain		
226	Interlocks and Alarm Conditions -5 The following are interlocks shall be provided in the system in addition to any other interlocks/shut down conditions provided by the party	-Any Error message from robotic drive system -Any communication failure - Malfunctioning/error from any of the subsystems	Yes / No / Explain		
227	Interlocks and Alarm Conditions -6	The interlocks mentioned under the clause shall be demonstrated by the party at the time of installation.	Yes / No / Explain		
228	Pre dispatch inspection (PDI) and clearance at supplier's site Clause-1	The system shall be demonstrated for its complete operation including the proper functioning of all the subsystems in the presence of IPRC representative	Yes / No / Explain		

229	Pre dispatch inspection (PDI) and clearance at supplier’s site Clause-2	All the technical specification mentioned in purchase order shall be met with by the individual subsystems as per purchase order. The system shall be demonstrated to the requirements of Tentative Factory Acceptance Test (FAT) and Quality Acceptance Protocol (QAP) attached in annexure. Final FAT and QAP will be communicated along with PO	Yes / No / Explain		
230	Pre dispatch inspection (PDI) and clearance at supplier’s site Clause-3	The proper functioning of the drive system shall be demonstrated during PDI	Yes / No / Explain		
231	Pre dispatch inspection (PDI) and clearance at supplier’s site Clause-4	Upon successful demonstration of the system and its readiness as per system prove out clause, clearance shall be provided for dispatch of the equipment	Yes / No / Explain		
232	Pre dispatch inspection (PDI) and clearance at supplier’s site Clause-5	Acoustic booth building and ducting associated to dust collection system shall be demonstrated at IPRC after final installation. Readiness of the items shall be confirmed at the time of PDI	Yes / No / Explain		

233	Installation and commissioning at IPRC Clause-1	The party has to install and commission the plasma spraying system at IPRC site and ensure complete startup, functioning of the systems and demonstrate coating of uniform thickness and quality on a trial hardware after successful completion and of system prove out as mentioned system prove out clause. The following are the scope of work under installation and commissioning	Yes / No / Explain		
234	Installation and commissioning at IPRC Clause-2	Before installation at IPRC site all the systems shall be visually inspected for any damage during shipment and unloading	Yes / No / Explain		
235	Installation and commissioning at IPRC Clause-3	Installation of all the subsystems as per layout approved by IPRC. The drawing approval should not absolve the responsibility of the party.	Yes / No / Explain		
236	Installation and commissioning at IPRC Clause-4	The system layout shall be approved by IPRC before final realization. The drawing approval should not absolve the responsibility of the party	Yes / No / Explain		
237	Installation and commissioning at IPRC Clause-5	The ducting between the acoustic booth and dust extraction system shall be under the scope of party. The same shall be finalized after placement of order. The party shall visit IPRC after placement of order to finalize the floor plan and other installation requirements	Yes / No / Explain		

238	Installation and commissioning at IPRC Clause-6	The final drawings of the acoustic booth and the drive system shall be cleared by IPRC before realization. The drawing approval should not absolve the responsibility of the party.	Yes / No / Explain		
239	Installation and commissioning at IPRC Clause-7	Interconnection and interlocking of all subsystems of the plasma spraying system including plasma control console, powder feeder, power supply unit, junction and monitoring unit, dust collection system, acoustic booth, chiller unit, robotic drive system, gas management system and electrical distribution unit. Cables and hoses for interconnection are under the scope of party and the same shall be suitable to Indian tropical conditions	Yes / No / Explain		
240	Installation and commissioning at IPRC Clause-8	External cooling air system shall be supplied along with the system for Job cooling during coating. The same shall be interfaced with the system.	Yes / No / Explain		
241	Installation and commissioning at IPRC Clause-9	Commissioning of the entire plasma spraying system	Yes / No / Explain		
242	Installation and commissioning at IPRC Clause-10	Functional tests on individual sub systems and on the entire spraying system	Yes / No / Explain		
243	Installation and commissioning at IPRC Clause-11	Demonstration of proper functioning of the system	Yes / No / Explain		
244	Installation and commissioning at IPRC Clause-12	Verification of safety and functional interlocks in the system	Yes / No / Explain		

245	Installation and commissioning at IPRC Clause-13	The party has to carry out the system prove out of the system as per details mentioned under system prove out clause.	Yes / No / Explain		
246	Installation and commissioning at IPRC Clause-14	On successful completion of the system prove out the system will be declared to be ready to use by IPRC	Yes / No / Explain		
247	Installation and commissioning at IPRC Clause-15	Party has to develop robot path programs for the components given in annexure-A drawings in order to achieve uniform coating thickness with the process parameters which will be supplied after placement of PO. Trial components shall be supplied by IPRC for robot path program development.	Yes / No / Explain		
248	Installation and commissioning at IPRC Clause-16	The party has to establish the performance of the system by coating one hardware as per annexure-A drawings to demonstrate uniform thickness during the entire spraying operation	Yes / No / Explain		
249	Installation and commissioning at IPRC Clause-17	After successful completion of the commissioning activity, the operating personnel shall be trained as mentioned under training column under general terms and conditions	Yes / No / Explain		
250	Training details -1	IPRC personnel shall be trained on operation and maintenance of the system immediately after the commissioning of system. The following are to be included in the training agenda	Yes / No / Explain		

251	Training details -2	Switching ON the system	Yes / No / Explain		
252	Training details -3	Sequence in which the various sub systems will get switched ON	Yes / No / Explain		
253	Training details -4	Reading the values on the control console during operation	Yes / No / Explain		
254	Training details -5	Fault indications on the control console and their significance	Yes / No / Explain		
255	Training details -6	Setting and reading the spraying parameters through the PLC in the plasma control console	Yes / No / Explain		
256	Training details -7	Details of safety and functional interlocks provided in the system	Yes / No / Explain		
257	Training details -8	Checking powder flow and its spray quantity	Yes / No / Explain		
258	Training details -9	Firing the plasma gun and aspirating the powder flow and check the flame	Yes / No / Explain		
259	Training details -10	Assembly and disassembly of plasma spraying gun	Yes / No / Explain		
260	Training details -11	Switching OFF the system	Yes / No / Explain		
261	Training details -12	Details of periodical preventive maintenance and the procedure to do the same	Yes / No / Explain		
262	Training details -13	Procedure for replacing the critical spares, consumables in the system during maintenance and trouble shooting	Yes / No / Explain		
263	Training details -14	Shutting OFF the system for prolonged duration	Yes / No / Explain		
264	Training details -15	Probable reasons for break down and maintenance activities to be carried out to prevent them	Yes / No / Explain		

265	Training details -16	Training on robot programming shall be given for path programming	Yes / No / Explain		
266	Training details -17	Training on operations of robotic drive system	Yes / No / Explain		
267	System Prove out trials at Supplier's site-1	The system shall be integrated including all sub systems except acoustic booth and dust collection system and demonstrated for proper functioning. The robot track and robot shall be integrated during demonstration at the party site as part of PDI.	Yes / No / Explain		
268	System Prove out trials at Supplier's site-2	The plasma gun shall be switched ON and the plasma gun shall be operated at the parameters mentioned in table-1 without any anomaly	Yes / No / Explain		
269	System Prove out trials at Supplier's site-3	The plasma gun shall be switched ON continuously for 2.5 hours. This shall be with/without powder flow.	Yes / No / Explain		
270	System Prove out trials at Supplier's site-4	All the tests and demonstration mentioned in FAT shall be demonstrated as part of system prove out	Yes / No / Explain		
271	System Prove out trials at Supplier's site-5	Specimen or samples shall be coated with the process parameters mentioned in the process window table furnished by IPRC after placement of order.	Yes / No / Explain		
272	System Prove out trials at Supplier's site-6	Necessary powders, specimens and fixtures shall be supplied by IPRC. Coated specimens and fixtures shall be returned back to IPRC.	Yes / No / Explain		

273	System Prove out trials at Supplier’s site-7	The functioning of interlocks mentioned shall be demonstrated during system prove out	Yes / No / Explain		
274	System Prove out trials at Supplier’s site-8	Other consumables like gas, water and electricity etc shall be arranged by the supplier	Yes / No / Explain		
275	System Prove out trials at Supplier’s site-9	Readiness of the extraction system and acoustic booth shall be confirmed at the time of system prove out at supplier’s site	Yes / No / Explain		
276	System Prove out trials at Supplier’s site-10	Proper functioning of the robot and tilting turntable in all the axis shall be demonstrated during system prove out.	Yes / No / Explain		
277	System prove out trials at IPRC after installation and commissioning of the system-1	After successful installation of the complete system at IPRC, the system prove out trial shall be done as per the process parameters mentioned in table-1	Yes / No / Explain		
278	System prove out trials at IPRC after installation and commissioning of the system-2	The plasma gun shall be switched ON and the plasma gun shall be operated at the parameters mentioned in table-1 without any anomaly	Yes / No / Explain		
279	System prove out trials at IPRC after installation and commissioning of the system-3	All the tests and demonstration mentioned in FAT shall be demonstrated as part of system prove out	Yes / No / Explain		
280	System prove out trials at IPRC after installation and commissioning of the system-4	Specimen or samples shall be coated with the process parameters mentioned in the process window table furnished by IPRC after placement of order	Yes / No / Explain		
281	System prove out trials at IPRC after installation and commissioning of the system-5	Proper functioning of the robot and tilting turntable in all the axis shall be demonstrated during system prove out	Yes / No / Explain		

282	System prove out trials at IPRC after installation and commissioning of the system-6	One hardware each as mentioned in annexure-A shall be coated and demonstrated	Yes / No / Explain		
283	System prove out trials at IPRC after installation and commissioning of the system-7	Robot path programming required for hardware coating as per annexure-A shall be developed by the party for achieving uniform coating thickness	Yes / No / Explain		
284	System prove out trials at IPRC after installation and commissioning of the system-8	Necessary fixtures for coating of hardware shall be provided by IPRC	Yes / No / Explain		

Document : Eccentric load drawing

Document : Component drawings

Document : Technical specifications

Document : Tentative FAT

Document : Tentative QAP

Common Specifications (Applicable for all items)

Sl No	Specification	Value	Compliance	Offered Specification	Remark

1	General terms and conditions-1	The party has to supply spares for 2 years trouble free operation of the system including PLC and other electronic system spares. Envisaged list of spares is mentioned. The party shall supply the same in addition to other spares as recommended by the party. The party shall submit the unpriced list of spares along with the technical bid. Spares cost shall not be mentioned in the technical bid. Separate spares quote with price details shall be submitted in the price bid only.	Yes / No / Explain		
2	General terms and conditions-2 The party shall also supply list of recommended spares and their prices along with the quotation in the price bid	a.Electrodes – 30 nos b.Nozzles – 30 nos c.Powder feeder exhauster – 5 nos d.Powder feeder spreader – 5 nos e.Powder injection ports – 10 nos f.O –rings for plasma gun – 5 sets g.Critical circuit boards – 1 each h.Critical Transducers – 1 each i.Critical sensors – 1 each j.Critical relays – 1 each k.Critical I/O modules – 1 each l.Fuses – 2 in each type m.Batteries applicable – 2 each n. Oil if applicable – 1 batch	Yes / No / Explain		

3	General terms and conditions-3	The special tools required for the assembly and disassembly of plasma gun and for other subsystem operation and maintenance activities shall be supplied along with the system. The envisaged tools are a.Electrode removal tool b.Nozzle removal tool c.Electrode holding nut removal tool d. Nozzle ring nut removal tool	Yes / No / Explain		
4	General terms and conditions-4	A Warrantee of 1 year shall be applicable to the system from the date of successful completion of system prove out and commissioning	Yes / No / Explain		
5	General terms and conditions-5	The party shall also supply a standard PC with the latest softwares to meet the requirements as indicated earlier.	Yes / No / Explain		

6	General terms and conditions-6	The quotation shall also include quote for annual maintenance and contract (non comprehensive) for a period of 7 years after warrantee expiry. The scope of AMC shall be for the entire integrated system including all the subsystems and drive system. The AMC shall be for the entire system supplied as turnkey. The scope of AMC will be as follows: Type : Non comprehensive No. of calibration visit: 1 per year No. of P.M. visit : 2 per year No. of break down visit : 1 per year Party shall quote for per visit charges in their price bid only. AMC charges shall not be mentioned in the technical bid.	Yes / No / Explain		
7	General terms and conditions-7	The party shall provide 3 sets of complete documentation for all the subsystems (in English) including -system manual -product manual -part list -troubleshooting manual -electrical wiring diagram -operational manual -fabrication drawings of mechanical items -Manuals from OEM for bought out items -Calibration certificates - Preventive maintenance plan	Yes / No / Explain		
8	General terms and conditions-8	A copy of the programming software used in the system shall be provided in CD for backup.	Yes / No / Explain		

9	General terms and conditions-9	The material handling equipments like turn table interface flange, roller supports and self centering 3 jaw chuck etc shall be supplied along with system for coating hardware mentioned in annexure	Yes / No / Explain		
10	General terms and conditions-10	The party shall not declare any of the subsystem to be obsolete for the next 7 years from the date of installation	Yes / No / Explain		
11	General terms and conditions-11	Party shall comply for the availability of spares and consumables required for the system for next 10 years	Yes / No / Explain		
12	General terms and conditions-12	The mentioned specifications are generic. Parties shall quote to the nearest matching specifications from their standard models	Yes / No / Explain		
13	General terms and conditions-13	Functional approval shall be obtained from IPRC for the system configuration and drawings before starting fabrication. Our approval shall not absolve the vendor from their responsibility to comply with the specification.	Yes / No / Explain		
14	General terms and conditions-14	Party shall mention the details facility requirements towards installation and commissioning at IPRC including electrical requirements, gas and consumable requirements, material handling systems, civil requirements, grouting requirements etc. after obtaining the purchase order.	Yes / No / Explain		
15	Other details to be provided along with the quotation -1	Bill of materials	Yes / No / Explain		

16	Other details to be provided along with the quotation -2	Single line diagram for power and control circuits of the system	Yes / No / Explain		
17	Other details to be provided along with the quotation -3	Facility requirements for the spraying system	Yes / No / Explain		
18	Other details to be provided along with the quotation -4	List of spraying powders which the system can coat	Yes / No / Explain		
19	Other details to be provided along with the quotation -5	Details of gas purity level are mentioned below. Party shall mention their compliance for the same towards the operation of the system Hydrogen – 99.995% Purity Nitrogen – 99.8% Purity Argon – 99.998% Purity Compressed air – ISO 1.4.1/latest equivalent	Yes / No / Explain		
20	Other details to be provided along with the quotation -6	Schematic drawing of the subsystems along with their dimensions	Yes / No / Explain		
21	Other details to be provided along with the quotation -7	Details of functional and safety interlocks provided in the system	Yes / No / Explain		
22	Other details to be provided along with the quotation -8	Details of PLC used in the system along with their make and model number	Yes / No / Explain		
23	Other details to be provided along with the quotation -9	Detailed technical specifications along with data sheets, technical catalogue etc shall be submitted along with the tender	Yes / No / Explain		
24	Other details to be provided along with the quotation -10	Detailed compliance statement mentioning compliance / details of deviation if any addressing each clause in technical annexure shall be submitted along with the tender	Yes / No / Explain		

25	Other details to be provided along with the quotation -11	Party shall mention details of similar system installations within India (preferably government organizations) along with contact details	Yes / No / Explain		
26	Other details to be provided along with the quotation -12	Details of make of major electronic and mechanical systems used in individual subsystems and their model numbers shall be submitted.The make of items shall be as per deatails mentioned below	Yes / No / Explain		
27	Make of PLC	Allen Bradley /ABB /Siemens /Snider /Fanuc /equivalent	Yes / No / Explain		
28	Make of Servo Motors	ABB/Fanuc/Siemens/equivalent	Yes / No / Explain		
29	Make of robot	ABB/Fanuc/Kuka/ equivalent	Yes / No / Explain		
30	Make of drive	ABB/Fanuc/Siemens/equivalent	Yes / No / Explain		
31	Make of Relays/contractors/ELCB/MCB/Fuse/other electrical elements	Snider/L&T/Allen Bradley/Siemens/ABB/ equivalent	Yes / No / Explain		
32	Make of Sensors	Rosemount/Yakohowa /Honeywell/equivalent	Yes / No / Explain		
33	Make of Plasma spraying system	Metco/AMT/GTV/Praxair/equivalent	Yes / No / Explain		
34	Make of Dust extraction system	Metco/Donaldson/equivalent	Yes / No / Explain		
35	Make of Plasma gun	Metco/AMT/GTV/Praxair/equivalent	Yes / No / Explain		

36	Other terms and conditions-1	The vendor is required to submit quotation for the entire works mentioned herein. If any of the details required as per tender is not provided, the offer will be summarily rejected. The deviation, if any, with respect to this document shall be explicitly mentioned in the schedule of deviations to be provided in the quotation. If the vendor does not mention any deviation, it shall be construed by the Department that the vendor agrees to comply with each and every aspect of this document.	Yes / No / Explain		
37	Other terms and conditions-2	Pre-bid meeting will be conducted within two weeks from the date of tendering. Bidders should intimate their willingness to participate in the pre-bid meeting within one week from the date of tendering. Offers of bidders who participate in pre-bid meeting will only be considered	Yes / No / Explain		

38	Other terms and conditions-3	The bid shall be submitted in two parts. -Part 1 of the bid will be the techno-commercial bid – All techno-commercial details should be indicated such as detailed technical compliance, data sheets, technical catalogue, technical bulletin, clause by clause compliance, local content details including break up, previous Purchase orders of similar work, work completion certificate, audited balance sheets, company profile, compliance to commercial clause, unpriced list of spares etc. Price should not be indicated. Bid will be invalid if price is indicated in any form. -Part 2 of the bid will be the price comprising of the price details of the entire tender scope, AMC charges and cost of spares	Yes / No / Explain		
39	Other terms and conditions-4	Cost of basic equipment for the entire tender scope, Cost of spare, cost of AMC and any other costs mentioned by the party shall be considered while ranking the price bid/evaluation of lowest offer.	Yes / No / Explain		
40	Pre Qualification Criteria for vendors-1	Vendor should be a manufacturer/Dealer/Indian agent of OEM for plasma spraying systems. In case of Indian agent or dealer authorization from Principal must be provided along with offer.	Yes / No / Explain		

41	Pre Qualification Criteria for vendors-2	Vendor should provide copies of purchase orders preferably from Government Institutions/organizations/aerospace sector, as evidence for having done similar kind of work in the past (last 5 years), along with technical bid. The submitted PO shall be of similar kind of complete integrated turnkey system including all the systems like thermal spraying system, robotic drive system, chiller unit, dust collection unit, acoustic booth, etc. The referred PO shall be an executed/completed order. The referred PO shall be preferably within India.	Yes / No / Explain		
42	Pre Qualification Criteria for vendors-3	Vendor should provide details including the name, address, phone numbers of parties to whom similar work was done.	Yes / No / Explain		
43	Pre Qualification Criteria for vendors-4	The vendor shall elaborately bring out in their quotation their company profile, which shall be commensurate with the level demanded for the execution of the work specified in this document	Yes / No / Explain		
44	Pre Qualification Criteria for vendors-5	The vendor shall submit audited company balance sheets for the last 3 years which shall be commensurate with the level demanded for the execution of the work specified in this document.The company balance sheet shall be audited by authorized charted accountant.	Yes / No / Explain		

45	Payment terms	100% payment within 30 days of receipt and acceptance of items at IPRC is our standard payment terms. However, in case of advance payment requirement from the vendor, the same shall be applicable subject to approval from competent authority of IPRC. In case of advance payment, the interest element will be loaded on to the vendor's price bid, during tender evaluation for comparison purpose	Yes / No / Explain		
46	MSME certification	Valid MSME certificate shall be attached along with the quotation to avail MSME benefits	Yes / No / Explain		
47	Local content	Party shall declare the percentage of local content and its break-up along with the technical bid. Warranty, AMC, P&F, Freight and other service elements are not considered for local content percentage.	Yes / No / Explain		
48	Security Deposit	Security Deposit (SD) : Security Deposit shall be applicable to the successful bidder for satisfactory execution of the Purchase Order/Contract at the rate of 3% of P.O. value	Yes / No / Explain		

49	Performance Bank Guarantee	Performance Bank Guarantee (PBG) ; Performance Bank Guarantee (PBG) shall be obtained as a security for fulfillment of warranty obligations by the vendor after satisfactory execution of the Purchase Order/Contract at the rate of 3% of P.O. value. PBG shall be released after warranty upon acceptance of AMC order.	Yes / No / Explain		

Supporting Documents required from Vendor

1. Unpriced spares list (No price shall be mentioned)

2. AMC charges (Price Bid Related)

3. Spares list and spares cost (Price Bid Related)

4. Bill of materials

5. Single line diagram for power and control circuits of the system

6. Facility requirements for the spraying system

7. List of spraying powders which the system can coat

8. Details of gas purity level requirements (Hydrogen, Nitrogen, Argon, compressed air)

9. Schematic drawing of the subsystems along with their dimensions

10. Details of functional and safety interlocks provided in the system

11. Details of PLC used in the system along with their make and model number

12. Details of make of major electronic and mechanical systems used in individual subsystems and their model numbers

13. Detailed technical specifications along with data sheets, technical catalogue etc shall be

submitted along with the tender

14. Detailed compliance statement mentioning compliance / details of deviation if any addressing each clause in technical annexure shall be submitted along with the tender

15. Details of similar system installations within India (preferably government organizations) along with contact details

5 additional documents can be uploaded by the vendor

C.2 Commercial Terms / Bid

Sl. No.	Description	Compliance	Vendor Terms
1	Supply, installation, commissioning, and system prove out of Atmospheric Plasma spraying system as per specifications annexed	Yes / No / Explain	
2	Validity of Offer (specify)	Yes / No / Explain	
3	THIS IS A TWO PART BID AND PRICE DETAILS SHALL BE MENTIONED ONLY IN THE PRICE BID TEMPLATE AND PRICE BID RELATED BID FORMS (I.E., NON COMPREHENSIVE AMC CHARGES, LIST OF SPARES AND PRICE SHALL BE UPLOADED IN THE GIVEN PRICE BID RELATED BID FORMS) HENCE, IF PRICE DETAILS OF ANY NATURE ARE FOUND IN THE TECHNICAL ANNEXURES , THE OFFER WILL BE REJECTED SUMMARILY. PRICE DETAILS SHALL BE MENTIONED IN THE REQUESTED FIELD ONLY.	Yes / No / Explain	
4	Delivery Period (specify)	Yes / No / Explain	
5	Spare Parts list and price shall be uploaed in the given price bid related bid form.	Yes / No / Explain	
6	Non comprehensive AMC charges after warranty period shall be furnished as per Clause No.17.5 of the enclosed technical specifications - in the given price bid related bid forms.	Yes / No / Explain	
7	Delivery Terms: Normal delivery terms - FOR Destination (i.e., IPRC, Mahendragiri)	Yes / No / Explain	
8	Payment Terms: 100% within 30 days after receipt and acceptance of items as per Clause No.23 of the enclosed technical specifications. (No advance payment is acceptable). Specify your Payment Terms.	Yes / No / Explain	

9	Security Deposit: The Supplier shall provide Bank Guarantee for an amount equivalent to the 3% (THREE PERCENT) of the total Order value towards Security Deposit for the due performance of the Purchase Order. The Security Deposit can be submitted in the form of Bank Guarantee or Fixed Deposit Receipt obtained from any Nationalized/ Scheduled Bank and it shall be kept valid for a period of sixty days beyond the date of completion of the Purchase Order. This Security Deposit will be returned to the Supplier only upon successful completion of all the contractual obligations or shall be adjusted/ forfeited against non-fulfilment of any of the contractual obligations. The Security Deposit shall be submitted within 30 days from the date of receipt of Purchase Order.	Yes / No / Explain	
10	Stellite specimens, Aluminium Specimens and Steel Specimens for an amount of Rs.17500/- will be provided as Free Issue Materials. Hence, the bidder shall furnish their confirmation on the submission of Bank Guarantee for the equivalent amount (i.e., Rs.17500/-)	Yes / No / Explain	
11	Confirm: Conditions for BIDDER FROM A COUNTRY WHICH SHARES LAND BORDER WITH INDIA	Yes / No / Explain	
12	Liquidated Damages: The delivery period / completion period shall be the essence of the Purchase Order. If the Supplier fails to meet delivery date within the time specified above or any extension thereof, the Department will recover from the Supplier as Liquidated Damages (LD) a sum of 0.5% of the total order value for each calendar week of delay subject to a maximum of 10% of the total order value. Confirm your acceptance.	Yes / No / Explain	
13	Name of PRINCIPAL, Address, Contact No, E-mail Id etc. (specify):	Yes / No / Explain	
14	Currency quoted (specify)	Yes / No / Explain	
15	Warranty / Guarantee Period: (specify)	Yes / No / Explain	

16	Taxes and other costs, if any: Items as per the Tender is eligible for Concessional rate of GST (i.e., @ 5%) as per Ministry of Finance, Dept. of Revenue Notification No. 24/2018 Central Tax (Rate) Schedule-I; Sl. No. 243B dated 31.12.2018 (Amendment to Notification No. 6/2018 - Central Tax (Rate) dated 25.01.2018 and Notification No. 1/2017 dated 28.06.2017) and Government of Tamil Nadu, Commercial Taxes & Registration (B1) Department G.O(Ms) No.18 Dtd. 25/01/2018 & Schedule-I; Sl. No. 243 B as per the amendment dated 31.12.2018 (Amendment G.O(Ms)No.170 dated 31/12/2018). Necessary concessional GST certificate will be issued. Please confirm your acceptance.	Yes / No / Explain	
17	Performance Bank Guarantee: Performance Bank Guarantee (PBG) for 3% of the order value shall be submitted along with your Invoice/prior to final payment. It shall be valid till the warranty/ guarantee period and shall have an additional claim period of 60 days.	Yes / No / Explain	
18	Only Class-I and Class-II Local suppliers as per Make in India Policy are eligible to participate in the bid. Percentage of Local Content for the offered item / items shall be specified	Yes / No / Explain	
19	MSE preference is applicable only against the claim of the manufacturer and production of documentary evidence by the manufacturer	Yes / No / Explain	
20	Bank Details (State Bank of India, Mahendragiri, Tirunelveli (Dist) - 627 133) Details of your bank shall be furnished.	Yes / No / Explain	
21	Percentage of Local Content	Yes / No / Explain	
22	Local Content declaration as per MII policy shall be furnished in the enclosed format.	Yes / No / Explain	
23	Any other terms	-	

C.3 Price Bid

Sl. No.	Item	Quantity	Unit Price	Currency	Total Price	Remark
1	Plasma or Thermal Spray Equipment : Supply, installation, commissioning and system prove out of an atmospheric plasma coating system as per specifications mentioned.	1.00 Unit		-		

D. Free Issue Material (FIM) Details

FIM Readiness Date :

Sl No	FIM Item Name	Size if applicable	Unit	Quantity	Value
1	Stellite specimens		Nos.	20.00	5000.00
2	Aluminum specimens		Nos.	30.00	7500.00
3	Steel specimens		Nos.	20.00	5000.00