राष्ट्रीय उन्नत विनिर्माण प्रौद्योगिकी संस्थान
(पूर्व नेशनल इंस्टीट्यूट ऑफ फाउंड्री एंड फोर्ज टेक्नोलॉजी)
हटिया, राँची - 834 003 (झारखन्ड)
National Institute of Advanced Manufacturing Technology
(Formerly National Institute of Foundry and Forge Technology)
Hatia, Ranchi – 834 003 (Jharkhand)

सं No. – NIAMT/S&P/19/2023-24

दिनांक Date -1/6/2023

Limited Tender Enquiry

To,

LAST DATE FOR RECEIPT OF BID
ON 26/06/2023 BY 3:00 PM

OPENING OF BID
ON 26/06/2023 AT 3:30 PM

Sir/Madam,

We intend to purchase the commodities specified below and invite quotations in accordance with the terms and conditions mentioned overleaf. If you are interested, kindly send your offer by Speed/Registered Post with price and complete terms on or before date mentioned above.

Item No.	Description of Item	Qty.	EMD	Performance Security
1.	TIG Welding machine (Specification enclosed in Annexure -5)	1	₹30,000	10% of P.O.

NIAMT invites tender from the reputed manufacturers or their authorized dealers so as to reach this office on or before scheduled date and time for the instrument, as per specifications given in the Annexure attached to the Tender form. All offers should be made in English and should be written in both figures and words. Tender forms can be downloaded from the website (www.nifft.ac.in) of the Institute.

The bidders are requested to read the tender document carefully and ensure compliance with all specifications/instructions herein. Non-compliance with specifications/instructions in this document may disqualify the bidders from the tender exercise. The Director, NIFFT, Hatia, Ranchi-03 reserves the right to select the item (in single or multiple units) or to reject any quotation wholly or partly without assigning any reason. Incomplete tenders, amendments, and additions to tender after opening or late tenders are liable to be ignored and rejected.

Note: The Institute shall not be responsible for any postal delay about non-receipt / non delivery of the bids or due to wrong addressee.

TERMS AND CONDITIONS: - Important Conditions of the tender to be abide by the tenderer.

1. **Due Date**: The tender has to be submitted before the due date. The offers received after the due date and time will not be considered.
2. **Preparation & submission of Bids**: The offer/bid should be submitted in Two Bid System (i.e.) Technical bid/Document/ Specification in one closed envelope and Financial Bid in a separate closed envelope. Technical Bid and Financial Bid to be clearly mentioned on respective envelope. These two envelopes are to be kept together in bigger envelope The Quotations should be valid for 180 days from the due date. The Quotations duly sealed and super scribed on the envelope with the reference No. and due date, should be addressed to "**The Asst. Registrar- Store & purchase, 1st Floor, Administrative Building, NIAMT, Hatia, Ranchi -834003**" so as to reach on or before the due date.
3. **Delivery of the Tender**: The tender shall be sent to the addressee given in para 2 (above) either by post or by courier so as to reach our office before the due date specified in our Schedule. The offer/bid can also be dropped in the tender box on or before the due date specified in the schedule. The tender box is kept in Store & Purchase Section, Administration Building, NIFFT, Hatia, Ranchi..
4. **Opening of the Tender**: The offer/bid will be opened by a committee duly constituted for this purpose. The bidders if interested may participate on the tender opening Date and Time. The bidder should produce authorization letter from their company to participate in the tender opening. Only one representative will be allowed to participate in the tender opening. Financial Bid of only those bidders will be opened who are found successful in Technical Bid evaluation.
5. **Acceptance/Rejection of Bids:** The NIAMT reserves the right to reject any or all offers without assigning any reason.
6. **EMD**: Wherever applicable EMD is to be obtained from the bidders except those who are registered with the Central Purchase Organization, National Small Industries Corporation (NSIC) or the concerned Ministry or Department. The tenderer should submit EMD amount as per tender ref. no. through NEFT/RTGS in NIFFT Account. Account Details are as follows:
   a. Name of Beneficiary: **National Institute of Advanced Manufacturing Technology (NIAMT)**
   b. Account No.: **2730101006939**
   c. Name of Bank: **Canara Bank, NIAMT CAMPUS Branch,**
   d. Bank Address: **Hatia, Ranchi – 834 003 (Jharkhand)**
   e. IFS Code: **CNRB0002730**
   f. MICR Code: **834015008**
   g. Swift Code: **CNRBINBBCFD**

   The details of transaction for EMD viz. Name of bidder firm, Tender Description, Transaction ID Number Transaction date, Amount of Transaction, Name of Bank, Address of Bank shall be furnished by the tenderer on their letterhead separately along with their tender.
7. **Refund of EMD:** Bid securities of the unsuccessful bidders shall be returned to them at the earliest after expiry of the final bid validity and latest on or before the 30th day after the award of the contract. In case of successful Tenderer, it will be retained till the successful and complete installation of the equipment.
8. **Performance Security:** Wherever applicable the supplier shall be required to submit the performance security in the form of irrevocable bank guarantee issued by any Indian Nationalized Bank for an amount which is equal to the 10% of Purchase value at the time of the installation of the equipment covering warranty period of the equipment and should be kept valid for a period of 60 days beyond the date of

completion of warranty period.

9. **REASONABILITY OF PRICES:** Please quote best minimum prices applicable for a Premier Research Institution, leaving no scope for any further negotiations on prices. The quoting party should give a certificate to the effect that the quoted prices are the minimum and they have not quoted the same item on lesser rates than those being offered to NIAMT to any other customer within last 12 months from the last date of submission of quotation nor they will do so till the validity of offer or execution of the purchase order, whichever is later. We request you to fill the price reasonability certificate format in the enclosed file (**Annexure-1**)
The party must give details of identical or similar equipment, if any, supplied to any CSIR labs/DBT Institutes during last three years along with the final price paid and Performance certificate from them.

10. **Force Majeure:** The Supplier shall not be liable for forfeiture of its performance security, liquidated damages or termination for default, if and to the extent that, it's delay in performance or other failure to perform its obligations under the Contract is the result of an event of Force Majeure.

- For purposes of this Clause, "Force Majeure" means an event beyond the control of the supplier and not involving the supplier's fault or negligence and not foreseeable. Such events may include, but are not limited to, acts of the Purchaser either in its sovereign or contractual capacity, wars or revolutions, fires, floods, epidemics, quarantine restrictions and freight embargoes.
- If a Force Majeure situation arises, the supplier shall promptly notify the purchaser in writing of such conditions and the cause thereof along with documentary proof. Unless otherwise directed by the purchaser in writing, the supplier shall continue to perform its obligations under the contract as far as is reasonably practical, and shall seek all reasonable alternative means for performance not prevented by the Force Majeure event.

11. **Risk Purchase Clause:** In event of failure of supply of the item/equipment within the stipulated delivery schedule, the Institute has all the right to purchase the item/equipment from the other source on the total risk of the supplier under risk purchase clause.

12. **Packing Instructions:** Each package will be marked on three sides with proper paint/indelible ink, the following:
    i) Item Nomenclature
    ii) Order/Contract No.
    iii) Country of Origin of Goods
    iv) Supplier's Name and Address
    v) Consignee details
    vi) Packing list reference number

13. **Delivery of Goods:** Delivery should be given at Store & Purchase Section, **National Institute of Advanced Manufacturing Technology, Hatia, Ranchi – 834 003 (Jharkhand)**

14. **Delayed delivery:** If the delivery is not made within the due date as per Purchase Order, NIAMT will have the right to impose penalty @ 0.5% per week and the maximum deduction is 10% of the contract value /price.

15. **Prices:** The price should be quoted in net per unit (after break-up) and must include all packing and delivery charges. The offer/bid should be exclusive of taxes and duties, which will be paid by the purchaser as applicable. However, the percentage of taxes & duties shall be clearly indicated in the Bid. The price should be quoted without custom duty and excise duty, since NIAMT is exempted from payment of Excise Duty and is eligible for confessional rate of custom duty. Necessary certificate will be issued on demand. **(Please refer Annexure – 2 for the price to be quoted).**

16. **Notices:** For the purpose of all notices, the following shall be the address of the Purchaser .
    i) ***Purchase :*** The Asst. Registrar-Store & Purchase
    National Institute of Advanced Manufacturing Technology Hatia,
    Ranchi – 834 003 (Jharkhand).

17. **Resolution of Disputes**: The dispute resolution mechanism to be applied pursuant shall be as follows:
    i) In case of Dispute or difference arising between the purchaser and the supplier relating to any matter arising out of or connected with this contract, such disputes or difference shall be settled in accordance with the Indian Arbitration & Conciliation Act, 1996, the rules there under and any statutory modifications or re-enactments thereof shall apply to the arbitration proceedings. The dispute shall be referred to **The Director, National Institute of Advanced Manufacturing Technology (NIAMT), Hatia, Ranchi – 834 003 (Jharkhand)** The Director, NIAMT shall appoint the Arbitrator on getting the report. The

award of the arbitrator so appointed shall be final, conclusive and binding on all parties to this order.

18. **Applicable Law:** The place of jurisdiction would be Ranchi (Jharkhand) INDIA.

19. **Right to Use Defective Goods:** If after delivery, acceptance and installation and within the guarantee and warranty period, the operation or use of the goods proves to be unsatisfactory, the purchaser shall have the right to continue to operate or use such goods until rectifications of defects, errors or omissions by repair or by partial or complete replacement is made without interfering with the purchaser's operation.

20. **Training:** The Supplier is required to train the designated Purchaser's technical and end user personnel on site to enable them to effectively operate the total equipment.

21. **Installation & Demonstration:** The supplier is required to do the Installation and demonstration of the equipment within one month of the arrival of materials at the NIAMT site of installation; otherwise the penalty clause will be the same as per the supply of materials.

22. **Warranty 1** Year Warranty shall have to be provided by the firm. The Warranty should be comprehensive on site.

Note: If the OEM warranty is for 12 Months, additional extended warranty of two years should be quoted separately with or without price.

23. **AMC:** Annual Maintenance Contract (AMC)/Comprehensive Maintenance Contract (CMC) up to next five years after warranty period is over should be quoted separately.

24. **Taxes and Duties:** Suppliers shall be entirely responsible for all taxes, duties, license fees, octroi, road permits, etc., incurred until delivery of the contracted Goods to the Purchaser. However, GST in respect of the transaction between the Purchaser and the Supplier shall be payable extra, if so stipulated in the order. The Purchaser will provide all necessary certificates for exemption of taxes for Educational Institutions.

25. **Payment:** No Advance shall be paid.100% payment shall be made by the Purchaser after delivery, inspection, successful installation, commissioning and acceptance of the equipment at NIAMT in good condition and to the entire satisfaction of the Purchaser and on production of unconditional performance bank guarantee as specified in Clause 8of tender terms and conditions.

26. **User list:** Brochure detailing technical specifications and performance, list of industrial and educational establishments where the items enquired have been supplied must be provided.

27. Manuals and Drawings:

- Before the goods and equipments are taken over by the Purchaser, the Supplier shall supply operation and maintenance manuals. These shall be in such details as will enable the Purchaser to operate, maintain, adjust and repair all parts of the works as stated in the specifications.
- The manuals shall be in the ruling language (English) in such form and numbers as stated in the contract.
- Unless and otherwise agreed, the goods equipment shall not be considered to be completed for the purposes of taking over until such manuals and drawing have been supplied to the Purchaser.

28. **Site Preparation:** The supplier shall inform to the Institute about the site preparation, if any, needed for the installation of equipment, immediately after the receipt of the purchase order. The supplier must provide complete details regarding space and all the other infrastructural requirements needed for the equipment, which the Institute should arrange
before the arrival of the equipment to ensure its timely installation and smooth operation thereafter.
The supplier shall visit the Institute and see the site where the equipment is to be installed and may offer his advice and render assistance to the Institute in the preparation of the site and other pre-installation requirements.

29. **Acknowledgement:** By submitting their Bids, it shall be deemed that the bidders have gone through all the conditions mentioned above and agree to abide by them. A copy of this Tender Enquiry must be signed in all pages and submitted along with the Quotation/ Bid.

Assistant Registrar-S&P
NIAMT, Ranchi, Hatia

SIGNATURE OF TENDERER
ALONG WITH SEAL OF THE COMPANY WITH DATE

राष्ट्रीय उन्नत विनिर्माण प्रौद्योगिकी संस्थान
(पूर्व नेशनल इंस्टीट्यूट ऑफ फाउंड्री एंड फोर्ज टेक्नोलॉजी)
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Annexure – 1

PRICE REASONABILITY CERTIFICATE

This is to certify that we have offered the maximum possible discount to you in our Quotation No. .....dated.....for (Value Rs.) .....

We would like to certify that the quoted price are the minimum and we have not quoted the same item on lesser rates than those being offered to NIAMT to any other customer within last 12 months from the last date of submission of quotation nor we will do so till the validity of offer or execution of purchase order, whichever is later.

Seal and Signature of the tenderer

राष्ट्रीय उन्नत विनिर्माण प्रौद्योगिकी संस्थान

(पूर्व नेशनल इंस्टीट्यूट ऑफ फाउंड्री एंड फोर्ज टेक्नोलॉजी)

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Hatia, Ranchi – 834 003 (Jharkhand)

Annexure - 2

Name of Equipment with Model No: .....

Name & Address of Manufacturer: .....

Price Quoted:

A. For Indigenous Equipment :

i) Cost of equipment (Rs.): .....

ii) GST (Rs.) : .....

iii) Any other charges (Rs.) : .....

iv) Total cost of equipment (in Rs.) F.O.R, NIAMT, Ranchi. : .....

B. For Imported Equipment:

i) Cost of equipment (In Foreign Currency): .....

ii) Packing and Forwarding: .....

iii) CIF Price: .....

iv) Freight charges up-to Ranchi Airport / Ranchi Railway Station: .....

v) Insurance (110% of the cost of the equipment): .....

vi) For NIAMT Ranchi: .....

Signature of Tenderer with date and seal

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Annexure - 3

BID PARTICULARS

1. Name of the Supplier:
2. Address of the Supplier:
3. Availability of demonstration of equipment: Yes / No
4. Tender cost enclosed: Yes/No if yes
5. Online EMD submission information enclosed: Yes / No if Yes

   Transaction ID/No. of Transfer:.....

   Transaction date: .....

   Amount of Transaction: .....

   Name of Bank: .....

   Address of Bank: .....

6. Name and address of the Officer/contact person to whom all references shall be made regarding this tender enquiry

   Name:

   Address:

   Ph:

   Fax:

   Mobile:

   Email:

   Web:

राष्ट्रीय उन्नत विनिर्माण प्रौद्योगिकी संस्थान
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Annexure – 4A

Compliance Statement for the Tender Specifications

Tender Ref No.:

Sl. No.	Check list of documents / Undertakings	Yes / No	Remarks (give explanation if the answer is No)
01.	Is EMD details attached? (if applicable)		
02.	Is the bidder original equipment manufacturer (OEM)/authorized dealer?		
03.	If authorized dealer, recent dated certificate to this effect from OEM, attached or not?		
04.	Undertaking from OEM regarding technical support & extended warranty period.		
05.	Validity of 180 days or not?		
06.	Price Reasonability Certificate enclosed as per format?		
07.	Undertaking from bidder regarding acceptance of tender Terms & Conditions		
08.	Whether list of reputed users (along with telephone numbers of contact persons) for the past three years specific to the instrument attached?		
09.	Does the instrument comply with all the specifications detailed? Attach a separate sheet showing compliance with the specifications and explanations thereto if the equipment varies from the requested specifications.		
10.	Whether free installation, Commissioning and Application Training offered?		
11.	Whether comprehensive onsite warranty offered?		
12.	Whether Annual maintenance after expiry of comprehensive onsite warranty quoted separately?		

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Annexure – 4B

Compliance Statement of Technical Specification

Sl. No.	Parameter as per Annexure-5	Yes / No	Page No.	Remarks

Place:-

Authorized Signatory
Seal of bidders

Date:-

TIG Welding Machine Specifications

Annexure-5

1.0. **Application:** The offered machine should be suitable for TIG, Pulsed TIG welding in AC as well as DC modes, for welding of thin to thick Plate, Tube / Pipe, sheet metal, root runs for carbon steel, Alloy steel, Stainless steel, Aluminium, Copper, Titanium etc. The machine should also be suitable to use for MMA welding with both straight & reverse polarities.

Sl. No.	Parameters	Value
2.0.	**Technical Specification:**	
i	Power source	Digital Microprocessor Controlled IGBT Inverter based AC/DC Power source
ii	Input Supply	380-460V ± 10%. 3 Phase, 50 Hz.,
iii	Max. effective Input supply current	<36 Amps
iv	Output Current Range, For MMA	10A or better – 400A or better
	For TIG	3A or better – 500A or better
v	**For TIG**	
	Welding Current at 100% duty cycle	300A or better(at 40°C ambient and 10 min. duty cycle)
	Welding Current at 60% duty cycle	400Aor better (at 40°C ambient and 10 min. duty cycle)
	Welding Current at 40% duty cycle	500Aor better (at 40°C ambient and 10 min. duty cycle)
vi	Current mode	DC+ / DC- / AC/Pulse
vii	Stick Electrode size (MMA)	1.6 mm or better – 5 mm or better
viii	Open Circuit Voltage	70 V – 105 V
ix	Degree of protection	IP23 or better
x	Open Circuit Power	<50W
xi	Efficiency at higher current	85% or better
xii	Power factor	0.95 or better
2.1	**Pulse TIG Parameters:**	
i	Pulse Frequency	0.2 Hz or better –300 Hz or better
ii	Pulse Current	10A or better – 300A or better
iii	Pulse Ratio	10% or better – 70% or better
iv	Background Current	10% or better – 70% or better
v	AC Pulse Frequency	40Hz or better – 250Hz or better
2.2	**TIG welding torch**	
i	Type	Air cooled
ii	Length	4mtr
iii	Current rating	260A @ 60% duty cycle
		220A @ 40% duty cycle
iv	Electrode diameter	1 – 4 mm or better
v	Ergonomically designed for comfortable use by the welder.	
vi	Protected from overheating	
vii	Provision for accommodating Remote Control for adjustment of welding current during welding.	

3.0. Features:

Sl. No.	Description
3.1	Construction of the machine should be Portable, Mobile and Sturdy enough to work in shop floor.
3.2	The control panel should have multi-colored alpha numeric text display on a Screen with the following functions and parameters:
i	TIG Welding mode (AC or DC)
ii	Torch Sequence (2T/4T)
iii	Welding Current
iv	Welding Parameter Curve
v	Pulse Parameter:
	a) Background Current
	b) Pulse Frequency
	c) Pulse Ratio
	d) AC Frequency (in AC mode)
	e) AC Balance (in AC mode)
	f) AC Wave Form
	g) Cycle Time
vi	Warning Symbols
vii	Error Messages
3.3	**TIG Welding Modes**
	a) DC TIG (Straight and Reverse Polarity)
	b) AC TIG
	c) AC TIG Pulse
	d) TIG Spot
	e) TIG Tacking
3.4	**In built features:**
	a) H. F. Ignition Facility.
	b) Automatic gas Pre flow & Post flow facility
	c) Gas test function
	d) 2 Track / 4 Track operation
	e) Adjustable current slope-up and current slope-down
	f) Minimum and maximum value for AC balance setting.
	g) Stepless Control of current settings
	h) In-built safety measures against open circuit, short circuit or phase fault etc.
	i) The machine has facility to store welding parameters once established and activate these stored data during repetitive type welding.
	j) Over temperature protection
	k) The machine should be fully protected against overloading / prevent damage due to operations at higher current range than specified.
	l) Crater Fill current function
	m) Programmable pulse parameters.
	n) Machine should have inbuilt welding data monitoring system which will automatically save welding current, welding voltage, Heat input, time of welding in one stop & store for 30 days in machine itself. These data can be transfer through LAN cable, Pen Drive or Online. Fully Industrial 4.0 compliance.

3.5	**Programmable functions:**
	a) Provision to change the frequency of the alternating current in AC TIG welding.
	b) Provision to influence the wave form to affect the shape of weld bead, penetration and the noise of the welding process.
	c) Provision to setting the pulse parameter in TIG.
	d) Machine should have graphical representation and the measured resistance and inductance display before welding
3.6	**Feature up gradation feature**
	a) Provision for future to attached Water cooling unit without any external separate power supply, thus it should be controlled from Power Source only.
	b) To attached Wire Feeder unit without any external separate power supply, thus the control panel should be synchronized with power source.
4.0	**Basic Design Features:**
	a) The equipment should comply with the following relevant International / European standards. EN 60974-1, IEC 60974-1, EN 501199 , IEC 60974-5, IEC/EN 60974- 7 & IEC / EN 60974-10.
	b) Welding machine must have CE & S marking

5.0 The bidder should enclose the operation manual of the offered machine along with the complete machine error list along with the offer.

6.0 Scope of supply:

S/n	Item description	Qty. / pcs.	
A	**Main Equipment:**		
1.	500A ACDC TIG Welding Power Source	1no.	
2.	220A Air Cooled TIG Torch with 4M Long Hose (Cable Hose Assy. from Power Source to Torch Head)	1no.	
3.	Remote Control Unit mounted on TIG Torch	1no.	
4.	Argon Regulator with Flowmeter – 4 – 25lpm (or better)	1no.	
5.	Gas Hose from Gas Cylinder to Power Source 5m	1no.	
6.	Copper earthling cable, 4 mtr long, 70 mm^2	1no.	
7.	Holder set for MMA	1no.	
B	**Consumable parts for TIG Torch & Accessories:**		
1.	Tungsten Electrodes for Ferrous and Non- Ferrous metals	10pcs. Each type	
2.	Ceramic Nozzle sizes 4,5,7,10	10pcs. Each type	
3.	Collet for 1.2, 2.4, 3.2 & 4.0 mm∅ Tungsten Electrode	5pcs. each	
4.	Collet body for 1.2, 2.4, 3.2 & 4.0 mm Tungsten Electrode	5pcs. each	
5.	Long & Short Cap for electrode	5pcs. each	
6.	Torch Body	1no.	
7.	Auto Darkening Welding Helmet with shade 9 – 13DIN	1no.	
8.	Pair of welding gloves	1no.	
	Any other item which may be required to make the machine fully operational as per the technical requirement.		

TECHNICAL COMPLIANCE STATEMENT

(To be submitted by bidder duly filled)

(Bidders are requested to provide necessary and sufficient documents regarding their claims)

Machine name: TIG Welding Machine

Sl. No.	Technical requirement		Yes/No	Attachment page no.
1.0	**Application:** The offered machine should be suitable for TIG, Pulsed TIG welding in AC as well as DC modes, for welding of thin to thick Plate, Tube / Pipe, sheet metal, root runs for carbon steel, Alloy steel, Stainless steel, Aluminium, Copper, Titanium etc. The machine should also be suitable to use for MMA welding with both straight & reverse polarities.			
2.0.	**Technical Specification:**			
i	Power source	Digital Microprocessor Controlled IGBT Inverter based AC/DC Power source		
ii	Input Supply	380-460V ± 10%. 3 Phase, 50 Hz.,		
iii	Max. effective Input supply current	<36 Amps		
iv	Output Current Range, For MMA	10A or better – 400A or better		
	For TIG	3A or better – 500A or better		
v	**For TIG**			
	Welding Current at 100% duty cycle	300A or better(at 40°C ambient and 10 min. duty cycle)		
	Welding Current at 60% duty cycle	400Aor better (at 40°C ambient and 10 min. duty cycle)		
	Welding Current at 40% duty cycle	500Aor better (at 40°C ambient and 10 min. duty cycle)		
vi	Current mode	DC+ / DC- / AC/Pulse		
vii	Stick Electrode size (MMA)	1.6 mm or better – 5 mm or better		
viii	Open Circuit Voltage	70 V – 105 V		
ix	Degree of protection	IP23 or better		
x	Open Circuit Power	<50W		
xi	Efficiency at higher current	85% or better		
xii	Power factor	0.95 or better		
2.1	**Pulse TIG Parameters:**			
i	Pulse Frequency	0.2 Hz or better –300 Hz or better		
ii	Pulse Current	10A or better – 300A or better		
iii	Pulse Ratio	10% or better – 70% or better		
iv	Background Current	10% or better – 70% or better		
v	AC Pulse Frequency	40Hz or better – 250Hz or better		
2.2	**TIG welding torch**			
i	Type	Air cooled		
ii	Length	4mtr		
iii	Current rating	260A @ 60% duty cycle		

		220A @ 40% duty cycle		
iv	Electrode diameter	1 – 4 mm or better		
v	Ergonomically designed for comfortable use by the welder.			
vi	Protected from overheating			
vii	Provision for accommodating Remote Control for adjustment of welding current during welding.			
3.0	**Features:**			
3.1	Construction of the machine should be Portable, Mobile and Sturdy enough to work in shop floor.			
3.2	The control panel should have multi-colored alpha numeric text display on a Screen with the following functions and parameters:			
i	TIG Welding mode (AC or DC)			
ii	Torch Sequence (2T/4T)			
iii	Welding Current			
iv	Welding Parameter Curve			
v	Pulse Parameter:			
	Background Current			
	Pulse Frequency			
	Pulse Ratio			
	AC Frequency (in AC mode)			
	AC Balance (in AC mode)			
	AC Wave Form			
	Cycle Time			
vi	Warning Symbols			
vii	Error Messages			
3.3	**TIG Welding Modes**			
	DC TIG (Straight and Reverse Polarity)			
	AC TIG			
	AC TIG Pulse			
	TIG Spot			
	TIG Tacking			
3.4	**In built features:**			
	H. F. Ignition Facility.			
	Automatic gas Pre flow & Post flow facility			
	Gas test function			
	2 Track / 4 Track operation			
	Adjustable current slope-up and current slope-down			
	Minimum and maximum value for AC balance setting.			
	Stepless Control of current settings			
	In-built safety measures against open circuit, short circuit or phase fault etc.			
	The machine has facility to store welding parameters once established and activate these stored data during repetitive type welding.			
	Over temperature protection			
	The machine should be fully protected against overloading / prevent damage due to operations at higher current range than specified.			

	Crater Fill current function		
	Programmable pulse parameters.		
	Machine should have inbuilt welding data monitoring system which will automatically save welding current, welding voltage, Heat input, time of welding in one stop & store for 30 days in machine itself. These data can be transfer through LAN cable, Pen Drive or Online. Fully Industrial 4.0 compliance.		
3.5	**Programmable functions:**		
	Provision to change the frequency of the alternating current in AC TIG welding.		
	Provision to influence the wave form to affect the shape of weld bead, penetration and the noise of the welding process.		
	Provision to setting the pulse parameter in TIG.		
	Machine should have graphical representation and the measured resistance and inductance display before welding		
3.6	**Feature up gradation feature**		
	Provision for future to attached Water cooling unit without any external separate power supply, thus it should be controlled from Power Source only.		
	To attached Wire Feeder unit without any external separate power supply, thus the control panel should be synchronized with power source.		
4.0	**Basic Design Features:**		
	The equipment should comply with the following relevant International / European standards. EN 60974-1, IEC 60974-1, EN 501199 , IEC 60974-5, IEC/EN 60974- 7 & IEC / EN 60974-10.		
	Welding machine must have CE & S marking		
5.0	The bidder should enclose the operation manual of the offered machine along with the complete machine error list along with the offer.		

6.0 Scope of supply:

S/n	Item description	Qty. / pcs.	Yes/No
A	**Main Equipment:**		
1.	500A ACDC TIG Welding Power Source	1no.	
2.	220A Air Cooled TIG Torch with 4M Long Hose (Cable Hose Assy. from Power Source to Torch Head)	1no.	
3.	Remote Control Unit mounted on TIG Torch	1no.	
4.	Argon Regulator with Flowmeter – 4 – 25lpm (or better)	1no.	
5.	Gas Hose from Gas Cylinder to Power Source 5m	1no.	
6.	Copper earthling cable, 4 mtr long, 70 mm^2	1no.	
7.	Holder set for MMA	1no.	
B	**Consumable parts for TIG Torch & Accessories:**		
1.	Tungsten Electrodes for Ferrous and Non- Ferrous metals	10pcs. Each type	
2.	Ceramic Nozzle sizes 4,5,7,10	10pcs. Each type	
3.	Collet for 1.2, 2.4, 3.2 & 4.0 mm∅ Tungsten Electrode	5pcs. each	

4.	Collet body for 1.2, 2.4, 3.2 & 4.0 mm Tungsten Electrode	5pcs. each	
5.	Long & Short Cap for electrode	5pcs. each	
6.	Torch Body	1no.	
7.	Auto Darkening Welding Helmet with shade 9 – 13DIN	1no.	
8.	Pair of welding gloves	1no.	
	Any other item which may be required to make the machine fully operational as per the technical requirement.		