

GLOBAL TENDER ENQUIRY (E - PROCUREMENT MODE)

FOR

**SUPPLY & INSTALLATION OF TABLE TOP SPARK PLASMA SINTERING SYSTEM
IN SCHOOL OF MECHANICAL & MATERIALS ENGINEERING AT IIT MANDI**



Tender No.: IITM/DST-FIST/RK/209/PUR-01/2022-23/643-644

Tender date: 27th August, 2022

Last Date of Submission: 24th September, 2022

**Indian Institute of Technology Mandi (IIT Mandi),
SRIC & IR Section,
Old Directorate Complex, South Kamand Campus
Kamand – 175075, District – Mandi (H.P), India**

Tel.: 01905-267132/7148/7135

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Schedule of Events

The tender document will be made available on the E-Procurement Portal/IIT Mandi website from the date of release of the tender.

Table 1: Schedule of Events

1	Published Date	27.08.2022	(02:00 PM)
2	Bid Document Download / Sale Start Date	27.08.2022	(02:10 PM)
3	Seek Clarification Start Date	27.08.2022	(02:10 PM)
4	Seek Clarification End Date	19.09.2022	(02:00 PM)
5	Pre Bid Meeting Date	Not Required	Not Required
6	Bid Submission Start Date	27.08.2022	(02:20 PM)
7	Bid Submission End Date	24.09.2022	(11:00 AM)
8	Bid Opening Date	26.09.2022	(11:00 AM)

Indian Institute of Technology Mandi, Kamand invites online Bids for supply, erection, installation, commissioning, testing, demonstration and training of “**Table Top Spark Plasma Sintering System**” 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 CPP Portal (<http://eprocure.gov.in/eprocure/app>) & Institute website <http://iitmandi.ac.in/administration/tenderseoi.php>.

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, IIT Mandi, Kamand 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.

Instruction to bidder:

1. There are various search options built in the CPP Portal, to facilitate bidders to search active tenders by several parameters. These parameters could include Tender ID, organization name, location, date, value, etc. There is also an option of advanced search for tenders, wherein the bidders may combine a number of search parameters such as organization name, form of contract, location, date, other keywords etc. to search for a tender publishing on the CPP Portal.
2. Bidder should take into account any corrigendum published on the tender document before submitting their bids.
3. Please go through the tender advertisement and the tender document carefully to understand the documents required to be submitted as part of the bid. Please note the number of covers in which the bid documents have to be submitted, the number of documents – including the names and content of each of the document that need to be submitted. Any deviations from these may lead to rejection of the bid.
4. The tenders will be received online through portal <http://eprocure.gov.in/eprocure/app>. In the Technical Bids, the bidders are required to upload all the documents in .pdf format. All quotation (**both Technical and Financial should be submitted in the E-procurement portal**).
5. Possession of a Valid Class II/III Digital Signature Certificate (DSC) in the form of smart card/e-token in the company's name is a prerequisite for registration and participating in the bid submission activities through <http://eprocure.gov.in/eprocure/app>. Digital Signature Certificates can be obtained from the authorized certifying agencies, details of which are available in the web site <https://eprocure.gov.in/eprocure/app> under the link “Information about DSC”.

Instruction for Preparation & Submission of bids:

1. Technical Bids should be submitted in PDF format & Financial Bids should be submitted in Excel format.
2. **In case of Financial bids**, a standard BOQ format has been provided in Excel format. Bidders are required to download the BOQ Excel file and fill their financial offer on the same BOQ format. After filling the same, submit it online in Excel format, without changing the financial template format. However, if bidder wants to modify in its financial offer, then bidder can modify.
3. Bidder, in advance, should get ready the bid documents to be submitted as indicated in the tender document / schedule and generally, they can be in PDF formats. Bid documents may be scanned with 100 dpi with black and white option.
4. The bidder has to digitally sign and upload the required bid documents one by one as indicated in the tender document.
5. The uploaded tender documents become readable only after the tender opening by the authorized bid openers.
6. **Kindly add scanned PDF of all relevant documents in a single PDF file like, compliance sheet, OEM/Principle Certificate etc.**
7. Bidder should log into the site well in advance for bid submission so that he/she upload the bid in time i.e. on or before the bid submission time. Bidder will be responsible for any delay due to other issues.
8. Upon the successful and timely submission of bids, the portal will give a successful bid submission message & a bid summary will be displayed with the bid no. and the date & time of submission of the bid with all other relevant details.
9. The technical and financial bids should be submitted online through portal <http://eprocure.gov.in/eprocure/app> in original. The financial bid should include the cost of main equipment/item and its accessories. If there is any separate cost for installation etc. that should be quoted separately.
10. Each bidder should be marked with the following reference on the top bids submitted online: **“IITM/DST-FIST/RK/209/PUR-01/2022-23/643-644/Table Top Spark Plasma Sintering System, dated 27.08.2022”**.
11. The printed literature and catalogue/brochure giving full technical details should be included with the technical bid to verify the specifications quoted in the tender. The bidders should submit copies of suitable documents in support of their reputation, credentials and past performance in .pdf format.
12. The rates should be quoted in figures (typed or printed) and cutting should be avoided. The final amount should be in figures as well as in words. If there are cuttings, they should be duly initialed, failing which the bids are liable to be rejected.

13. **Tender Cost:** The bidder should submit a demand draft of **Rs. Nil (tender Fee)** (in case foreign bidder tender fee in equivalent foreign exchange amount) issued/confirmed from any of the scheduled commercial bank in India towards non-refundable **tender fee, drawn in favour of “The Registrar, IIT Mandi”** payable at Mandi in a sealed envelope super-scribed as **Tender fee & NIT No. “IITM/DST-FIST/RK/209/PUR-01/2022-23/643-644/Table Top Spark Plasma Sintering System, dated 27.08.2022”** on or before last date & time of submission of bids.

NSIC/MSME exemption certificate shall be considered only against EMD (detail as mentioned in S.No.15).

14. **Earnest Money Deposit (EMD):**

Bidder should furnish an EMD of a refundable amount of **Rs 2,34,000/-** in the shape of Demand Draft, FDR from a scheduled bank in India and in case of foreign bidder's bank guarantee (in equivalent foreign exchange amount) issued/confirmed from any of the scheduled commercial bank in India in acceptable form drawn in favour of **“The Registrar, IIT Mandi” payable at Mandi**. This EMD should be submitted in sealed envelope super-scribed as EMD & NIT No. **“IITM/DST-FIST/RK/209/PUR-01/2022-23/643-644/Table Top Spark Plasma Sintering System, dated 27.08.2022”**. The bidders should enclose a pre-receipted bill for the EMD to enable us to return the EMD of unsuccessful bidders. **Failure to deposit Earnest Money will lead to rejection of tender**. In the event of the awardee bidder backing out, EMD of that bidder will be forfeited.

- **To return FDR in original, bidder must submit its valid address as an address proof on its letterhead.**
- **Note: Bid security undertaking & EMD envelopes should be placed in another sealed envelope and address to:**

**“Asst. Registrar, SRIC & IR”
Indian Institute of Technology Mandi (IIT Mandi),
Old Directorate Complex, South Campus,
Kamand – 175 075, Distt. – Mandi (H.P), India”**

All bidders are required to submit ‘Bid Security Undertaking’ as per (Annexure-II).

This envelop having EMD and Bid Security Undertaking should reach on or before last date time of submission of bid.

15. **EMD Exemption:**

The Institute may accept bids without EMD from those bidders who are registered with the Central Purchase Organization, National Small Industries Corporation (NSIC) or the concern Ministry or Department **as Manufacturer**. To claim the exemption, the bidder must be offering goods manufactured by themselves. Exemption will not be granted in case the bidder is acting as an agent for some other vendor.

General Terms & Condition:

1. While sending rates, the firm shall give an undertaking to the effect that ***“the terms/conditions mentioned in the enquiry letter/Tender Notice against which the rates are being given are acceptable to the firm.”*** in .pdf format. In case the firms do not give this undertaking, their rates will not be considered.
2. If the supplier/firm is original equipment manufacturer (OEM)/authorized dealer/sole distributor of any item, the certificate to this effect should submit in .pdf format.
3. The quantity shown against the item is approximate and may vary as per demand of the Institute at the time of placing order.
4. Any bids received after **11:00 A.M. on 24th September, 2022** shall not be considered.
5. The Technical Bids will be opened on **26th September, 2022 at 11:00 A.M.** The date & time for opening of Financial Bids will be informed later on to the technically qualified bidders.
6. The tenders will be received online through portal <http://eprocure.gov.in/eprocure/app>. All tender documents received after the specified date and time shall not be considered.

For any correspondence regarding tenders is on below address:

**“Asst. Registrar, SRIC & IR”
Indian Institute of Technology Mandi (IIT Mandi),
Old Directorate Complex, South Campus,
Kamand – 175 075, Distt. – Mandi (H.P), India”**

7. **Arbitration Clause:** In the event of any dispute or difference(s) between the vendee Institute (IIT Mandi) and the vendor(s) arising out of non-supply of material or supplies not found according to specifications or any other cause whatsoever relating to the supply or purchase order before or after the supply has been executed, shall be referred to “The Director, IIT Mandi”, Kamand who may decide the matter himself or may appoint arbitrator(s) under the arbitration and conciliation Act, 1996. The decision of the arbitrator shall be final and binding on both the parties.

- a) In case of a dispute between the purchaser and a foreign supplier, the dispute shall be settled by arbitration in accordance with provision of sub-clause above. But if this is not acceptable to the supplier then dispute shall be settled in accordance with provisions of UNCITRAL (United Nations Commission on International Trade Law) Arbitration Rules.
 - b) The venue of the arbitration shall be the place from where the order is issued.
 - c) The place of arbitration and the language to be used in arbitral proceedings shall be decided by the arbitrator.
 - d) All disputes shall be subject to Mandi Jurisdiction only.
8. All tenders in which any of the prescribed conditions is not fulfilled or any condition is put forth by the tenderer shall be summarily rejected.
 9. The bidders or their authorized representatives may also be present during the opening of the Technical Bid, if they desire so, at their own expenses.

Note: Price bids of only those bidders will be opened whose technical bids are found suitable by the committee appointed for the purpose. Date and time of opening of price bids will be decided after technical bids have been evaluated by the committee. Information in this regard will be intimated only to the technically qualified bidders. In exceptional situation, an authorized committee may negotiate price with the qualified bidder quoting the lowest price before awarding the contract.

10. **Clarifications:**

In case the bidders require any clarification regarding the tender document, they are requested to submit their queries on the e-mail i.e. rajeev@iitmandi.ac.in, rahul@iitmandi.ac.in & arsric@iitmandi.ac.in on or **before 19th September, 2022.**

11. **Assistance to Bidders:** Any queries relating to the tender document and the terms & conditions contained therein should be addressed to tender Inviting Authority for a tender or relevant contact person indicated in the tender.

12. **Pre – Qualification Criteria:**

- Bidders should be the manufacturer / authorized dealer. Letter of Authorization from original equipment manufacturer (OEM) on the same and specific to the tender should be enclosed.

- An undertaking from the OEM is required stating that they would facilitate the bidder on a regular basis with technology/product updates and extend support for the warranty as well.
- OEM should be internationally reputed Branded Company.
- Non-compliance of tender terms, non-submission of required documents, lack of clarity of the specifications, contradiction between bidder specification and supporting documents etc. may lead to rejection of the bid.
- The Vendors who have earlier supplied the equipment to any of the IITs, IISc, IISERs and other Scientific Institute of National Repute should only tender. The details of such institutions and the cost with name of equipment may also be supplied with the bids.
- **In the 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.**
- **If an agent submits bid on behalf of the Principal/OEM, the same agent shall not submit a bid on behalf another Principal/OEM in the same tender for the same item/product.**
- **Furnishing of wrong/ambiguous information in the compliance statement may lead to rejection of bid and further black listing of the bidder, if prima-facie it appears that the information in the compliance statement was given with a malafide/fraudulent intent.**

13. Prices:

- The Prices quoted should be inclusive of basic price of an item, custom duties, packing, forwarding, freight, insurance, delivery and commissioning etc. at destination site (IIT Mandi, Mandi/Kamand). IIT Mandi is registered with DSIR, Govt. of India and is exempted from Custom to this effect will be issued by IIT Mandi. **Hence, Customs/Excise Duty exempted price should be quoted.** The rates shall be firm and final. Nothing extra shall be paid on any account.
- **In case of imports/foreign supplier, the price should be quoted on ex-work price/FOB/FCA basis only. Under special circumstance (e.g. perishable chemicals), when the item is imported on CIP/CIF, please indicate CIF/CIP charges separately upto Delhi indicating the mode of shipment. IIT Mandi will make necessary arrangements for the clearance of imported goods at the Airport/Seaport.**
- In case of imported equipment(s)/item(s), the agency commission, if any, payable in Indian rupees should be mentioned separately. **IAC shall be paid after satisfactory installation & commissioning of the goods at the destination.** For imported equipment, the Letter of Credit will be

opened for the amount excluding agency commission in Indian Rupees. The firm should clearly mention the address of foreign bank in the financial bid.

- **In case of indigenous item, the vendor should clearly mention the final FOR IIT Mandi, Kamand Campus Price, as applicable in their bid.**

14. Validity:

The bid should be valid for acceptance up to a period of 180 Days. The Bidders should be ready to extend the validity, if required without any additional financial implications.

15. Delivery:

The Equipment should be delivered and installed within the period as specified in the purchase order and be ready for use within 8 months of the issue of purchase order unless otherwise prescribed. If the bidder fails to deliver and place any or all the Equipment's or perform the service by the specified date, penalty at the rate of 1% per week of the total order value subject to the maximum of 10% of total order value will be deducted.

16. Installation, Training & Demonstration:

Bidders need to provide adequate training to the nominated persons of IIT Mandi at their cost. IIT Mandi will not bear any training expenditure. The supplier is required to done the installation and demonstration of the equipment within 6 months of arrival of materials at the IIT Mandi site of installation, otherwise the penalty clause will be the same as per the supply of material.

In case of any mishappening/damage to equipment and suppliers during the carriage of suppliers from the origin of equipment to the installation site, the supplier has to replace to it with new equipment/supplies immediately at his own risk. Supplier will settle his claim with the insurance company as per his convenience. IIT Mandi will not be liable to any type of losses in any form.

- 17. Insurance:** For delivery of goods at the purchaser's premises, the Insurance shall be obtained by the supplier on **"All Risk"** basis. The insurance shall be valid for a period of not less than 3 months after installation and commissioning. **In case of order placed on FOB/FCA basis, the purchaser shall arrange insurance. If order placed on CIF/CIP basis, the insurance should be up to New Delhi, the supplier shall arrange insurance.**

18. Warranty Declaration:

Bidders must give the comprehensive on-site warranty as required from the date of successful installation of Equipment against any manufacturing defects and also give the warranty declaration that *"everything to be supplied by us hereunder shall be free from all defects and faults in material, workmanship and shall be of*

the highest quality and material of the type ordered, shall be in full conformity with the specification and shall be complete enough to carry out the experiments, as specified in the tender document.

Any deviation in the material, and the specifications from the accepted terms may liable to be rejected and the bidders need to supply all the goods in the specified form to the satisfaction/specifications specified in the order / contract and demonstrate at their own cost.

- The Purchaser shall promptly notify the Supplier in writing of any claims arising under this warranty. Upon receipt of such notice, the Supplier shall immediately within **Two months** arrange to repair or replace the defective goods or parts thereof free of cost at the ultimate destination. The Supplier shall take over the replaced parts/goods at the time of their replacement. No claim whatsoever shall lie to the Purchaser for the replacement parts/goods thereafter. The period for correction of defects in the warranty period is **Two months**. If the supplier having been notified fails to remedy the defects within **Two months**, the purchaser may proceed to take such remedial action as may be necessary, at the supplier's risk and expenses without prejudice to any other rights, which the purchase may have against supplier under the contract.
 - The warranty period should be clearly mentioned. The maintenance charges (AMC) under different schemes after the expiry of the warranty should also be mentioned. The comprehensive warranty will commence from the date of the satisfactory installation/commissioning of the equipment against the defect of any manufacturing, workmanship and poor quality of the components.
 - After the warranty period is over, Annual Maintenance Contract (AMC)/Comprehensive Maintenance Contract (CMC) should be started. The AMC/CMC Charges will not be included in computing the total cost of the equipment.
19. **Performance Bank Guarantee:** A performance bank guarantee from a scheduled bank in India for an amount equal to **3%** of the price for duration of two months beyond the expiry of warranty period will be taken from the supplier or Indian agent.
20. **Terms of Payment:** Payment will generally be made only after delivery and satisfactory installation, testing, commissioning etc. **This must be specified in the tender/quotation.**
- In case of imported supplies, payment (excluding Indian agency commission, if any) will be made through irrecoverable Letter of Credit in two installments. 80% of the money will be released on submission of shipping of documents.

Remaining 20 % will be released after successful installation of the instrument and submission of a performance bank guarantee for 3% of the order value from scheduled bank in India, valid for 2 months beyond the expiry of the warranty. All the bank charges within India will be borne by the Institute and outside India will be borne by the Supplier.

- In case of required item quoted in INR, 80% payment will be made through E-payment after receipt of material in good condition and Remaining 20% will be released on successful installation of the instrument and on submission of a performance bank guarantee for 3% of the order value from scheduled bank in India, valid for 2 months beyond the expiry of the warranty.

21. **Tender expenses and documents:** All costs incurred by the bidder in the preparation of the tender shall be at the entire expense of the bidder.

22. **Tender Evaluation Criteria:** The technical bids will be opened and evaluated by a duly constituted committee. After evaluation of the technical bid, the financial bid for only those offers which have qualified in the evaluation of technical bid will be opened.

23. **Manual and documentation:** All the manuals necessary for operating and servicing the equipment (including details of electronic circuits) will have to be provided along with the instrument.

24. The IIT Mandi reserves the right to cancel the tender at any stage (point of time) without assigning any reason.

25. Bidders should go through the tender terms, conditions and specifications carefully and fill in the attached compliance statement accurately and unambiguously. They should ensure that all the required documents are furnished along with the bid.

Sd/-
Assistant Registrar
SRIC &IR

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
D.D. No. _____ Bank _____ Amount _____
5. Bid Security Undertaking in lieu of EMD enclosed: Yes /No

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

Name :

Address :

Telephone No. :

Fax No. :

Mobile No :

e-Mail :

Web :

< Organization Letter Head >>
DECLARATION SHEET

We, _____ hereby certify that all the information and data furnished by our organization with regard to this tender specification are true and complete to the best of our knowledge. I have gone through the specification, conditions and stipulations in details and agree to comply with the requirements and intent of specification. This is certified that our organization has been authorized (Copy attached) by the OEM to participate in Tender. We further certified that our organization meets all the conditions of eligibility criteria laid down in this tender document. Moreover, OEM has agreed to support on regular basis with technology / product updates and extend support for the warranty.

We, further specifically certify that our organization has not been Black Listed/De Listed or put to any Holiday by any Institutional Agency/ Govt. Department/ Public Sector Undertaking in the last three years.	NAME & ADDRESS OF THE Vendor/ Manufacturer / Agent
1 Phone	
2 Fax	
3 E - mail	
4 Contact Person Name	
5 Mobile Number	
6 TIN Number	
7 PAN Number	
8 GST No.	
9 Kindly provide bank details of the bidder in the following format: a) Name of the Bank	
b) Account Number	

Ref:-ENQUIRYNO:- "IITM/DST-FIST/RK/209/PUR-01/2022-23/643-644/Table Top Spark Plasma Sintering System, dated 27.08.2022"

Technical Specification of Table Top Spark Plasma Sintering System

Sl. No	SPECIFICATIONS FOR TABLE TOP SPARK PLASMA SINTERING SYSTEM
	<p>The table top compact system should be based on high energy DC pulsed discharge and Energizing system to sinter the highly dense oxide ceramics under appropriate temperature, servo controlled vertical pressure to prepare high density materials in a shorter cycle time. There should be provision to change the pulse discharge, temperature and presser rates to optimization of sintering process.</p> <p>Typical size should not be more than 1.5 m (WIDTH) × 1.5 m(DEPTH) × 2m(HEIGHT)</p>
1.	<p>Sintering System Specifications</p> <ul style="list-style-type: none"> i. The system is capable of sintering SiC, ZrO₂(3Y)-Stainless Steel, Ceramics, conductive, non- conductive and/or composite powder materials to required density of 98% or more ii. Sintering press system should be vertical single axis servo motor controlled iii. Sintering pressure should run into up to 20kN or more iv. Sintering stroke should be 50 mm or more v. Digital readout strain gauge, pressure transducer should be provided vi. Should be compact table top, compact size vii. Sintering electrode rods should have water cooled, properly sealed and leak tight for high temperature operation. viii. Minimum 0.01mm digital readout should be provided for Z axis position display ix. The system should have the safety devices are Emergency stop, warning alarm for safe operation. x. Machine is able to sinter sample of diameter 10 mm or more.
2.	<p>Sintering DC Pulse Generator and Energizing System</p> <ul style="list-style-type: none"> i. The system should have ON / OFF control system with Sintering DC Pulse Generator of ON time 1~1000 msec, OFF time 1~100 msec ii. Input power supply should be Indian standard power supply iii. Output supply should be DC Pulse output of 10V, 1,000A. iv. Output Range should be of Voltage 0~10V and Current 0~1,000A v. The Control System should be Manual operation and automatic temperature control vi. The Energizing System should be Water-cooled stainless steel rod connecting with long durable flexible lead wire
3.	<p>Furnace and Power supply for furnace</p>

	<ul style="list-style-type: none"> i. The furnace ramping up rate should be programmable; it should be high speed heating up to 500°C/min or better. ii. The furnace should be capable of long holding temperature and quick cooling rate (100 °C/min or more) for shorter operation cycle time. iii. Furnace should be made with Stainless steel, water cooled, double walled vacuum chamber and front loading with user-friendly operation of loading and unloading. iv. Safe view ports with quartz glass should be provided for sample viewing and placing temperature probes v. The chamber should be leak tight gas inlets and outlets provision and additional ports, feed throughs. vi. The temperature control should be automatic PID Digital Programmable for various temperature programming operations. vii. Temperature detector should be 2-way system for detecting of sintering temperature, it should be digital display and accurate readout temperature. <ul style="list-style-type: none"> 1). Radiation Thermometer system to measurement range from 600 to 3000°C (or more) 2). Thermocouple system to measure upto Max. 1,000°C, K-type Sheath Thermocouple to measure temperature of die and/or punches. Minimum working temperature of Chamber should be 2,200°C (Operating temperature) and it shall be capable of maximum temperature 2,500°C. viii. The furnace should be comprised reliable closed water-cooling system with efficient pressure and flow for continuous operation. ix. The Furnace should be comprised Pressure and Flow switch for continuous monitoring and safe operation. It should be safety interlock and alarm indication, if the cooling water temperature increases to desired set temperature, decrease flow and pressure. x. It should be variable output DC Pulse current up to 1000amp or more xi. The DC wave form (“on” and “off” time) should be programmable with a controller or a personal computer (PC). Pulse duration should be programmable within on time 1~1000 ms, Off time 1~100ms or higher range. It should be comprised ammeter and voltmeter to read average output. xii. The temperature range should be selectable up to 2200°C (or higher) that adjustable manually and programmable with PC and desirable heating rate should be variable up to a 500°C/min (Higher rate) xiii. Input power supply should be Indian Standard, three phase power supply, should be specified clearly.
4.	<p>Vacuum Chamber and Vacuum pumping unit</p> <ul style="list-style-type: none"> i. Vacuum chamber should be made with Stainless steel 304, Double walled, fully helium leak tight checked and with water cooling jacket. ii. Inside dimensions of the vacuum chamber should be minimum diameter of $\phi 200\text{mm}$ iii. The vacuum chamber should be capable to long holding of minimum desired Vacuum of $5 \times 10^{-2} \text{ mbar} \{5\text{Pa}\}$

	<ul style="list-style-type: none"> iv. The Rotary vacuum pumping system should be capable of obtaining vacuum from atmospheric pressure to 5×10^{-2} mbar or better within 5 minutes. v. The chamber ambiance is capable to Air, Vacuum or Inert gas for various sintering operations. vi. The vacuum chamber should be provided $\phi 50$mm viewing ports with quartz glass protection. vii. The vacuum chamber should be comprised the compound (Plus-minus) Bourdon pressure gauge to measure of the inlet gas pressure and flow, Pirani vacuum gauge for vacuum control. viii. Overall chamber leak tight should be less than 5×10^{-3} mbar-liter/second ix. The vacuum system should have required roughing valve, vacuum piping, O- rings, seals, connector etc for connect chamber to Vacuum pump. x. Vacuum system should be provided safety devices, interlocks, overload protection.
5.	<p>Sintering Operation and Control Unit</p> <ul style="list-style-type: none"> i. Clearly specify the specification of below controllers <ul style="list-style-type: none"> a. Power Supply Controller b. Sintering Pressure Controller c. Vacuum System Controller d. Current, Voltage, Pressure and Stroke Indicators e. Temperature Controller ii. The system should be mounted minimum desired inter-lock functions for safe operation and preventive breakdowns. <ul style="list-style-type: none"> a. Over load protection of vacuum pump b. Over current protection circuit c. Protection against of low flow rate and high temperature of cooling water. d. User safety while loading and unloading of samples. e. Protection against accidental furnace start.
6.	<p>Data Acquisition system</p> <ul style="list-style-type: none"> i. PC should be Windows compatible operating system, English version, high end processor, 9th gen i7, 16GB RAM, 2TB HDD, DVD-ROM and 24" TFT monitor, USB ports ii. The Data Acquisition system should be with suitable PC and PC rack that capable of output data of SPS Current, Temperature, Pressure, Displacement, Vacuum. iii. SPS operation should be continuous monitoring on the screen as real time graph display of Sintering operation.

7.	<p>Utilities, Power and Floor Space Requirement The supplier should provide clear specifications of required utilities for the smooth installation</p> <ul style="list-style-type: none"> i. Electric mains supply should be Indian standard power supply, if required matching transformer should be provided along with system. AC mains power shall be provided 1Ph, 220VAC, 50Hz or 3Ph, 440V, 50Hz. ii. Supplier should provide desired requirement of Power points, earthing / Grounding for electrical connection with overall rating. iii. Should be provide detailed drawing of Foot print, Foundation and necessary works iv. The Cooling water circulation unit should supply with Indian standard power supply v. Should be prove specifications of required inert gases like Argon, Nitrogen and connections for system operation. vi. Any other requirements and utilities for system operation.
8.	<p>Environmental condition for system operation The system should be smooth operation in normal Air conditioned, Lab temperature and humidity of below environment conditions at our Bangalore facility</p> <ul style="list-style-type: none"> i. Operating ambient temperature should be 5 to 40degC ii. Humidity condition: 20 to 80% RH subject to no dew conditions
9.	<p>Spares and Consumables The system should be supplied along with below specified spare parts and consumables for regular operation at our site.</p> <ul style="list-style-type: none"> i. High density Graphite die, punch and spacer for sintering operation <ul style="list-style-type: none"> (a) Graphite die <ul style="list-style-type: none"> ▪ ϕ30/10.0x30mm - 20 pc. ▪ ϕ30/12.5x30mm - 20 pcs. (b) Graphite punch <ul style="list-style-type: none"> ▪ ϕ10x20mm - 20 pcs. ▪ ϕ12.5x20mm - 20 pcs. (c) Graphite spacer <ul style="list-style-type: none"> Matching spacer with die and punch ii. Fuses - 2 set. iii. Thermocouples (K type) - 5 pcs. iv. All essential O-rings – 1set v. Carbon Felt - 5 sheet vi. Carbon Yarn – 50m vii. Carbon Paper – 5set viii. Mould releasing spray – 2set ix. Should be offer a detailed list of mandatory /necessary/ essential spares and consumables for three years of system operation

Installation requisites: All the prerequisites for installation have to be quoted. Institute will only provide electricity at Indian standard power supply 3Ph, 415VAC, 50Hz or 1Ph, 220VAC, 50Hz, normal quality water and space.

Safety devices: Suitable online 10 KVA UPS systems to run the system safely at least for two hrs.

Warranty and maintenance: The complete instrument and chiller excluding consumables should be under warranty at least for a period of one year from the date of installation. Additional cost, if any for extended warranty of three years may be quoted.

In case of breakdown during the warranty period, a competent service engineer of the supplier should make as many visits as are necessary to rectify the problem and replace the faulty parts, without any liability of cost. But it should be repaired within 72 working hours from the date and time of complaint lodged by the user. In case of any delay in repair without adequate justification, there will be penalty.

Annual maintenance contract: Quote the cost of onsite annual maintenance for three years after warranty period.

Installation and training: Installation should be done by the manufacturer. On-site one week training for operation and application may be given to the users free of cost. IIT Mandi will not bear any training or leaving expenditure in this regard.

Spare parts: The supplier of the instrument must confirm in writing that the spares for the entire instrument will be available for a period of at least ten years after the model of equipment supplied has been phased out. For frequently required spares, there should be adequate inventory with the Indian agency.

Quote operator for operation and maintenance for 12 months.

Manual and software: One set of operating manual and service manual including detailed drawings and circuit diagrams (in English) should be provided with the instrument.

All necessary software's should be provided with backup.

User list with contacts: Vendor should provide us a list of installations in India with all contact details and model details so that IIT Mandi can approach the contact person for any feedback. In case of any doubt about capability of the machine, the vendor will have to arrange demonstration at any site bearing the cost including the travel and other expanses of IIT Mandi representative.

Compliance Statement: The supplier must submit technical brochures and proper application notes adequately explaining and confirming the availability of the features in the model of the equipment being quoted.

The supplier must submit a table indicating the compliance of the features of the model of the equipment being quoted with those given in the indent. Features not matching – must be clearly indicated.

Additional features and Features in the quoted equipment which are better than those in the indent – may be clearly explained.

The vendor may certify that the equipment and accessories quoted provide a complete package for use of Spark plasma Sintering.

BID SECURITY UNDERTAKING

(To be issued by the bidder on company's letterhead in lieu of EMD)

To,

The Registrar,
I.I.T. Mandi,
Kamand, – 175 075,
District – Mandi, Himachal Pradesh, India

We, M/s _____ (Name of the Firm), with ref. to Tender No. **“IITM/DST-FIST/RK/209/PUR-01/2022-23/643-644/Table Top Spark Plasma Sintering System, dated 27.08.2022”**, hereby undertake that:

- 1) We accept all terms and conditions of the tender document.
- 2) We accept that, we will not modify our bid during the bid validity period and will honour the contract after the award of contract.
- 3) In the event of any modification to our bid by us or failure on our part to honour the contract after final award, our firm may be debarred from participation in any tender/ contract notified by IIT Mandi for a period of one year. We undertake that we shall not appeal against such debarment in any court of law.

Yours faithfully,

(signature)

Name:

Date:

Office Seal:

**COMPLIANCE STATEMENT FOR THE TENDER SPECIFICATION
INDIAN INSTITUTE OF TECHNOLOGY MANDI
SOUTH CAMPUS, KAMAND – 175 075, DISTRICT – MANDI, HIMACHAL PRADESH**

**Ref: -ENQUIRYNO: “IITM/DST-FIST/RK/209/PUR-01/2022-23/643-644/Table
Top Spark Plasma Sintering System, dated 27.08.2022”**

Sr. No.	Check list of documents/ Undertakings?	YES/ NO	Remarks (Give explanation if answer is No)
1.	Is Tender fees attached? (if applicable)		
2.	Is EMD attached? (if applicable)		
3.	Is Bid Security Undertaking attached? As per Annexure-II		
4.	Is the bidder original equipment manufacturer (OEM)/authorised dealer?		
5.	If authorised dealer, recent dated Certificate to this effect from OEM, attached or not?		
6.	Undertaking from OEM regarding technical support & extended warranty period		
7.	Validity of 180 days or not?		
8.	Undertaking from bidder regarding acceptance of tender terms & conditions		
9.	Whether list of reputed users (along with telephone numbers of contact persons) for the past three years specific to the instrument attached.		
10.	Whether special educational discount for Indian Institute of Technology (IIT) Mandi (H.P) given.		
11.	Whether training of operator and research students without any charges offered.		
12.	Does the instrument comply with all the required specifications as per Annexure 1. IMPORTANT: Attach a separate sheet highlighting compliances with the specifications and explanations thereto if the equipment's vary from the requested specifications.		
13.	Whether free Installation, Commissioning and Application Training offered.		
14.	Whether warranty as per requirement offered		
15.	Whether Annual maintenance after expiry of comprehensive onsite warranty quoted separately as optional.		