



भारतीय प्रौद्योगिकीसंस्थानमद्रासचेन्ने 600 036
INDIAN INSTITUTE OF TECHNOLOGY MADRAS Chennai 600 036
भंडार एवं क्रय अनुभाग
STORES & PURCHASE SECTION
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Booma Sowrirajan
Assistant Registrar (Stores & Purchase)

Dated : 11.02.2021

Tender No. IITM/SPS/Bench top XRD Unit/008/2020-21

Due Date: 04.03.2021
Before 2.00 p.m.

Dear Sirs,

On behalf of the Indian Institute of Technology Madras, Tenders are invited in two bid system from **Class-I local suppliers** and **Class II local suppliers**, for the supply of:

“Bench Top X-Ray Diffractometer”

Conforming to the specifications enclosed.

Tender Documents may be downloaded from Central Public Procurement Portal <https://etenders.gov.in/e procure/app>. Aspiring Bidders who have not enrolled / registered in e-procurement should enroll / register before participating through the website <https://etenders.gov.in/e procure/app>. The portal enrolment is free of cost. Bidders are advised to go through instructions provided at **“Help for contractors”**. [Special Instructions to the Contractors/Bidders for the e-submission of the bids online through this eProcurement Portal].

Bidders can access tender documents on the website (For searching in the NIC site, kindly go to Tender Search option and type ‘IIT’. Thereafter, Click on “GO” button to view all IIT Madras tenders). Select the appropriate tender and fill them with all relevant information and submit the completed tender document online on the website <https://etenders.gov.in/e procure/app> as per the schedule attached.

No manual bids will be accepted. All tender documents including Technical and Financial bids should be submitted in the E-procurement portal.

	LAST DATE for receipt of Tender	:	04.03.2021 before 02.00 p.m
	Date & Time of opening of Tender	:	05.03.2021 @ 03.00 p.m
1	Pre-bid Meeting	:	Due to Pandemic COVID-19 restrictions, the Pre-bid Meeting will be conducted via Google Meet on 18.02.2021 @ 03:00 pm. Please see the below link to join the meeting meet.google.com/spb-azcj-hwn Bidders are requested to join Google Meet before 2.45pm on 18.02.2021 and register your participation. Before joining this meeting, bidders should send email with details of person who will attend this meeting and their company details along with your queries to adstores@iitm.ac.in on or before 17.02.2021
A	Submission of Tender	:	As per the directives of Department of Expenditure, this tender document has been published on the Central Public Procurement Portal URL: https://etenders.gov.in/e procure/app The bidders are required to submit soft copies of their bids electronically on the CPP Portal, using valid Digital Signature Certificates. The instructions given below are meant to assist the bidders in registering on the CPP Portal, prepare their bids in accordance with the requirements and submitting their bids online on the CPP Portal. More information useful for submitting online bids on the CPP Portal may be obtained at: https://etenders.gov.in/e procure/app . All tender documents including pre-qualification bid, Technical Bid & Financial Bid should be submitted separately in online CPP portal as per the specified format only. Right is reserved to ignore any tender which fails to comply with the above instructions. No manual bid submission will be entertained.
B	Instructions for online bid submission	:	REGISTRATION

		<ul style="list-style-type: none"> i. Bidders are required to enroll on the e-Procurement module of the Central Public Procurement Portal URL:https://etenders.gov.in/eprocure/app by clicking on “Online Bidder Enrollment”. Enrolment on the CPP Portal is free of charge. ii. As part of the enrolment process, the bidders will be required to choose a unique username and assign a password for their accounts. iii. Bidders are advised to register their valid email address and mobile numbers as part of the registration process. These would be used for any communication from the CPP Portal. iv. Upon enrolment, the bidders will be required to register their valid Digital Signature Certificate (Class II or Class III Certificates with signing key usage) issued by any Certifying Authority recognized by CCA India (e.g. Sify / TCS / nCode / eMudhra etc.) v. https://etenders.gov.in/eprocure/app?component=%24DirectLink&page=DSCInfo&service=direct&session=T with their profile. vi. Only one valid DSC should be registered by a bidder. Please note that the bidders are responsible to ensure that they do not lend their DSCs to others which may lead to misuse. vii. Bidder then may log in to the site through the secured log-in by entering their user ID / password and the password of the DSC / eToken.
GUIDELINES, TERMS AND CONDITIONS OF TENDER		
C	Searching for tender documents	<ul style="list-style-type: none"> i. 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 published on the CPP Portal. ii. Once the bidders have selected the tenders they are interested in, they may download the required documents / tender schedules. These tenders can be moved to the respective “My Tender” folder. This would enable the CPP Portal to intimate the bidders through SMS / email in case there is any corrigendum issued to the tender document. iii. The bidder should make a note of the unique Tender ID assigned to each tender, in case they want to obtain any clarification / help from the Helpdesk.
D	Preparation of bids	<ul style="list-style-type: none"> i. Bidder should take into account any corrigendum published on the tender document before submitting their bids. ii. 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. iii. Bidder, in advance, should prepare the bid documents to be submitted as indicated in the tender document / schedule and generally shall be in PDF / XLS formats as the case may be. Bid documents may be scanned with 100 dpi with black and white option. iv. To avoid the time and effort required in uploading the same set of standard documents which are required to be submitted as a part of every bid, a provision of uploading such standard documents (e.g. PAN card copy, GSTIN Details, annual reports, auditor certificates etc.) has been provided to the bidders. Bidders can use “My Documents” area available to them to upload such documents. These documents may be directly submitted from the “My Documents” area while submitting a bid, and need not be uploaded again and again. This will lead to a reduction in the time required for bid submission process.
E	Submission of bids	<ul style="list-style-type: none"> i. Bidder should log into the site well in advance for bid submission so that he/she can upload the bid in time i.e. on or before the bid submission date and time. Bidder will be responsible for any delay due to other issues. ii. The bidder has to digitally sign and upload the required bid documents one by one as indicated in the tender document. iii. Bidder has to select the bid security declaration. Otherwise, the tender will be summarily rejected. iv. A standard BOQ format has been provided with the tender document to be filled by all the bidders. Bidders are requested to note that they should necessarily submit their financial bids in the format provided and no other format is acceptable. Bidders are required to download the BOQ file, open it and complete the detail with their respective

			<p>financial quotes and other details (such as name of the bidder). If the BOQ file is found to be modified by the bidder, the bid will be rejected.</p> <p>v. The server time (which is displayed on the bidders' dashboard) will be considered as the standard time for referencing the deadlines for submission of the bids by the bidders, opening of bids etc. The bidders should follow this time during bid submission.</p> <p>vi. The Tender Inviting Authority (TIA) will not be held responsible for any sort of delay or the difficulties faced during the submission of bids online by the bidders due to local issues.</p> <p>vii. The uploaded tender documents become readable only after the tender opening by the authorized bid openers.</p> <p>viii. 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.</p> <p>ix. Kindly add scanned PDF of all relevant documents in a single PDF file of compliance sheet.</p>
F	Assistance to bidders	:	<p>i. Any queries relating to the tender document and the terms and conditions contained therein should be addressed to the Tender Inviting Authority for a tender or the relevant contact person indicated in the tender.</p> <p>ii. Any queries relating to the process of online bid submission or queries relating to CPP Portal in general may be directed to the 24x7 CPP Portal Helpdesk. The contact number for the helpdesk is [0120-4200462, 0120-4001002, 0120-4001005]</p>
G	General Instructions to the Bidders	:	<p>i. The tenders will be received online through portal https://etenders.gov.in/e procure/app. In the Technical Bids, the bidders are required to upload all the documents in pdf format.</p> <p>ii. 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 https://etenders.gov.in/e procure/app</p> <p>iii. Digital Signature Certificates can be obtained from the authorized certifying agencies, details of which are available in the web site https://etenders.gov.in/e procure/app under the "Information about DSC".</p>
H	Bid Security Declaration and Performance Guarantee	:	<p>As per OM No.F.9/4/2020 – PPD dt: 12.11.2020, the bidder may submit a bid security declaration in the proforma given in Annexure - E</p> <p>The successful bidder shall submit a Performance Guarantee of 3% of the bid amount by way of DD/ Bank Guarantee obtained from any commercial bank.</p>
I	Marking on Technical Bid	:	<p>i. The bidder eligibility criteria, technical specification and supply of item for this tender is given in Annexure A.</p> <p>ii. The Bidders shall go through the specification and submit the technical bid.</p> <p>iii. The Technical bid should be submitted in the proforma as per Annexure-B in pdf format only through online (e-tender). No manual submission of bid will be entertained.</p> <p>iv. The technical bid should have a page-wise heading as "Technical Bid" and page no. in all pages with seal and signature of authorized signatory. The total no. of pages should be mentioned at the last page of the documents.</p> <p>v. The technical bid should consist of bidder eligibility criteria details and all technical details along with catalogue/ pamphlet which will give a detailed description of product with technical data sheet so that technical compliance can be verified.</p>
J	Marking on Price Bid	:	<p>Financial bid (BoQ) should be submitted in the prescribed proforma format as per Annexure-C in xls format through e-tender only. No manual or other form of submission of Financial Bid will not be entertained.</p>
2	Preparation of Tender:		
	<p>a) The rate quoted shall be all inclusive of all taxes and no extra payment will be made other than statutory revisions as per the terms and conditions stipulated in this contract document.</p> <p>b) The offer/bids should be submitted through online only in two bid system i.e. Technical Bid and Financial Bid separately.</p>		
3	Signing of Tender:		
	<p>The Tender is liable to be rejected if complete information is not given therein or if the particulars and date (if any) asked for in the schedule to the Tender are not fully filled in or not duly signed/authenticated. Specific attention is drawn to the delivery dates and terms and conditions enclosed herewith. Each page of the bids required to be signed and bears the official seal of the Bidders.</p> <p>If the application is made by a firm in partnership, it shall be signed (with seal) by all the partners of the firm above their full typewritten names and current addresses or alternatively by a partner holding power of attorney for the firm in which case a certified copy of the power of attorney shall accompany the application. A certified copy of the partnership deed along with current addresses of all the partners of the firm shall also accompany the application.</p> <p>If a limited company or a corporation makes the application, it shall be signed by a duly authorized person holding power of attorney for signing the application, in which case a certified copy of the power of attorney shall accompany the application. Such limited company</p>		

	or corporation may be required to furnish satisfactory evidence of its existence. The applicant shall also furnish a copy of the Memorandum of Articles of association duly attested by a Notary Public.
4	Tenderer shall submit along with this tender: (i) Proof of having ISO or other equivalent certification given by appropriate authorities. (ii) Name and full address of the Banker and their swift code and PAN No. and GSTIN number. (iii) GST registration proof showing registration number, area of registration etc. (iv) All of your future correspondences including Invoices should bear the GST No. and Area Code.
5	Period for which the offer will remain open: The Tender shall remain open for acceptance/validity till: 120 days from the date of opening of the tender. However, the day up to which the offer is to remain open being declared closed holiday for the Indian Institute of Technology Madras, the offer shall remain open for acceptance till the next working day.
6	Prices: i. The prices quoted must be Nett considering all scope of work, terms & conditions and as per the technical specification mentioned in Annexure A. The prices quoted by the bidders should be inclusive of GST and other statutory levies. ii. All conditional tenders will be summarily rejected. iii. Quote should be in INR only.
7	Concessional GST: Certificate for availing concessional GST @ 5% on IGST and @ 2.5% for CGST and SGST as per Notification No.45/2017 Central Tax (Rate) Dated 14th November 2017 & Notification No.47/2017 Integrated Tax (Rate) Dated 14th November 2017, for procurement of Equipments and Consumables for research purpose will be provided.
8	No Advance Payment will be made for Indigenous purchase. The payment will be made only after installation and Commissioning of bench top X-ray diffractometer and as per terms and conditions of the contract.
9	Terms and Conditions: Failure to comply with any of the instructions stated in this document or offering unsatisfactory explanations for non-compliance will likely to lead to rejection of offers.
10	Delivery: Supply and installation has to be done in IIT Madras Campus. The supply of the item should be within 3 months from the date of issue of Purchase order. The item should be delivered to IIT Madras to the location specified in the Purchase Order.
11	Right of Acceptance: IIT Madras reserves the right to reject the whole or any part of the Tender without assigning any reason or to accept them in part or full.
12	Communication of Acceptance: Letter of Intimation and acceptance will be communicated by post/email to the successful bidder to the address indicated in the bid.
13	All information including selection and rejection of technical or financial bids of the prospective bidders will be communicated through e-Tender portal. In terms of Rule 173(iv) of General Financial Rule 2017, the bidder shall be at liberty to question the bidding conditions, bidding process and/or rejection of bids.
14	Jurisdiction: All questions, disputes, or differences arising under, out of or in connection with the contract, if concluded, shall be subject to the exclusive jurisdiction at the place from which the acceptance of Tender is issued.
15	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. <ul style="list-style-type: none">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. 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.
16	Public Procurement – Preference to Make in India: This tender will be evaluated based on Public Procurement (Preference to Make in India) DIPP, MoCI Order No. 45021/2/2017-PP (BE II) dated 16 th September 2020 and other subsequent orders issued therein. Accordingly, preference will be given to the Make in India products while evaluating the bids, however, it is the sole responsibility of the bidder(s) to specify the product quoted by them is of Make in India product along with respective documentary evidence as stipulated in the aforesaid order in the technical bid itself. Necessary self-certification about the classification of the supplier/bidder as per the above order should be submitted by the bidder in Annexure-D1/D2. Non-submission of self-certification will lead to rejection of bid out rightly and the bidder will be treated as non-local supplier.
17	Bidder Eligibility Criteria – I (Public Procurement – Preference to Make in India) Only 'Class-I local suppliers' and 'Class-II local suppliers', as defined under DIPP, MoCI Order No. P-45021/2/2017-PP (BE II) dated 16 th September 2020 and other subsequent orders issued therein, shall be eligible to bid in this tender. Declaration for Class-I and Class-II local suppliers should be submitted in the prescribed proforma format as per Annexure-D1 & Annexure –D2. Bidder Eligibility Criteria - II 1.0. The Bidder's firm should be registered in India. (Necessary document proof should be submitted). 2.0. They should have supplied minimum of 5 similar bench top units in academic/research Institutions in India for the last 5 years. Necessary document proof should be submitted (Purchase order copies should be attached). 3.0. Availability of service personnel in India.

18	<p>Number of Bids and their Submission : The bidders should submit the bids in two bid system as detailed below:-</p> <p>Bid I Technical Bid The technical bid should consist of bidder eligibility criteria and technical specification compliance sheet as per Annexure-B.</p> <p>Bid II Price Bid The price bid should be submitted in excel format (BoQ) as per the proforma (Annexure C) uploaded in the e-Tender web site. The Quoted price should be for supply and installation of the item and inclusive of all cost and statutory levies at IIT Madras.</p>
19	<p>Evaluation of Bids Bid evaluation will take place in two stages.</p> <p>Stage I: Technical Bid evaluation</p> <ol style="list-style-type: none"> 1. Based on the DIPP, MoCI Order No. P-45021/2/2017-PP (BE II) dated 16th September 2020, Bidders will be evaluated first and those bidders who have complied with this criteria alone be evaluated for the bidder eligibility criteria-II and technical Specification evaluation. 2. In the 2nd stage, the bidder eligibility criteria-II and the technical specification offered by the bidders will be evaluated by the technical committee for compliance. The proposed technical specification offered by the bidder should be equivalent or higher to the specifications mentioned in the technical bid. 3. All bidders who have fully complied with bidder eligibility criteria I, II and technical evaluation will only be considered for opening of price bid. <p>Stage II: Price Bid Evaluation The price bid evaluation will be based on price quoted by the bidder. Item No.2 (optional item) mentioned in Price Bid (Annexure-C) will not be taken for price bid evaluation. The rate quoted for bench top X-Ray diffractometer unit will alone be taken up for arrival of Lowest Bid (L1) value.</p>
20	<p>Selection of successful bidder and Award of Order The order will be directly awarded to the technically qualified bidder as per the condition in para 3A of DIPP, MoCI Order No. 45021/2/2017-PP (BE II) dated 16th September 2020.</p>
21	<p>The tenderer shall certify that the tender document submitted by him / her are of the same replica of the tender document as published by IIT Madras and no corrections, additions and alterations made to the same. If any deviation found in the same at any stage and date, the bid / contract will be rejected / terminated and actions will be initiated as per the terms and conditions of the contract.</p>
22	<p>Due to Covid-19 pandemic pre-bid meeting will be conducted through online. Clarification to the queries and doubts raised by the bidders will be issued as a corrigendum/addendum in the e-tenders portal.</p>
23	<p>Due to Covid-19 pandemic the bidders will not be entertained to participate in opening of Bids. Since the tender is e-tender, the opening of the bids may be checked using the respective logins of the bidders.</p>

Sd/-
Assistant Registrar
(Stores & Purchase Section)

ACKNOWLEDGEMENT

It is hereby acknowledged that I/We have gone through all the points listed under “Specification, Guidelines, Terms and Conditions” of tender document. I/We totally understand the terms and conditions and agree to abide by the same.

**SIGNATURE OF TENDERER ALONG WITH SEAL OF
THE COMPANY WITH DATE**

Bidder Eligibility Criteria and Technical Specification for Bench top X-ray diffractometer

Tender No. IITM/SPS/Bench top XRD Unit/008/2020-21

Bidder Eligibility Criteria – I (Public Procurement – Preference to Make in India)

Only 'Class-I local suppliers' and 'Class-II local suppliers', as defined under DIPP, MoCI Order No. P-45021/2/2017-PP (BE-II) dated 16th September 2020 and other subsequent orders issued therein, shall be eligible to bid in this tender as per Annexure-D1 & Annexure – D2.

Bidder Eligibility Criteria – II

- 1.0. The Bidder's firm should be registered in India. (Necessary document proof should be submitted).
- 2.0. They should have supplied minimum of 5 similar bench top units in academic/research Institutions in India for the last 5 years. Necessary document proof should be submitted (Purchase order copies should be attached).
- 3.0. Availability of service personnel in India.

The department of Physics requests for purchase of bench top X-ray diffractometer to identify crystal structure of materials. Bench top X-ray diffractometer must be installed at IIT Madras.

III. TECHNICAL SPECIFICATION:

Sl. No.	Description
1	X-ray Generator
	a) X-Ray tube load-300 W or more (voltage: 30 kV or more & current-10 mA or more)
	b) High voltage generation-High frequency method
	c) Stability ± 0.01 to ± 0.05 % (for $\pm 10\%$ variation in line voltage)
	d) Automatic X-ray shutter
2	X-ray tube
	Ideally suitable for Cu 1 kW or better
3	Goniometer Details
	a) High precision vertical type: θ - θ and/or θ - 2θ
	b) Radius minimum 140 mm or more
	c) Scanning method: θ - θ and/or θ - 2θ
	d) Drive system-Pulse motor drive
	e) 2θ Scanning range : $-3 \sim +142^\circ$ or more
	f) 2θ Scanning Speed-at least $0.01 \sim 100^\circ/\text{min}$ or more
	g) Minimum step width range - 0.001° to 0.005° (2 Theta)
	h) Accuracy - 0.04° or better
	i) Knife Edge
	j) Soller slits of different widths 2.5° and 5° [or equaling magnitudes and units]
k) Suitable k-Beta filter - Ni-Filter	
4	X-ray Detector Details
	a) Fast 1D solid-state multi-strip detector or better.
	b) Should be able to suppress Fluorescence. Either 2-stage PHD based fluorescence reduction or graphite monochromator should be available.
	c) Should work in both 0D and 1D.
	d) Should work in scanning and static mode.
	e) Channels/strips/pixels: Minimum 120 number or above (higher is better).
	f) All Channels/strips/pixels should be active.
5	Basic system should have the following Software Provisions
	a) System condition setting.

	b) Real time angle calibration.
	c) Manual measurement.
	d) New Angle correction method using Pre-measured Calibration data guarantees below 0.01°Accuracy
	e) Standard measurement
	f) User-settable conditions
	g) Sampling width (step size), Scanning range, Scanning speed, Measurement mode (Continuous, step scan, integral measurement, skip scan); Multiple Recording option to reduce the background.
	h) Peak Search and match analysis; Background calculation and subtraction; Profile smoothing; $K\alpha_2$ calculation and removal; Peak Search. Integrated Intensity calculation, LPA calibration, Integrated calculation
6	Additional Software: X-ray diffraction analysis software – 2 numbers. (Lattice Parameter estimation; Rietveld refinement analysis; pattern profile fitting; quantitative analysis; ab-initio structural determination, indexing, cell refinement, percentage of crystallinity).
7	Computer system: Computer (either in-built or externally connected): Branded PC with Windows 10 Licensed version of latest type (i7 processor, 8 GB RAM) all in one desktop suitable for XRD.
8	Standard samples: one Si Standard
9	Sample holders: Standard sample stage with necessary sample holders to be provided (Glass type-20, Low Background sample holders-2, Aluminum type: 10 Numbers.)
10	Sample stage with spinner option with 3 sample holders.
11	Air sensitive holder: 1 Number
12	Sophisticated Chiller: Either internal or external cooling system to cool the X-ray tube. External chiller if required must be supplied by the original equipment manufacturer.
13	Power requirements: Single phase, 200 to 250 V, 50 to 60 Hz.
14	Operational Manual: Instrument description manual; Operation manual; All individual component details of the system; The procedures of allowable detachment/replacement.
15	Installation and Commissioning: After receipt of the item to IIT Madras, the complete system shall be integrated installed and commissioned at the designated place by vendor's representative. The vendor's representative should also provide complete hands-on training to the purchaser after installation and commissioning.
16	Training: After installation, minimum 2 Day training by a factory trained specialist on both instrumentation and advanced data analysis.
17	Warranty: The Warranty on the complete system including the X-ray Tube should be for 3 years.
18	Reinstallation: One reinstallation within 4 years after the procurement with free of cost.
19	Safety Features: a) System should be completely safe for X-ray radiation and complies to all international safety norms for X-ray safety, electrical and mechanical safety. b) The maximum radiation output should be less than 1 μ S/hour at a distance of 10 cm. c) Abnormal Generator Overload Detection. d) Abnormal Tube Voltage & Current Detection. e) Abnormal Cooling Water Flow and Pressure detection. f) X-rays completely Shut Off, Alarm and Warning. g) Light are activated if any Fail-safe Devices are. h) Tripped or Fail to operate. i) Emergency Stop Switch
20	Optional items (depends on the requirement) a) Database: ICDD pdf-2 database for 5 years
	b) 2D high-speed detector with minimum 3600 pixel (higher is better) with necessary 2 D analysis software.
	c) Additional two years warranty (after the free warranty duration of 3 years).
	d) 6 position sample changer with spinner: 1 Number.
	e) External sample loading with dust protection.

f) Graphite monochromator.
g) High Temperature.
h) Suitable Co X-ray tube for fluorescence based materials
i) Samples holders 1. Glass type-20
2. Aluminum type: 10 No.
j) GI-XRD as an add-on facility
k) Buy-back: The bidder is encouraged to Buy-back the used powder X-ray diffractometer unit (Panalytical MPSS) for a competitive price

TECHNICAL BID PROFORMA

**Tender No. IITM/SPS/Bench top XRD Unit/008/2020-21
Bench top X-ray Diffractometer**

1.0 Bidder Eligibility Criteria:

I	Bidder Eligibility Criteria-I (Public Procurement – Preference to Make in India)	Class I / Class II	Local Content value	Reference, Page No.
I	Only 'Class-I local suppliers' and 'Class-II local suppliers', as defined under DIPP, MoCI Order No. P-45021/2/2017-PP (BE II) dated 16 th September 2020 and other subsequent orders issued therein, shall be eligible to bid in procurements as per Annexure-D1 & Annexure –D2.			
II	Bidder Eligibility Criteria-II	Compliance (Yes/No)	Reference Page No.	Remarks, If any
1	The Bidder's firm should be registered in India. (Necessary document proof should be submitted).			
2	They should have supplied minimum of 5 similar bench top units in academic/research Institutions in India for the last 5 years. Necessary document proof should be submitted (Purchase order copies should be attached).			
3	Availability of service personnel in India.			

2.0 Technical Compliance:

S. No	Descriptions	Compliance (Yes/No)	Reference Page No.	Remarks, If any
1	X-ray Generator			
	a) X-Ray tube load-300 W or more (voltage: 30 kV or more & current-10 mA or more)			
	b) High voltage generation-High frequency method			
	c) Stability ± 0.01 to ± 0.05 % (for $\pm 10\%$ variation in line voltage)			
	d) Automatic X-ray shutter			
2	X-ray tube			
	Ideally suitable for Cu 1 kW or better			
3	Goniometer Details			
	a) High precision vertical type: θ - θ and/or θ - 2θ			
	b) Radius minimum 140 mm or more			
	c) Scanning method: θ - θ and/or θ - 2θ			
	d) Drive system-Pulse motor drive			
	e) 2θ Scanning range : $-3 \sim +142^\circ$ or more			
	f) 2θ Scanning Speed-at least $0.01 \sim 100^\circ/\text{min}$ or more			
	g) Minimum step width range - 0.001° to 0.005° (2 Theta)			
	h) Accuracy - 0.04° or better			
	i) Knife Edge			
	j) Soller slits of different widths 2.5° and 5° [or equaling magnitudes and units]			
k) Suitable k-Beta filter - Ni-Filter				
4	X-ray Detector Details			
	a) Fast 1D solid-state multi-strip detector or better.			
	b) Should be able to suppress Fluorescence. Either 2-stage PHD based fluorescence reduction or graphite monochromator should be available.			
	c) Should work in both 0D and 1D.			
	d) Should work in scanning and static mode.			
	e) Channels/strips/pixels: Minimum 120 number or above (higher is better).			
	f) All Channels/strips/pixels should be active.			
5	Basic system should have the following Software Provisions			
	a) System condition setting.			

S. No	Descriptions	Compliance (Yes/No)	Reference Page No.	Remarks, If any
	b) Real time angle calibration.			
	c) Manual measurement.			
	d) New Angle correction method using Pre-measured Calibration data guarantees below 0.01°Accuracy			
	e) Standard measurement			
	f) User-settable conditions			
	g) Sampling width (step size), Scanning range, Scanning speed, Measurement mode (Continuous, step scan, integral measurement, skip scan); Multiple Recording option to reduce the background.			
	h) Peak Search and match analysis; Background calculation and subtraction; Profile smoothing; K α 2 calculation and removal; Peak Search. Integrated Intensity calculation, LPA calibration, Integrated calculation			
6	Additional Software: X-ray diffraction analysis software – 2 numbers. (Lattice Parameter estimation; Rietveld refinement analysis; pattern profile fitting; quantitative analysis; ab-initio structural determination, indexing, cell refinement, percentage of crystallinity).			
7	Computer system: Computer (either in-built or externally connected): Branded PC with Windows 10 Licensed version of latest type (i7 processor, 8 GB RAM) all in one desktop suitable for XRD.			
8	Standard samples: one Si Standard			
9	Sample holders: Standard sample stage with necessary sample holders to be provided (Glass type-20, Low Background sample holders-2, Aluminum type: 10 Numbers.)			
10	Sample stage with spinner option with 3 sample holders.			
11	Air sensitive holder: 1 Number			
12	Sophisticated Chiller: Either internal or external cooling system to cool the X-ray tube. External chiller if required must be supplied by the original equipment manufacturer.			
13	Power requirements: Single phase, 200 to 250 V, 50 to 60 Hz.			
14	Operational Manual: Instrument description manual; Operation manual; All individual component details of the system; The procedures of allowable detachment/replacement.			
15	Installation and Commissioning: After receipt of the item to IIT Madras, the complete system shall be integrated installed and commissioned at the designated place by vendor's representative. The vendor's representative should also provide complete hands-on training to the purchaser after installation and commissioning.			
16	Training: After installation, minimum 2 Day training by a factory trained specialist on both instrumentation and advanced data analysis.			
17	Warranty: The Warranty on the complete system including the X-ray Tube should be for 3 years.			
18	Reinstallation: One reinstallation within 4 years after the procurement with free of cost.			
19	Safety Features: a) System should be completely safe for X-ray radiation and complies to all international safety norms for X-ray safety, electrical and mechanical safety. b) The maximum radiation output should be less than 1 μ S/hour at a distance of 10 cm. c) Abnormal Generator Overload Detection. d) Abnormal Tube Voltage & Current Detection. e) Abnormal Cooling Water Flow and Pressure detection.			

S. No	Descriptions	Compliance (Yes/No)	Reference Page No.	Remarks, If any
	f) X-rays completely Shut Off, Alarm and Warning. g) Light are activated if any Fail-safe Devices are. h) Tripped or Fail to operate. i) Emergency Stop Switch			
20	Optional items (depends on the requirement) a) Database: ICDD pdf-2 database for 5 years			
	b) 2D high-speed detector with minimum 3600 pixel (higher is better) with necessary 2 D analysis software.			
	c) Additional two years warranty (after the free warranty duration of 3 years).			
	d) 6 position sample changer with spinner: 1 Number.			
	e) External sample loading with dust protection.			
	f) Graphite monochromator.			
	g) High Temperature.			
	h) Suitable Co X-ray tube for fluorescence based materials			
	i) Samples holders 1. Glass type-20			
	2. Aluminum type: 10 No.			
	j) GI-XRD as an add-on facility			
	k) Buy-back: The bidder is encouraged to Buy-back the used powder X-ray diffractometer unit (Panalytical MPSS) for a competitive price			

**SIGNATURE OF BIDDER ALONG WITH
SEAL OF THE COMPANY WITH DATE**

FINANCIAL BID (PROFORMA) - BILL OF QUANTITIES (BOQ)

Bench top X-ray Diffractometer
Tender No. IITM/SPS/Bench top XRD Unit/008/2020-21

It. No	Description of work	Quantity	Units	Basic Rate in INR	GST in Percentage	Total Amount with taxes in INR
1	Supply, installation and commissioning of Bench top X-ray Diffractometer at IIT Madras as per technical specification given in Annexure A	1	Nos.			
2	Optional items (depends on the requirement)					
	a) Database: ICDD pdf-2 database for 5 years	2	Nos.			
	b) 2D high-speed detector with minimum 3600 pixel (higher is better) with necessary 2 D analysis software.	1	No.			
	c) Additional two years warranty (after the free warranty duration of 3 years).	1	2 Years			
	d) 6 position sample changer with spinner.	1	No.			
	e) External sample loading with dust protection.	1	No.			
	f) Graphite monochromator.	1	No.			
	g) High Temperature.	1	No.			
	h) Suitable Co X-ray tube for fluorescence based materials	1	No.			
	i) Samples holders 1. Glass type	20	No.			
	2. Aluminum type	10	No.			
	j) GI-XRD as an add-on facility	1	No.			
k) Buy-back: The bidder is encouraged to Buy-back the used powder X-ray diffractometer unit (Panalytical MPSS) for a competitive price	1	No.				
	Grand Total					

Total Amount Rupees in words _____

Note: Item No.2 Optional item will not be considered for price bid evaluation.

SELF-CERTIFICATION FORMAT FOR CLASS-I LOCAL SUPPLIER**Tender No. IITM/SPS/Bench top XRD Unit/008/2020-21****Format for Affidavit of Self certification regarding Minimum Local Content in line with PPP-MII order, 2017 if applicable, to be provided on a non-judicial stamp paper of Rs. 100/-**

Date: _____

I / We _____ S/o, D/o, W/o, _____ Resident of _____ hereby solemnly affirm and declare as under:

That I/we will agree to abide by the terms and conditions of the Public Procurement (Preference to Make in India) Order, 2017 (hereinafter PPP-MII order) of Government of India issued vide Notification No: P-45021/2/2017 -BE-II dated 15/06/2017, its revision dated 28/05/2018 and any subsequent modifications/Amendments, if any and

That the information furnished hereinafter is correct to the best of my knowledge and belief and I/we undertake to produce relevant records before the procuring entity/IIT Madras or any other Government authority for the purpose of assessing the local content of goods/services/works supplied by me for (Enter the name of the Equipment/Item for Project).

That the local content for all inputs which constitute the said goods/services/works has been verified by me and I am responsible for the correctness of the claims made therein.

I/We[name of manufacturer] hereby confirm in respect of quoted item(s) that Local Content is equal to or more than 50% and come under 'Class-I Local Supplier' Category. As being 'Class-I Local Supplier', we are eligible for Purchase Preference under 'Make in India' Policy vide Gol Order no. P-45021/2/2017-PP (B.E.-II) dated 15.06.2017 (subsequently revised vide orders dated 28.05.2018, 29.05.2019 and 04.06.2020)

That the value addition for the purpose of meeting the 'Minimum Local Content' has been made by me at (Enter the details of the location(s) at which value addition is made).

That in the event of the local content of the goods/services/works mentioned herein is found to be incorrect and not meeting the prescribed Minimum Local Content criteria, based on the assessment of procuring agency (ies)/IIT Madras/Government Authorities for the purpose of assessing the local content, action shall be taken against me in line with the PPP-MII order and provisions of the Integrity pact/ Bidding Documents.

I/We agree to maintain the following information in the Company's record for a period of 8 years and shall make this available for verification to any statutory authority.

- i. Name and details of the Local Supplier (Registered Office, Manufacturing unit location, nature of legal entity)
- ii. Date on which this certificate is issued
- iii. Goods/services/works for which the certificate is produced
- iv. Procuring entity to whom the certificate is furnished
- v. Percentage of local content claimed and whether it meets the Minimum Local Content prescribed
- vi. Name and contact details of the unit of the Local Supplier (s)
- vii. Sale Price of the product
- viii. Ex-Factory Price of the product
- ix. Freight, insurance and handling
- x. Total Bill of Material
- xi. List and total cost value of input used to manufacture the Goods/to provide services/in construction of works
- xii. List and total cost of input which are domestically sourced. Value addition certificates from suppliers, if the input is not in-house to be attached
- xiii. List and cost of inputs which are imported, directly or indirectly

For and on behalf of..... (Name of firm/entity)

Authorized signatory (To be duly authorized by the Board of Directors)

<Insert Name, Designation and Contact No.>

SELF-CERTIFICATION FORMAT FOR CLASS-II LOCAL SUPPLIER**Tender No. IITM/SPS/Bench top XRD Unit/008/2020-21**

Format for Affidavit of Self certification regarding Minimum Local Content in line with PPP-MII order, 2017 if applicable, to be provided on a non-judicial stamp paper of Rs. 100/-

Date: _____

I / We _____ S/o, D/o, W/o, _____ Resident of _____ hereby solemnly affirm and declare as under:

That I/we will agree to abide by the terms and conditions of the Public Procurement (Preference to Make in India) Order, 2017 (hereinafter PPP-MII order) of Government of India issued vide Notification No: P-45021/2/2017 -BE-II dated 15/06/2017, its revision dated 28/05/2018 and any subsequent modifications/Amendments, if any and

That the information furnished hereinafter is correct to the best of my knowledge and belief and I/we undertake to produce relevant records before the procuring entity/IIT Madras or any other Government authority for the purpose of assessing the local content of goods/services/works supplied by me for (Enter the name of the Equipment/Item for Project).

That the local content for all inputs which constitute the said goods/services/works has been verified by me and I/we am/are responsible for the correctness of the claims made therein.

I/We (name of manufacturer) hereby confirm in respect of quoted item(s) that Local Content is more than 20% but less than 50% and come under 'Class-II Local Supplier' Category.

That the value addition for the purpose of meeting the 'Minimum Local Content' has been made by me at (Enter the details of the location(s) at which value addition is made).

That in the event of the local content of the goods/services/works mentioned herein is found to be incorrect and not meeting the prescribed Minimum Local Content criteria, based on the assessment of procuring agency (ies)/IIT Madras/Government Authorities for the purpose of assessing the local content, action shall be taken against me in line with the PPP-MII order and provisions of the Integrity pact/ Bidding Documents.

I/We agree to maintain the following information in the Company's record for a period of 8 years and shall make this available for verification to any statutory authority.

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- ii. Date on which this certificate is issued
- iii. Goods/services/works for which the certificate is produced
- iv. Procuring entity to whom the certificate is furnished
- v. Percentage of local content claimed and whether it meets the Minimum Local Content prescribed
- vi. Name and contact details of the unit of the Local Supplier (s)
- vii. Sale Price of the product
- viii. Ex-Factory Price of the product
- ix. Freight, insurance and handling
- x. Total Bill of Material
- xi. List and total cost value of input used to manufacture the Goods/to provide services/in construction of works
- xii. List and total cost of input which are domestically sourced. Value addition certificates from suppliers, if the input is not in-house to be attached
- xiii. List and cost of inputs which are imported, directly or indirectly

For and on behalf of..... (Name of firm/entity)

Authorized signatory (To be duly authorized by the Board of Directors)

<Insert Name, Designation and Contact No.>

(To be printed in the letter head of the bidder)

BID DECLARATION FORM

**To
The Registrar,
IIT Madras**

I, the authorized signatory of _____ participating in the subject Tender No. _____ dated _____ for “Bench Top X-Ray Diffractometer”.

That I have availed the benefit of waiver of EMD while submitting our offer against the subject Tender No. _____ and EMD being deposited for the said Tender.

That in the event we withdraw/ modify our bid during the period of validity OR we fail to execute formal contract agreement within the given timeline OR we fail to submit a performance security within the given timeline OR we commit any other breach of Tender Conditions/Contract which attracts penal action of forfeiture of EMD and we will be suspended from being eligible for bidding/award of all future contract (s) of Indian Institute of Technology Madras for a period of one year from the date of committing such breach. Further, we agree that your institute is at liberty to intimate this debarment to all departments/ organizations of government and governmental organizations.

**SIGNATURE OF TENDERER ALONG WITH
SEAL OF THE COMPANY WITH DATE**

SCHEDULE OF TENDER

Tender No. IITM/SPS/Bench top XRD Unit/008/2020-21

Bench Top X-Ray Diffractometer Unit

Name of Organization	Indian Institute of Technology Madras
Tender Type (Open/Limited/EOI/Auction/Single)	OPEN
Tender Category (Services/Goods/Works)	Goods
Type/Form of Contract (Work/Supply/Auction/ Service/ Buy/ Empanelment/ Sell)	Supply
Product Category (Civil Works/Electrical Works/Fleet Management/ Computer Systems)	Bench Top X-Ray Diffractometer
Source of Fund (Institute/Project)	IIT Madras
Is Multi Currency Allowed	No
Date of Issue/Publishing	11.02.2021
Document Download Start Date	11.02.2021
Document Download End Date	04.03.2021
Prebid Meeting via Google Meet	18.02.2021 @ 03.00 pm
Bid Submission Start Date	24.02.2021
Last Date and Time for Uploading of Bids	04.03.2021 before 02.00 pm
Date and Time of Tender Opening	05.03.2021 at 03.00 pm
Bid Security Declaration	Annexure E
No. of Covers (1/2/3/4)	2
Bid Validity days (180/120/90/60/30)	120 Days
Address for Communication	The Assistant Registrar Stores & Purchase Section IIT Madras Chennai – 600 036
Contact No.	For Queries : 044- 2257 8285/8287/8288
Email Address	adstores@iitm.ac.in