

	<p>भारतीय प्रौद्योगिकीसंस्थानमद्रासचेनै 600 036 INDIAN INSTITUTE OF TECHNOLOGY MADRAS Chennai 600 036 भंडार एवं क्रय अनुभाग STORES & PURCHASE SECTION Email: adstores@iitm.ac.in दूरभाष: (044) 2257 8285 / 8287 / 8288 / 8290 फ़ैक्स: (044) 2257 8082 Telephone : (044) 2257 8285/8287/8288/8290 FAX: (044) 2257 8082 GSTIN: 33AAAAI3615G1Z6</p>	
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P.K. SHEBA SABARI

Assistant Registrar (Stores & Purchase)

Date: 07.03.2024

Tender No. IITM/SPS/PML/048/2023-24/SPL

Due Date 14.03.2024

Before 02.00 p.m.

Dear Sirs,

On behalf of the Indian Institute of Technology Madras, Tenders are invited in two bid system, namely technical and financial bids for:

SUPPLY OF PHYSICAL METALLURGY LAB (PML) EQUIPMENT, ACCESSORIES AND CONSUMABLES

Conforming to the specifications enclosed.

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

Tenderers 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/eprocure/app> as per the schedule attached.

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

1	LAST DATE for receipt of Tender	:	14.03.2024 before 02.00 p.m.
	Date & Time of opening of Tender	:	15.03.2024 @ 02.30 p.m.

GUIDELINES FOR TENDER SUBMISSION IN CENTRAL PUBLIC PROCUREMENT PORTAL (E-PROCUREMENT MODE)

A	निविदा की प्रस्तुति /Submission of Tender	:	<ul style="list-style-type: none"> 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/eprocure/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/eprocure/app All tender documents including 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.
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B	ऑनलाइन बोली जमा के अनुदेश / Instructions for online bid submission	<p>REGISTRATION</p> <ul style="list-style-type: none"> • 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. • As part of the enrolment process, the bidders will be required to choose a unique username and assign a password for their accounts. • 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. • 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 and etc.)https://eprocure.gov.in/eprocure/app with their profile. • 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. • 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.
C	निविदा दस्तावेज़ की खोज / Searching for tender documents	<ul style="list-style-type: none"> • 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. • 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. • 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	बोली की तैयारी / Preparation of bids	<ul style="list-style-type: none"> • Bidder should take into account any corrigendum published on the tender document before submitting their bids. • 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. • 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. • 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	बोली की प्रस्तुति / Submission of bids	:	<ul style="list-style-type: none"> • 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. • The bidder has to digitally sign and upload the required bid documents one by one as indicated in the tender document. • Bidder has to transfer the EMD as applicable by online mode only. The EMD should be transferred on or before the closure date and time of the tender. If the EMD is not transferred before the closure date and time, the tender will be summarily rejected. The proof of transfer has to be submitted in the Technical Bid, Otherwise, the tender will be summarily rejected. • A standard BOQ format has been provided in Annexure-C 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 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. • 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. • 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. • The uploaded tender documents become readable only after the tender opening by the authorized bid openers. • 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. • Kindly add scanned PDF of all relevant documents in a single PDF file of compliance sheet.
F	बोलीदाताओं के लिए सहायता /Assistance to bidders	:	<ul style="list-style-type: none"> • 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. • 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]
G	बोलीदाताओं के लिए सामान्य अनुदेश / General Instructions to the Bidders	:	<ul style="list-style-type: none"> • The tenders will be received online through portal https://etenders.gov.in/eprocure/app. In the Technical Bids, the bidders are required to upload all the documents in single pdf file. • 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/eprocure/app • Digital Signature Certificates can be obtained from the authorized certifying agencies, details of which are available in the web site https://etenders.gov.in/eprocure/app under the "Information about DSC".
H	बयाना जमा ईएमडी Earnest Money Deposit (EMD)	:	<p>i. EMD of INR 3,00,000/- (Rupees Three Lakhs only) should be transferred through NEFT/RTGS to the following bank account on or before due date 14.03.2024 before 2:00 p.m.</p> <p>Name : Registrar IIT Madras Bank : State Bank of India Account No. : 10620824305 Branch : IIT MADRAS IFSC CODE : SBIN0001055</p>

		<ul style="list-style-type: none"> ii. As per O.M. No.F.1/2/2022-PPD Dated 01.04.2022, the EMD will be returned to the unsuccessful Bidder(s), within 30 days after declaration of result of first stage i.e. technical evaluation etc. The EMD shall be forfeited if any Bidder withdraws the offer before finalization of the tender. iii. The EMD amount should not be sent through DD. iv. Non-submission of EMD details on or before the due date and time will result in rejection of the e-bid. v. As per Rule 170 of GFR 2017, exemption of EMD will be given subject to submission of undertaking by the firm seeking such exemption. Copies of relevant orders/ documents regarding such exemption should be submitted along with the tender document. vi. The successful bidder shall submit a Performance Guarantee of 3% of the purchase order value by way of DD/Bank Guarantee (including e-Bank Guarantee)/FDR/ Insurance surety bonds in favour of "The Registrar, IIT Madras" to be obtained from any commercial bank, within 14 (Fourteen) days from the date of issue of order by IIT Madras, which would be released 60 days after the successful completion of the warranty period after the adjustment dues if any without interest. vii. In case of successful bidder, the EMD will be adjusted towards the Performance Guarantee on request, subject to validity. viii. The amount of EMD is liable to be forfeited if the bidder withdraws the offers after submission of the tender or after the occupation of the offer and fails to remit the Performance Guarantee.
I	तकनीकी बोली पर मार्किंग /Marking on Technical Bid	<ul style="list-style-type: none"> i. The Bidder Eligibility Criteria, technical specification of the item for this tender is given in Annexure A. The Bidders shall go through the Bidder Eligibility Criteria, Technical Specification and submit the technical bid in the proforma given in Annexure B in the tender document along with the supporting documents. ii. The Technical bid should be submitted in pdf format only through online (e-tender). No manual submission of bid will be entertained. iii. The technical bid should have the 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. iv. The technical bid should consist of <ul style="list-style-type: none"> a) Document proof for EMD payment b) Technical Compliance sheet as per proforma given in Annexure –B c) Document proof for Bidder eligibility criteria, technical details along with catalogue / brochure and other technical, commercial terms and conditions.
J	वित्तीय बोली पर मार्किंग Marking on Financial Bid	<ul style="list-style-type: none"> : Financial bid (BOQ) should be submitted in the prescribed format given in Annexure- C in xls format through e-tender only. No manual or other form of submission of Financial Bid will be entertained.

निविदा के निबंधन व शर्तें TERMS AND CONDITIONS OF TENDER	
1.	<p>निविदा की तैयारी Preparation of Tender:</p> <ul style="list-style-type: none"> The bids should be submitted through online only in two bid system i.e. Technical Bid and Financial Bid separately. The bidder has to submit the tender document duly signed on all pages by an authorized person and his / her full name and status shall be indicated below the signature along with official seal/stamp of the firm. Submission of wrong / forged information / document will be liable to legal action, and rejection of the bid submitted by the firm. The bids of the agency/firm/company not in possession of valid statutory license / registrations are liable for rejection. If any relative of the bidder is an employee of the IIT Madras, the name, designation and relationship of such employee shall be intimated to the Registrar, IIT Madras in writing while submitting the bid. No bidder will be allowed to withdraw / alter / modify the bid during the bid validity period.
2.	<p>निविदा पर हस्ताक्षर Signing of Tender:</p> <ul style="list-style-type: none"> 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. If the bid is submitted 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. 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 or corporation may be required to furnish satisfactory evidence of its existence. The bidder shall also furnish a copy of the Memorandum of Articles of association duly attested by a Notary Public.
3.	<p>वह अवधि जिसके लिए ऑफर खुला रहेगा 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.</p>
4.	<p>कीमत Prices:</p> <ul style="list-style-type: none"> The prices quoted by the bidders should be inclusive of Training, Installation, Transportation, GST and other charges. All conditional tenders will be summarily rejected.
5.	<p>भुगतान टीमें Payment terms :</p> <ul style="list-style-type: none"> Local: 90% against delivery at site and 10% after installation. Advance if any required may be considered against the request of successful vendor by submitting equivalent amount of BG in addition to Performance Security Deposit.
6.	<p>सुपुर्दगी Delivery: The delivery period should be maximum 2 months from the date of issue of purchase order.</p>
7.	<p>Warranty and AMC:</p> <ol style="list-style-type: none"> 2 years Standard Warranty from the date of installation for all the equipments. A continuous operational support to IIT Madras should be provided without any additional cost during the warranty period. OPTIONAL for extended warranty - 3 years.

	<p>d. Annual Maintenance contract (AMC) should be quoted as option for 2 years upon the completion of the extended warranty period.</p> <p>e. Comprehensive maintenance contract should include cost of services as well as spares.</p> <p>f. Vendor should also give schedule of preventive maintenance in their offer. During the period of contract vendor should respond to breakdown within 72 hours of reporting.</p> <p>g. The vendor should also mention the payment schedule for AMC along with their offer.</p>
8.	<p>Installation & Training:</p> <p>a. All the essential requirements ensuring a ready-to-use set up at IIT Madras should be supplied.</p> <p>b. Overall dimensions of the machine to be shown schematically, specifying the area required to install the machine in all three dimensions with the accessories.</p> <p>c. Clear documentation on the site requirements and site needs should be provided.</p> <p>d. OEM / Bidder should carry out the installation and commission of the machine at the Customer site at free of cost.</p> <p>e. After installation and commissioning of the equipment, there will be a Site Acceptance Test (SAT) on mutually agreed terms.</p> <p>f. Safety training at the time of installation should be provided on-site at the time of installation and acceptance test. There should not be any restriction on number of persons to be trained.</p> <p>g. Training should be provided on-site at the time of installation and acceptance test. There should not be any restriction on number of persons to be trained.</p> <p>h. However, training shall be restricted to one batch of few persons.</p> <p>i. All the training instructions have to be in English only. Duration of training should be adequate for the identified operators to understand and operate the machine independently.</p>
9.	<p>Spare parts and accessories will be available for smooth operation over at least 15 years from the date of installation. However, the consumables and parts required at the time of installation and standardisation should be given free of cost. (Self declaration- APPENDIX-A)</p>
10.	<p>Additional Mandatory Conditions:</p> <p>a. The operational status of all the equipment in India should be provided (Self Declaration).</p> <p>b. "Emergency Stop" button(s) should be provided at convenient and easily accessible location.</p> <p>c. The equipment brochures, operation and safety manuals, charts should be provided.</p> <p>d. Flow line diagrams and electrical circuit diagrams should be provided.</p> <p>e. A preinstallation instructions should be provided with the equipment, indicating electrical, space, gas connections and safety protocols should be provided.</p> <p>f. Overall dimensions of the machine to be shown schematically, specifying the area required to install the machine in all three dimensions with the accessories.</p> <p>g. After installation and commissioning of the equipment, there will be a Site Acceptance Test (SAT) on mutually agreed terms.</p>
11.	<p>निबंधन व शर्तें Terms and Conditions:</p> <p>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.</p>
12.	<p>स्वीकृति का अधिकार 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.</p>
13.	<p>स्वीकृति की सूचना 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.</p>
14.	<p>All information including selection and rejection of technical or financial bids of the prospective bidders will be communicated through CPP 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.</p>
15.	<p>बोलीदाता को इस नि वदा के साथ जमा करना होगा Bidder shall submit along with this Tender:</p> <p>Name and full address of the Banker and their swift code and PAN No. and GSTIN number.</p>
16.	<p>क्षेत्राधिकार 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.</p>
17.	<p>Right of IIT Madras</p> <ul style="list-style-type: none"> The Registrar, IIT Madras reserves right to withdraw / relax any of the terms and conditions mentioned above so as to overcome the problem encountered by the contracting parties. The Registrar, IIT Madras reserves the right to accept or reject any or all the tenders without assigning any reason whatsoever and his / her decision shall be final and binding on the tenderer.

	<ul style="list-style-type: none"> IIT Madras reserves the right to suitably increase / reduce the scope of supply put to this tender. In case of any ambiguity in the interpretation of any of the clauses in tender document or purchase order, interpretation of the clauses by the IIT Madras shall be final and binding on all parties.
18.	<p>जुर्माना परिसमापन क्षति Penalty & Liquidated Damages / Force Majeure:</p> <ul style="list-style-type: none"> If the selected Bidder fails to complete the due performance of the contract in accordance with the terms and conditions, Institute reserves the right either to cancel the contract or to accept performance already made by the selected Bidder after imposing Penalty on Selected Bidder. A penalty will be calculated on a per week basis and on the same Rate as applicable to Liquidated Damages (LD). In case of termination of the contract, Institute reserves the right to recover an amount equal to 5% of the Contract value as Liquidated Damages for non-performance. Both Penalty and Liquidated Damages are independent of each other and are applied separately and concurrently. Penalty and LD are not applicable for reasons attributable to the Institute and Force Majeure. However, it is the responsibility of the selected Bidder to prove that the delay is attributable to the Institute and Force Majeure. The selected Bidder shall submit the proof authenticated by the Bidder and Institute's official that the delay is attributed to the Institute and/or Force Majeure along with the bills requesting payment.
19.	The bidder 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.
20.	The bidder shall study the Tender document, Bidder Eligibility criteria and technical specification in detail as given in Annexure A before submitting the bid.
21.	<p>बोलीदाता पात्रता मानदंड Bidder Eligibility Criteria:</p> <ol style="list-style-type: none"> The bidder shall not be from a country sharing land border with India and if the bidder is from a country sharing land border with India the bidder should have been registered with the competent authority as per orders of DIPP OM No. F. No. 6/18/2019-PPD dated 23rd July 2020, and MoCI Order No. P-45021/112/2020-PP (BE) (E-43780) dated 24th August 2020. A declaration shall be submitted with the bid as per format given in Annexure – D. 'Class-I local suppliers' and 'Class-II local suppliers', as defined under DIPP, MoCI Order No. P45021/2/2017-PP (BE) dated 16th September 2020 and other subsequent orders issued therein, shall be eligible to bid in this tender. Declaration for Class-I / Class-II local suppliers should be submitted in the prescribed proforma format as per Annexure – E. Neither the tender participating firm nor any of its partner has been blacklisted / debarred /involved / convicted in any criminal case / economic offence nor any criminal case / economic offence is pending against firm or any partner of the Firm before any Court of Law / Police. A self-declaration format given in Annexure – F. The bidder should be an OEM or authorized supplier of OEM. Necessary OEM certificate / OEM authorization letter for this particular tender should be submitted by the bidder as given in Annexure-G. The bidder must have an aggregate financial turnover of at least Rs.80 Lakhs in the last 3 years i.e. 2020-21, 2021-22 & 2022-23 (Should enclose the audited financial statement signed by the Chartered Accountant) The bidder should have a service centre in Chennai for service support. Proof of service centre in Chennai should be furnished as documentary evidence (such as valid rental agreement/GST Certificate/ Certificate of incorporation etc.) The bidder should have supplied atleast any of the 5 similar/identical items called for in the tenders to 5 different reputed Institutions like IIT/NIT/ Central or State Government / Central Research Labs / R&D units/ IISc, IISERs in India in the last five years.

	<p>Copies of the document listed below should be submitted as a proof for the above work experience:</p> <ol style="list-style-type: none"> Work Order/purchase order should be submitted and also the list of similar instruments supplied including contact details (name of the person-in-charge, email, and phone number) should be provided Work Completion Certificate/or User performance Certificate from End User A global reference list as well as user list in India should be enclosed.
22.	<p>बोलियों की संख्या और उनका प्रस्तुतीकरण Number of Bids and their Submission: Bids should be submitted in e- Procurement Portal. Two bid system should be followed as detailed below</p> <p>Bid I : Technical Bid</p> <ul style="list-style-type: none"> The bidder should go through the Bidder Eligibility Criteria and Technical Specification given in Annexure-A of the tender document, understand the requirement of IITM and submit their technical bid along with all relevant document proof in the proforma given in Annexure-B. Any tender documents without these shall be invalid and rejected. The technical bid should consist of proof of EMD transfer, Bidder Eligibility Criteria, Technical specification and compliance sheet (proforma given in Annexure – B) along with all relevant documents proof. <p>Bid II : Financial Bid</p> <ul style="list-style-type: none"> Financial bid should be submitted only in e-Procurement Portal as per Proforma for Financial bid format given in Annexure (C). No manual or other form of submission of Financial bid will be entertained. The Quoted price should be for supply, installation, transportation, loading and unloading of the item and inclusive of all cost at IIT Madras.
23.	<p>बोलियों का मूल्यांकन / 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"> In the 1st stage, the Bidder will be evaluated first for conformity with Bidder Eligibility Criteria and those bidders who have complied with this criteria will alone be evaluated further. In the 2nd stage, the Technical Specification offered by the bidders will be evaluated by the technical committee for compliance. Only those bidders who have fully complied with Bidder Eligibility Criteria and Technical Specification will be considered for financial bid evaluation. <p>Stage II: Financial Bid Evaluation:</p> <ol style="list-style-type: none"> The Lowest financial bid among those who have qualified in the Technical bid will be declared as successful bidder (L1) and the order will be awarded to successful bidder (L1). For arrival of Lowest bid (L1) value. Price quoted by the bidder in financial bid (BoQ) for Sl. No. 1 to 6 viz. SUPPLY OF PHYSICAL METALLURGY LAB EQUIPMENT, ACCESSORIES AND CONSUMABLES. will alone be taken up for arrival of lowest bid (L1) values. Sl. No. 7 & 8 Optional Extended Warranty and Optional AMC will not be considered for financial bid evaluation.
24.	<p>सफल बोलीदाता का चयन और आदेश प्रदान करना 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) dated 16th September 2020 and other subsequent orders issued therein.</p>
25.	<p>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>
26.	<p>In accordance to the Rule 173 of GFR, 2017 and relevant provisions thereof in Procurement Manuals, 2022, IITM reserves the right to carry out the negotiation process through its purchase/technical committee with L1/H1 (as applicable) vendor to ensure price reasonability before final recommendation to the Competent Authority. The negotiation details, if any, on case to case basis shall be recorded in minutes of meeting suitably for records.</p>

Assistant Registrar
Stores & Purchase

ACKNOWLEDGEMENT

It is hereby acknowledged that I/We have gone through all the points listed under “Bidder Eligibility Criteria, Technical Specification and Terms & Conditions” of tender document, the same is abided and agreed to be executed. In case, if any of the information furnished by me/us is found false, I/We are fully aware that the tender /contract will be rejected / cancelled by IIT Madras & EMD shall be forfeited.

**Signature of the Bidder
Name & Address of the
Bidder with Office Stamp**

SCHEDULE OF TENDER

SUPPLY OF PHYSICAL METALLURGY LAB EQUIPMENT, ACCESSORIES AND CONSUMABLES Tender No. IITM/SPS/PML/048/2023-24/SPL

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
Name of the Supply	SUPPLY OF PHYSICAL METALLURGY LAB EQUIPMENT, ACCESSORIES AND CONSUMABLES
Source of Fund (Institute/Project)	IIT Madras
Is Multi Currency Allowed	No
Date of Issue/Publishing	07.03.2024
Document Download Start Date	07.03.2024
Document Download End Date	14.03.2024
Bid Submission Start Date	07.03.2024
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Address for Communication	<p><u>For Technical Queries:</u> Dr. Murugaiyan Amirthalingam Associate Professor, Department of Metallurgical and Materials Science Engineering, IIT Madras, Chennai - 600 036. Phone No: 044- 2257- 4784 Email: murugaiyan@iitm.ac.in</p> <p><u>For General Queries:</u> The Assistant Registrar Stores & Purchase Section IIT Madras Chennai – 600 036 Email : adstores@iitm.ac.in Contact No. 044- 2257 8287/8288/8290/8285</p>

**SUPPLY OF PHYSICAL METALLURGY LAB EQUIPMENT, ACCESSORIES AND CONSUMABLES
Tender No. IITM/SPS/PML/048/2023-24/SPL**

बोलीदाता पात्रता मानदंड Bidder Eligibility Criteria:

- I. The bidder shall not be from a country sharing land border with India and if the bidder is from a country sharing land border with India the bidder should have been registered with the competent authority as per orders of DIPP OM No. F. No. 6/18/2019-PPD dated 23rd July 2020, and MoCI Order No. P-45021/112/2020-PP (BE) (E-43780) dated 24th August 2020. A declaration shall be submitted with the bid as per format given in **Annexure – D**.
- II. 'Class-I local suppliers' and 'Class-II local suppliers', as defined under DIPP, MoCI Order No. P45021/2/2017-PP (BE) dated 16th September 2020 and other subsequent orders issued therein, shall be eligible to bid in this tender. Declaration for Class-I / Class-II local suppliers should be submitted in the prescribed proforma format as per **Annexure – E**.
- III. Neither the tender participating firm nor any of its partner has been blacklisted / debarred /involved / convicted in any criminal case / economic offence nor any criminal case / economic offence is pending against firm or any partner of the Firm before any Court of Law / Police. A self-declaration format given in **Annexure – F**.
- IV. The bidder should be an OEM or authorized supplier of OEM. Necessary OEM certificate / OEM authorization letter for this particular tender should be submitted by the bidder as given in **Annexure-G**.
- V. The firm must have an aggregate financial turnover of at least Rs.80 Lakhs in the last 3 years i.e. 2020-21, 2021-22 & 2022-23 (Should enclose the audited financial statement signed by the Chartered Accountant)
- VI. The bidder should have a service centre in Chennai for service support. Proof of service centre in Chennai should be furnished as documentary evidence (such as valid rental agreement/GST Certificate/ Certificate of incorporation etc.)
- VII. The bidder should have supplied atleast any of the 5 similar/identical items called for in the tenders to 5 different reputed Institutions like IIT/NIT/ Central or State Government / Central Research Labs / R&D units/ IISc, IISERs in India in the last five years.

Copies of the document listed below should be submitted as a proof for the above work experience:

- a. Work Order/purchase order should be submitted and also the list of similar instruments supplied including contact details (name of the person-in-charge, email, and phone number) should be provided.
- b. Work Completion Certificate/or User performance Certificate from End User.
- c. A global reference list as well as user list in India should be enclosed.

TECHNICAL SPECIFICATION:

ITEM LISTED FROM SI.No. I TO XX SHOULD BE FROM SAME OEM DUE TO COMPATIBILITY, INTEROPERABILITY AND MAINTENANCE REASONS.

I. ABRASIVE CUTTING MACHINE – 1 NO.

Equipment should have a

1. Sturdy floor model cutter for the metallographic sectioning of Metals, Ceramic and mineral samples,
2. Rust proof steel construction,
3. Cutting wheel should run with a 3HP (2.2 k.w), 3 Phase Motor or better,
4. Cutting capacity up to 60 mm or more (Standard size) for standard steels samples,
5. cutting chamber with good corrosion resistance painting/coating for a long product lifetime,
6. Cutting spindle speed of 2800 rpm or more,
7. Cut-off wheel with diameter 10" (250 mm),
8. Simple Control Panel with 4 Switches - Cutting, Coolant, LED light, Emergency Stop button with Door Safety Limit Switch,
9. Ergonomic Cutting Handle for Z movement
10. Easy Flow Cutting Chamber with special floor coating,
11. Splash Proof, corrosion resistant with see through hood,
12. Cooling by two water jets to provide optimum cooling,
13. Inbuilt movable recirculation coolant tank with 50 ltrs capacity or more,
14. One drain for coolant recirculation,
15. 0.18 kW coolant Pump or better,
16. Provision for opening in the side wall for long jobs,
17. LED light in the working area for clear illumination,
18. Quick holding vise set.
19. T Slot Bed with typical dimensions 110 mm x 200 mm with 12 mm T-Slot - 2 Nos
20. Operation voltage of 415 – 440 V / 50 Hz (R+Y+B+N+E)

II. LOW SPEED PRECISION CUTTING MACHINE - 1 NO.

Equipment should have a

1. A precision section saw for cutting all types of materials such as metals, ceramics, polymers, minerals samples.
2. Two cutting wheels with a
 - a. Cutting length of minimum 20 mm using a 4" Wheel,
 - b. Cutting length of minimum 30 mm using a 5" Wheel,
3. Four kinds of fixtures to enable the processed work piece to be sectioned at the optimal angle,
4. The horizontal feed position of the processed work piece should be adjustable,
5. Positioning accuracy 0.01 mm or better
6. Arbor size-12 mm or better
7. Aluminium base and stainless steel construction door with distinctive aluminium alloy with high strength and anti-corrosive coating,
8. limit switch which can work without manual intervention,
9. Automatic Cut-Off switch upon cutting operation is completed,
10. Micrometer for cross-feed adjustment (0 – 25 mm),
11. Easy movable Built-in Re-Circulation stainless steel coolant tray,
12. Transparent Coolant Splash Guard facility,
13. Single Phase 200 W servo motor,
14. Advanced Color touch screen HMI,
15. Down-feed facility with variable weights up to 400 gram,
16. Continuously Variable speed rpm 60-600 RPM,
17. Emergency Stop for safety purpose,
18. Table top machine,

19. Stainless steel high exactness axle arrangement of 10 to 20 micrometers,
20. Precision specimen drive arrangement with accuracy not exceeding 10 micrometers,
21. Electrical connections : 220 V, 50 Hz (1+ N+E)

III. LOW SPEED SAW - 1 NO.

The equipment should have a

1. Precision section saw designed for cutting all types of materials such as metals, ceramics, polymers, minerals samples,
2. Cutting length of maximum of 50 mm with 4" to 7" wheel or better,
3. Four kinds of fixtures should be provided to enable the processed work piece to be sectioned at the optimal angle,
4. The horizontal feed position of the processed work piece should be adjustable,
5. Positioning accuracy 0.01 mm or better,
6. Arbor size-13 mm x 26mm x 32 mm or better,
7. Aluminum base and stainless steel construction door,
8. A limit switch for unattended operation
9. Automatic Cut-Off switch,
10. Micrometer for cross-feed adjustment (0 – 25 mm),
11. Movable Built-in Re-Circulation stainless steel coolant tray,
12. Single Phase 180 Watts AC Motor or better
13. Advance Color touch screen HMI,
14. Down-feed facility with variable weights up to 400 gram,
15. Continuously Variable speed rpm 60-1000 rpm,
16. Emergency Stop for safety purpose,
17. Electrical connections: 220 V, 50 Hz (1 + N + E)

IV. HIGH SPEED PRECISION CUTTING MACHINE - 1 NO.

The equipment should have a

1. Precision section saw designed for cutting all types of materials such as metals, ceramics, polymers, minerals samples,
2. 10 micrometers accuracy or better
3. Precision spindle should be made of super alloy steel,
4. Precision wheel mounting aluminum flange set with anticorrosion coating
5. Z and Y axis Movement Monitoring System
6. Fume Exhaust provision
7. Sliding Door System with two side opening
8. Cutting capacity of minimum 50 mm
9. Wheel Mounting Shaft OD -12/25/31 mm
10. Automatic Cut-Off system
11. 3 Axis Operation
12. Cutting Action with Y Movement Automatic (Longitudinal)
13. 40 mm Height Adjustment (Z – Movement) of Diamond wheel / Cut off Wheel with easy compensation for Wheel Wearing
14. X- Movement facility (Manual) minimum 50 mm or better
15. Large Movable Cutting T - Slot Table 200 mm x 195 mm or better
16. Variable Feed Rates and Cutting Length
17. Manual Washing facility
18. LED lamp for cutting chamber
19. Quick positioning rapid movement with Joystick facility
20. Continuously Variable speed system 100-5000 rpm
21. Advance Large Color graphical Touch Screen

22. Emergency Stop with Safety Door Interlock System
23. Wheel size should be from Min 4" to Max 8" diameter
24. 2 HP (1.5 kW) 3 Phase Motor or better
25. Inbuilt Recirculation Coolant System - 10 Ltrs Capacity or higher
26. Intelligent Feed Control for the overloading of the Sample
27. Pulse Cutting to reduce heat of the hard material specimen
28. Auto reverse Facility
29. Quick and adjustable mini clamping vise
30. Four different types of Fixtures (mount chuck, Irregular sample, single saddle chuck and double saddle chuck)
31. Electrical connections: 230 V, 50 Hz (1 + N + E)
32. Mandatory accessory to know the cutting progress using a laser line based measurement system.

V. TWIN WET BELT GRINDER - 1 NO.

Equipment should have a

1. Sturdy tabletop model wet belt grinder
2. Two grinding belts
3. Water cooling during grinding
4. Belt center adjustment mechanism
5. Anticorrosion M.S Base with powder coated
6. SS cover
7. Motor: with 1 HP power or better 3 Phase Motor
8. Motor Speed: 1440 RPM or better
9. Grinding belts: 100X915 mm or higher
10. Economical Door safety Interlock System
11. Working space - 105mm X 230mm or higher
12. Drain: Right and Left, Ø 40 mm or higher
13. Water Valve: Right & Left
14. Simplified Belt Release Adjustment Mechanism
15. Aluminium Pulleys with Belt Drive Mechanism
16. Power input 415V/ 50Hz (R + Y B + N + E)

VI. SPECIMEN HOT MOUNTING PRESS - 1 NO.

Equipment should have a

1. Sturdy table top model automatic Hydraulic Hot Mounting Press
2. Corrosion resistant steel Cabinet with built in Electro Hydraulic system
3. Electro Hydraulic Automatic system
4. **Display System should be**
 - a) 7" PLC User Friendly advanced LCD Touch Screen System or bigger
 - b) Pre Set Programming & Data Storage of Mounting Parameters up to 100 or more
 - c) Setting of Heating Time, Cooling Time, Mount Temperature, Mounting Pressure, Ram up and down, Cycle Start can be done and controlled through the Touch Screen Pad

Equipment should have a

5. Cooling Process - Slow Cooling, Medium Cooling & Fast Cooling Mechanism.
6. Stainless steel body Pressure Transmitter
7. Quick Ram return to speed up reloading
8. 1600 Watt mould heater or better
9. Dovetail slot for easy changeability of mould Assemblies
10. Slide Locking Mechanism
11. Automatic Water-Cooling System
12. Timer-Buzzer indication for heating and cooling cycles
13. Provision to accommodate 1", 1 ½ ", 2" ,30 mm ,40 mm & 50 mm Mould Sizes

14. 1¼" should be the standard default mould size
15. Power input should be : 230V / 50Hz & 110V / 60Hz (1 + N + E)

VII. DOUBLE DISC MANUAL POLISHING MACHINE - 6 NOS.

Equipment should have a

1. 8" Double Disc Polisher or bigger,
2. Variable speed from 50-1000 RPM,
3. Rigid table top scratch resistant thermoformed ABS cover,
4. 0.5 HP High torque motor or better,
5. Imported drive for smooth speed change,
6. Corrosion resistant wash bowl free flow drain,
7. Flexible water jet with control valve,
8. Retractable water hose for easy cleaning bowl wash,
9. Aluminium disc of 8" Dia ,
10. Stainless steel holding band,
11. Stainless Steel holding ring (Press Type),
12. Lid cover,
13. Safety emergency switch,
14. The working disc can be operated clockwise/counterclockwise,
15. Illuminated LED,
16. Easy start stop smooth function,
17. Variable time and RPM settings,
18. Sound rating :75db@600 RPM at a distance of 1 meter or milder,
19. Front Control Panel with feather touch buttons,
20. Power input : 230 V / 50 Hz (L + N + E)

VIII. FULLY AUTOMATIC POLISHING MACHINE WITH CENTRAL PRESSURE - 1 NO.

Equipment should have a

1. Automatic Polishing Machine for finer polishing surface on Metallographic, Ceramic and Geological Samples, etc.
2. 10" Single Aluminium Detachable Disc or bigger,
3. Corrosion Resistant FRP Hood ,
4. Variable Speed 30 - 150 RPM,
5. 1 HP AC Motor or higher,
6. Central Pressure Loading System,
7. Load on sample should be 30 – 350 N. It should be centrally applied.
8. Specimen Leveling Plate for ensuring flatness,
9. Pneumatically loading,
10. Detachable Coolant Jet for manual cleaning of bowl after operation,
11. Provision to use disc of 8" dia or higher,
12. With interchangeability of Specimen Sizes of 1 ¼", 1 1/2:" & 2", 30mm, 40mm & 50mm,
13. Facilitates permanent fixing of Magnetic disc,
14. Machines offers manual mode for increased flexibility,
15. Aluminium Disc,
16. Holding Band,
17. Holding Ring,
18. Splash Guard to avoid spilling of water during polishing,
19. Coolant Jet to minimize heating of samples during operation,
20. Lid cover,
21. **Display System should be with**
 - a. 7" Advanced PLC based Touch Screen System or bigger

- b. Pre Set Programming,
 - c. Data base Storage system up to 100 or more
22. **Automatic Specimen Head should be with**
- a. 180 Watt Independent Polishing Head Motor or better
 - b. Polisher Head Variable Speed : 50 to 200 RPM or higher
 - c. 1 ¼" Specimen Holder comes with the Machines as Standard
 - d. Sound rating :75db@600 RPM at a distance of 1 meter or lower
 - e. Motorized Movement – Up & Down
 - f. Clockwise & Anticlockwise rotation
 - g. Power input should be : 230V / 50Hz (Single Phase + Neutral + Earth)

This equipment should be supplied with

- 23. Magnetic substrate disc to attach to any conventional platen self-adhesive backing,
- 24. Ferromagnetic carrier sheet for sandpaper/cloths,
- 25. Water Filtering System for city water inlet. Filtering out impurities in the water ,
- 26. Single sample snout drier,
- 27. Automatic / Manual with variable Dosing Unit (3 x Diamond Suspension and 1 x Lubricant),
- 28. Silent Air compressor,
- 29. Ultrasonic Cleaner 2.5-liter tank capacity,
- 30. Emery paper storage rack,
- 31. Disc and cloth storage rack with enclosures.

IX. FULLY AUTOMATIC POLISHING MACHINE WITH INDIVIDUAL PRESSURE - 1 NO.

Equipment should have a

- 1. Automatic Polishing Machine for finer polishing surface on Metallographic, Ceramic, Geological Samples
- 2. 10" Single Aluminium Detachable Disc or bigger
- 3. Corrosion Resistant FRP Hood,
- 4. Variable Speed 30 - 600 RPM,
- 5. 1 HP High torque AC Motor or higher
- 6. Single/Individual Pressure Specimen loading
- 7. Load on sample should be 10 – 90 N. It should be applied separately on each sample.
- 8. Pneumatical loading system
- 9. Detachable Coolant Jet for manual cleaning of bowl after operation
- 10. Provision to use disc of 8" diameter also provided
- 11. With Interchangeability of Specimen Sizes of 1 ¼", 1 1/2:" & 2", 30 mm, 40 mm & 50 mm
- 12. Facilitate permanent fixing of Magnetic disc
- 13. Machines offers manual mode for increased flexibility
- 14. Aluminium Disc
- 15. Holding Band
- 16. Holding Ring
- 17. Splash Guard to avoid spilling of water during polishing
- 18. Coolant Jet to minimize heating of samples during operation
- 19. Lid Cover
- 20. 1 ¼" Specimen Holder should come as a standard size
- 21. Automatic Specimen Head
- 22. 180 Watt Independent Polishing Head Motor
- 23. Polisher Head Variable Speed : 30 to 150 RPM
- 24. Sound rating :75db@600 RPM at a distance of 1 meter or milder
- 25. Motorized Movement – Up & Down
- 26. Clockwise & Anticlockwise rotation
- 27. Power input should be : 230V / 50Hz (Single Phase + Neutral + Earth)
- 28. **Display System should have a**
 - a. 7" or larger PLC based Touch Screen System

- b. Pre Set Programming
- c. Database Storage system up to 50 programmes

X. ELECTROLYTIC POLISHING MACHINE - 1 NO.

Equipment should have a

1. The voltage and current have the function of coarse adjustment and fine adjustment switching,
2. Accurate and stable set voltage and current value, voltage and current regulation, display accuracy of two decimal places, voltage accuracy: 0.01V, current accuracy: 0.001A,
3. The polishing/corrosion area of the sample can be controlled (the opening diameter of the sample cover is 10mm, 15mm, 20mm),
4. Equipment should be capable of maintaining the electrolyte temperature from ambient temperature to -40 °C with liquid nitrogen cooling
5. Electrolytic Output : DC 0~60V / 0~20A continuously adjustable, digital display,
6. Voltage and current resolution : Voltage 0.01V/current 0.001A or smaller
7. Time Display : Working hours should be set by user,
8. Electrolyte Capacity : 300 to 1000 ml
9. Cooling System: External water for cooling
10. Corrosion working table : 270×230×340 mm or bigger

The following standard accessories should be provided with this equipment

- a. Electrolytic polishing corrosion tester – 1 set.
- b. Electrical source control box – 1 set.
- c. Water pipe connector – 1 set
- d. Cooling water pipe – 2 pcs.
- e. Power supply cord – 1 pcs.
- f. Positive electrode – 1 set.
- g. Cover plate – 3 pcs.

XI. AUTOMATIC VIBRATION POLISHING MACHINE - 1 NO.

The equipment should have a

1. Design for user-friendly operation, suitable for preparing high quality polished surfaces on various materials,
2. Table top model,
3. Should limit the crystallization of the abrasive solution, to preserve the polishing cloth and eliminates corrosion of the sample in the absence of the operator at the end of the polishing cycle,
4. Polishing Bowl size 305 mm or bigger
5. Disc size 300 mm (12") or bigger
6. Polishing cloths Ø 300 to 305 mm,
7. Programmable 7" HMI Touch Screen controller or bigger
8. Polishing progress displayed via a countdown and a bar graph
9. Quick bowl changing system
10. Design for polishing magnetic and cloth system
11. Polycarbonate transparent cover system
12. 1" ,1 ¼" ,1 ½" & 2" standard holders
13. Levelling plate for leveling the specimen,
14. Up to 20 specimens (Ø=30 mm, 1 1/4") can be polished simultaneously.
15. Automatic frequency control from 100-150Hz, e.g. for mass variation
16. Rotation direction clockwise
17. Manual and automatic operation mode
18. 25 preset programmable system or more
19. Automatic cutoff system
20. Supply voltage of 230V AC

XII. VERTICAL METALLURGICAL MICROSCOPE - 10 NOS.

Microscope should have the following technical specifications:

1. Trinocular Head - Inclined 30°, interpupillary distance: 48-76 mm, ratio 80:20 (80% for trinocular head, and 20 % for eyepiece)
2. Eyepiece - WF10x/22mm 10x Eyepiece (with one reticule)
3. Objectives - LWD Infinity Plan Objectives 5x, 10x, 20x, 50x
4. Nose piece - Quintuple
5. Mechanical Stage- Stage size of at least : 200 mm x 150 mm Travel range: 77 mm x 52 mm. Stage fast lowering unit: Up-Down moving range can be increased to a minimum of 50 mm.
6. Focusing- Coaxial Coarse and Fine Focusing unit with Coarse stroke: 25 mm or smaller, Fine stroke per rotation: 0.2 mm, fine division 2 µm, Tightness adjustment, upper distance limiter.
7. Polarizing Unit - Polarizer /Analyzer
8. Illumination - 5W LED lamp (Input voltage : 100 V~240V)
9. Filters Blue/Green/Amber/Grey

XIII. INVERTED METALLURGICAL MICROSCOPE - 1 NO.

Basic mandatory technical specifications:

1. Should be an Inverted Metallurgical Microscope
2. Magnification 50x, 100x, 200x, 500x, 1000x or higher
3. Objective turret 6-fold M25
4. Focus drive, 3 step, manual
5. Reflector turret Fixed BF-splitter
6. Contrast techniques
 - a. control of intensity of illumination, filters, bright field and dark field,
 - b. oblique illumination,
 - c. polarized light,
 - d. differential interference contrast (DIC) and more
7. Illumination LED
8. Manual 3-Plate stage of 100 x 50 mm
9. Mounting frame 160x130 f. round insert
10. Round insert with 10 mm opening,
11. Round insert with 20 mm opening,
12. Round Insert with 30 mm opening,
13. C-Mount HC 0.55x or better

Mandatory accessories and units. – 1 No. each should be provided

14. Focus drive, 3 step, manual
15. Tube, Bino Fix
16. Suitable Eyepieces
17. LED without Shutter and short cable
18. Compensator slot
19. Polarizer ICR 29x11.5
20. Polarizer L ICR/P w. whole-wave plate
21. Analyzer DMI ICT/P
22. IC-Prism B1 for objective
23. IC-Prism D for objective
24. Side Port left 100/0, manual
25. Manual 3-Plate stage 100x50 mm
26. Mounting frame 160x130 f. round insert
27. Round insert with 10mm opening,
28. Round insert with 20mm opening,
29. Round Insert with 30mm opening,

30. C-Mount HC 0.55x,
31. Obj. N PLAN EPI 5x/0.12
32. Obj. N PLAN EPI 10x/0.25
33. Obj. N PLAN EPI 20x/0.40
34. Obj. N PLAN EPI 50x/0.75
35. Obj. N PLAN EPI 100x/0.85
36. Camera: minimum of 6 MP CMOS
37. One computer i5 processor, 500 gb of SSD storage and 8 gb RAM with 36" monitor.

This microscope should be provided with the metallography Image analysis software with following specifications

38. Enhanced Image Processing (For Integrating with the Microscope)
39. Phase Analysis: As per ASTM E562 Quantifies volume pct such as Graphite, Pearlite, Ferrite, Martensite, Retained Austenite, carbide and Porosity etc..
40. Grain size : As per ASTM E112 Standard methods such as Planimetric, Heyn Intercept, Hillard/Abrams circle intercept and manual grain analysis ALA grain size (ASTM E930) analysis
41. Inclusion rating measurement as per ASTM E45 Standard
42. Dendrite Arm Spacing for Aluminium and 3D printed samples
43. Decarburization depth measurement as per ASTM E1077
44. Particle size analysis
45. Coating Thickness measurement
46. Nodules: Nodularity Percentage, nodule count and graphite size according to valid standards (ASTM A 247)
47. Graphite Flakes: Maximum flake length measurement and types as per ASTM A 247
48. General Measurements such as length, area, radius and distance
49. Report Generation: Exports to CSV format
50. Standard samples for all the above measurements should be provided.

XIV. STEREO ZOOM MICROSCOPE - 1 NO.

Microscope should have the following technical specifications:

1. Ivesta 3 C Mount
2. Stereo Zoom Microscope
3. Greenough optical design should provide a very flat (plan) field of view and large depth of field
4. Complete apochromatic corrected microscopy system - 35° angle eye tubes - for comfort and convenience
5. 9:1 zoom Ratio with magnification 6.1x-55x (10x eyepieces, no supplementary lens)
6. Click stops at 10x, 20x, 30x, 40x and 50x or higher,
7. 12 mm Depth of Field with Fusion Optics or better
8. Provides field of view up to 37.6mm for fast, accurate inspection.
9. 120 mm standard working distance (without lens shield) or better.
10. Camera: minimum of 6 MP CMOS or better
11. One computer i5 processor, 500 gb of SSD storage and 8 gb RAM with 24" monitor or bigger.

Mandatory accessories and units. – 1 No. each should be provided

12. Eyepiece 10x/23B, adj., eyeglasses
13. Mountable Focus arm S Series
14. Horizontal arm ESD, 500 mm
15. Vertical column 470/35 mm
16. Base Plate Medium
17. LED3000 RL, 58 mm or better
18. Power Supply for LED3000/LED5000 or better
19. Diffusor for LED3000 or better
20. Dust cover (40 x 35 x 60), antistatic
21. India Power Cord
22. Video Tube

XV. DIGITAL AUTO FOCUS VIDEO MICROSCOPE - 1 NO.

Microscope should have the following technical specifications:

1. Column length - Height 280 mm, diameter 32mm or better
2. Base Plate size - 320*260 mm or better
3. LED light source LED Adjustable Ring Light
4. Sensor type Colour CMOS
5. Pixel 2 million Pixel or higher
6. Pixel size 1/2.8" or smaller
7. Power DC 5V
8. Output method HDMI
9. Display Frame rate 1080P@60fps/1080P@50fps or better,
10. Scanning method Line by line scanning
11. White Balance Auto / Manual
12. Exposure Auto / Manual
13. Electronic Shutter Speed 1/50s(1/60s)~1/10000s
14. Optical magnification 1~14 or higher
15. Digital magnification 1~ 6 or higher
16. Digital zoom Support
17. (Zoom ratio) FOV (10cm Working Distance)
18. 1X171mm*92mm or better
19. 14X24.3mm*13.5mm or better

The following items should be provided with the microscope.

20. HDMI cable – 1 No.
21. Camera power adapter – 1 No.
22. Mouse – 1 No.
23. Microscope stand – 1 No.
24. LED ring light source (variable) – 1 No.
25. 22 inch LCD Monitor – 1 No.

XVI. DIGITAL ROCKWELL HARDNESS TESTER WITH TOUCH SCREEN DISPLAY - 1 NO.

Equipment should have the following specifications:

1. Preliminary testing force – 10 kgf (98.07 N)
2. Total Testing force - 60 kgf (588N), 100 kgf (980N), 150 kgf (1471N)
3. Rockwell Scale - HRA, HRB, HRC, HRD, HRE, HRF, HRG, HRH, HRK, HRL, HRM, HRR, HRP, HRS, HRV
4. Conversion Scale - Superficial Rockwell, Brinell, Vickers
5. Hardness measuring range - HRA:20-88, HRB:20-100, HRC:20-70, HRD:40-77, HRE:70-100, HRF:60-100, HRG:30-94, HRH:80-100, HRK:40-100, HRL:100-120, HRM:85-115, HRR:114-125
6. Dwell Time - 0-99 seconds
7. Resolution of hardness value - 0.1 HR or smaller
8. Load value error <0.5 % or lower.
9. Max. Height of Specimen 220 mm
10. Distance of Indenter to outer wall 160 mm or better
11. Indication of Hardness Value - Touch screen display
12. Data output Inbuilt Printer, RS-232 Port
13. Power input - AC220V+5%, 50-60Hz

Equipment should be supplied with the following mandatory accessories.

14. Diamond Rockwell Indenter - 1 No.
15. Diameter 1.5875mm Ball Indenter - 1 No.
16. Weights (A, B, C) - Each 1 No.
17. Large, Medium, "V" shaped Testing Table - Each 1 No.
18. Standard hardness block (HRC High & Low, HRB) - 3 No.

19. Regulating screw - 4 No.
20. Dustproof cover - 1 No.
21. Instruction Manual - 1 No.

XVII. DIGITAL SUPERFICIAL ROCKWELL HARDNESS TESTER WITH TOUCH SCREEN DISPLAY - 1 NO.

Equipment should have the following specifications:

1. Preliminary Testing force - 3kgf (29.42N)
2. Total Testing force - 15kgf (147.1N), 30kgf(294.2N), 45kgf(441.3N)
3. Rockwell Scale - HR15N, HR30N, HR45N, HR15T, HR30T, HR45T
4. Hardness measuring range - HR15N:70-94, HR30N:42-86,HR45N:20-77, HR15TW:67-93, HR30TW:29-82, HR45TW:10-72
5. Conversion Scale - Rockwell, Brinell, Vickers
6. Resolution ratio - 0.1 HR or smaller
7. Testing force error $\leq 1\%$ or smaller
8. Dwell Time - 0-60 sec
9. Max. Height of Specimen - 200 mm
10. Distance of Indenter to outer wall - 160 mm
11. Indication of Hardness Value - LCD touch screen display
12. Data output - In-built mini printer
13. Power Input - AC220V+5%, 50-60Hz

Equipment should be supplied with the following mandatory accessories.

14. Diamond Rockwell Indenter - 1 No.
15. Diameter 1.5875mm Ball Indenter - 1 No.
16. Weights (A, B, C) - Each 1 No.
17. Large, Medium, "V" shaped Testing Table - Each 1 No.
18. Hardness block (HR15N, HR30N, HR30T) - 3 No.
19. Dustproof cover - 1 No.

XVIII. DIGITAL BRINELL HARDNESS TESTER WITH TOUCH SCREEN DISPLAY - 1 NO.

1. Brinell Scale - HBW2.5/62.5, HBW2.5/187.5, HBW5/62.5, HBW5/125, HBW5/250, HBW5/750, HBW10/100, HBW10/250, HBW10/500, HBW10/1000, HBW10/1500, HBW10/3000
2. Testing Force - 62.5kgf(612.9N), 100kgf(980.7N), 125kgf(1226N), 187.5kgf(1839N), 250kgf(2452N), 500kgf(4903N), 750kgf(7355N), 1000kgf(9807N), 1500kgf(14710N), 3000kgf(29420N)
3. Test force accuracy - 62.5~250kgf $\leq 1\%$, 500~3000kgf $\leq 0.5\%$ or better
4. Duration time - 1~99s
5. Hardness Measuring Range - 8 - 650HBW
6. Measuring device resolution - 0.5 %
7. Min. Measuring Unit - 0.625 μm
8. Max. Height of Specimen - 200 mm
9. Distance of Indenter to outer wall - 155mm
10. Indication of Hardness Value - Touch screen, USB Flash disk
11. Power input - AC220+5%,50~60Hz

XIX. METALLOGRAPHY CONSUMABLES

1. Vendor should provide metallography consumables such as emery sheets of various grades, polishing cloths, hot and cold mounting powders, diamond polishing pastes of 10, 3 and 1 micrometers, air canisters, cotton roles, colloidal silica gels, etc for 2 years from the day of installation of the equipment listed above.
2. **LSS:** Diamond Blade 2 Nos
3. **LSS:** Isomet 5 ltrs
4. **LSS Plus:** Diamond Blade 2 Nos
5. **HSS:** Diamond Blade 3 Nos
6. **HSS:** Coolant 20 Ltrs
7. Abrasive Wheels 45 Nos
8. **TWBG-** Abrasive belt 20 Nos
9. **H Auto-** Phenolic 3 Kg
10. **H Auto** - Transparent 2 Kgs
11. **H Auto** - Conductive 1 Kgs
12. **H Auto** - Epoxy 1 Kgs
13. **H Auto** - Mould release spray 10 Nos
14. **VTD-** SiC Paper 8" (80 grit - 2000 grit) 600 Nos (50 Nos each)
15. **VTD-** Polishing CLoth (Micro, Selvyt, Velvet, Billiards) 40 Nos. (15 each)
16. **VTD-** Aerosol spray 20 Nos.
17. **VTD-**Diamond paste 15 Nos.
18. **VTD-** Magnetic Dlsc 1 NO
19. **VTD-** Ferromagnetic carrier sheet 6 NOS
20. **FAPM** - 10" sic (80- 2000 grit) 600 Nos (50 Nos.each)
21. **FAPM** - Polishing cloth(0.25 1,3,6,9, COloidal silica) 30 Nos (5 Nos. each)
22. **FAPM** - Diamond suspension (.25, 1,3,6,9) 1.25 Ltrs (250 Ml each)
23. **FAPM** - Alumina suspension (0.05, 0.1, 0.3, 1 micron) 800 ml (200 ml each)
24. **FAPM** - Colloidal silica 1.5 Ltr (.5 ltr each)
25. **FAPM** - Alumina powder 300 gram (100 gram each)
26. **FAPM** - Diamond Disc 5 Nos (1 No. each)
27. **FAPM** - Lubricant 2 Ltrs

XX. SPECIALISED FURNITURE FOR POLISHING EQUIPMENT FOR MICROSCOPES

1. Vendor should supply Granite stone top tables of 8 numbers with a size of 4 feet length by 2.5 feet width by 2.5 feet height. Granite thickness should be 1 inch or higher.
2. Vendor should supply 15 numbers of sturdy branded rotatable chairs for the tables and microscopes.

PROFORMA FOR TECHNICAL COMPLIANCE SHEET

SUPPLY OF PHYSICAL METALLURGY LAB EQUIPMENT, ACCESSORIES AND CONSUMABLES

Tender No. IITM/SPS/PML/048/2023-24/SPL

BIDDER ELIGIBILITY CRITERIA:

S. No.	Description	Compliance (Yes / No)	Reference Page No.
1	The bidder shall not be from a country sharing land border with India and if the bidder is from a country sharing land border with India the bidder should have been registered with the competent authority as per orders of DIPP OM No. F. No. 6/18/2019-PPD dated 23rd July 2020, and MoCI Order No. P-45021/112/2020-PP (BE) (E-43780) dated 24th August 2020. A declaration shall be submitted with the bid as per format given in Annexure – D.		
2	'Class-I local suppliers' and 'Class-II local suppliers', as defined under DIPP, MoCI Order No. P45021/2/2017-PP (BE) dated 16th September 2020 and other subsequent orders issued therein, shall be eligible to bid in this tender. Declaration for Class-I / Class-II local suppliers should be submitted in the prescribed proforma format as per Annexure – E.		
3	Neither the tender participating firm nor any of its partner has been blacklisted / debarred /involved / convicted in any criminal case / economic offence nor any criminal case / economic offence is pending against firm or any partner of the Firm before any Court of Law / Police. A self-declaration format given in Annexure – F.		
4	The bidder should be an OEM or authorized supplier of OEM. Necessary OEM certificate / OEM authorization letter for this particular tender should be submitted by the bidder as given in Annexure-G.		
5	The bidder must have an aggregate financial turnover of at least Rs.80 Lakhs in the last 3 years i.e. 2020-21, 2021-22 & 2022-23 (Should enclose the audited financial statement signed by the Chartered Accountant)		
6	The bidder should have a service centre in Chennai for service support. Proof of service centre in Chennai should be furnished as documentary evidence (such as valid rental agreement/GST Certificate/ Certificate of incorporation etc.)		
7	<p>The bidder should have supplied atleast any of the 5 similar/identical items called for in the tenders to 5 different reputed Institutions like IIT/NIT/ Central or State Government / Central Research Labs / R&D units/ IISc, IISERs in India in the last five years.</p> <p>Copies of the document listed below should be submitted as a proof for the above work experience:</p> <ol style="list-style-type: none"> Work Order/purchase order should be submitted and also the list of similar instruments supplied including contact details (name of the person-in-charge, email, and phone number) should be provided. Work Completion Certificate/or User performance Certificate from End User. A global reference list as well as user list in India should be enclosed. 		

TECHNICAL SPECIFICATION:

Sl. No.	Specifications	Compliance Yes/No	Ref Page No.
ITEM LISTED FROM SI. No. I TO XX SHOULD BE FROM SAME OEM DUE TO COMPATIBILITY, INTEROPERABILITY AND MAINTENANCE REASONS.			
I.	ABRASIVE CUTTING MACHINE – 1 NO. MAKE & MODEL :		
1.	Sturdy floor model cutter for the metallographic sectioning of Metals, Ceramic and mineral samples.		
2.	Rust proof steel construction.		
3.	Cutting wheel should run with a 3HP (2.2 k.w), 3 Phase Motor or better.		
4.	Cutting capacity up to 60 mm or more (Standard size) for standard steels samples.		
5.	Cutting chamber with good corrosion resistance painting/coating for a long product lifetime.		
6.	Cutting spindle speed of 2800 rpm or more.		
7.	Cut-off wheel with diameter 10" (250 mm).		
8.	Simple Control Panel with 4 Switches - Cutting, Coolant, LED light, Emergency Stop button with Door Safety Limit Switch.		
9.	Ergonomic Cutting Handle for Z movement.		
10.	Easy Flow Cutting Chamber with special floor coating.		
11.	Splash Proof, corrosion resistant with see through hood.		
12.	Cooling by two water jets to provide optimum cooling.		
13.	Inbuilt movable recirculation coolant tank with 50 ltrs capacity or more.		
14.	One drain for coolant recirculation.		
15.	0.18 kW coolant Pump or better.		
16.	Provision for opening in the side wall for long jobs.		
17.	LED light in the working area for clear illumination.		
18.	Quick holding vise set.		
19.	T Slot Bed with typical dimensions 110 mm x 200 mm with 12 mm T-Slot - 2 Nos		
20.	Operation voltage of 415 – 440 V / 50 Hz (R+Y+B+N+E).		
II.	LOW SPEED PRECISION CUTTING MACHINE - 1 NO. MAKE & MODEL :		
1.	A precision section saw for cutting all types of materials such as metals, ceramics, polymers, minerals samples.		
2.	Two cutting wheels with a <ul style="list-style-type: none"> • Cutting length of minimum 20 mm using a 4" Wheel, • Cutting length of minimum 30 mm using a 5" Wheel, 		
3.	Four kinds of fixtures to enable the processed work piece to be sectioned at the optimal angle.		
4.	The horizontal feed position of the processed work piece should be adjustable.		
5.	Positioning accuracy 0.01 mm or better.		
6.	Arbor size-12 mm or better.		
7.	Aluminium base and stainless steel construction door with distinctive aluminium alloy with high strength and anti-corrosive coating.		
8.	Limit switch which can work without manual intervention.		
9.	Automatic Cut-Off switch upon cutting operation is completed.		
10.	Micrometer for cross-feed adjustment (0 – 25 mm)		
11.	Easy movable Built-in Re-Circulation stainless steel coolant tray.		
12.	Transparent Coolant Splash Guard facility.		
13.	Single Phase 200 W servo motor.		

Sl. No.	Specifications	Compliance Yes/No	Ref Page No.
14.	Advanced Color touch screen HMI.		
15.	Down-feed facility with variable weights up to 400 gram.		
16.	Continuously Variable speed rpm 60-600 RPM.		
17.	Emergency Stop for safety purpose.		
18.	Table top machine.		
19.	Stainless steel high exactness axle arrangement of 10 to 20 micrometers.		
20.	Precision specimen drive arrangement with accuracy not exceeding 10 micrometers.		
21.	Electrical connections : 220 V, 50 Hz (1+ N+E).		
III.	LOW SPEED SAW - 1 NO. MAKE & MODEL :		
1.	Precision section saw designed for cutting all types of materials such as metals, ceramics, polymers, minerals samples.		
2.	Cutting length of maximum of 50 mm with 4" to 7" wheel or better.		
3.	Four kinds of fixtures should be provided to enable the processed work piece to be sectioned at the optimal angle.		
4.	The horizontal feed position of the processed work piece should be adjustable.		
5.	Positioning accuracy 0.01 mm or better.		
6.	Arbor size-13 mm x 26mm x 32 mm or better.		
7.	Aluminum base and stainless steel construction door.		
8.	A limit switch for unattended operation.		
9.	Automatic Cut-Off switch.		
10.	Micrometer for cross-feed adjustment (0 – 25 mm).		
11.	Movable Built-in Re-Circulation stainless steel coolant tray.		
12.	Single Phase 180 Watts AC Motor or better		
13.	Advance Color touch screen HMI.		
14.	Down-feed facility with variable weights up to 400 gram,		
15.	Continuously Variable speed rpm 60-1000 rpm.		
16.	Emergency Stop for safety purpose.		
17.	Electrical connections: 220 V, 50 Hz (1 + N + E).		
IV.	HIGH SPEED PRECISION CUTTING MACHINE - 1 NO. MAKE & MODEL :		
1.	Precision section saw designed for cutting all types of materials such as metals, ceramics, polymers, minerals samples.		
2.	10 micrometers accuracy or better.		
3.	Precision spindle should be made of super alloy steel.		
4.	Precision wheel mounting aluminum flange set with anticorrosion coating.		
5.	Z and Y axis Movement Monitoring System.		
6.	Fume Exhaust provision .		
7.	Sliding Door System with two side opening.		
8.	Cutting capacity of minimum 50 mm.		
9.	Wheel Mounting Shaft OD -12/25/31 mm.		
10.	Automatic Cut-Off system.		
11.	3 Axis Operation .		
12.	Cutting Action with Y Movement Automatic (Longitudinal).		
13.	40 mm Height Adjustment (Z – Movement) of Diamond wheel / Cut off Wheel with easy compensation for Wheel Wearing.		
14.	X- Movement facility (Manual) minimum 50 mm or better.		
15.	Large Movable Cutting T - Slot Table 200 mm x 195 mm or better.		

Sl. No.	Specifications	Compliance Yes/No	Ref Page No.
16.	Variable Feed Rates and Cutting Length.		
17.	Manual Washing facility.		
18.	LED lamp for cutting chamber.		
19.	Quick positioning rapid movement with Joystick facility.		
20.	Continuously Variable speed system 100-5000 rpm.		
21.	Advance Large Color graphical Touch Screen.		
22.	Emergency Stop with Safety Door Interlock System.		
23.	Wheel size should be from Min 4" to Max 8" diameter.		
24.	2 HP (1.5 kW) 3 Phase Motor or better.		
25.	Inbuilt Recirculation Coolant System - 10 Ltrs Capacity or higher.		
26.	Intelligent Feed Control for the overloading of the Sample.		
27.	Pulse Cutting to reduce heat of the hard material specimen.		
28.	Auto reverse Facility.		
29.	Quick and adjustable mini clamping vise .		
30.	Four different types of Fixtures (mount chuck, Irregular sample, single saddle chuck and double saddle chuck).		
31.	Electrical connections: 230 V, 50 Hz (1 + N + E).		
32.	Mandatory accessory to know the cutting progress using a laser line based measurement system.		
V.	TWIN WET BELT GRINDER - 1 NO. MAKE & MODEL :		
1.	Sturdy tabletop model wet belt grinder.		
2.	Two grinding belts.		
3.	Water cooling during grinding.		
4.	Belt center adjustment mechanism.		
5.	Anticorrosion M.S Base with powder coated.		
6.	SS cover.		
7.	Motor: with 1 HP power or better 3 Phase Motor.		
8.	Motor Speed: 1440 RPM or better.		
9.	Grinding belts: 100X915 mm or higher.		
10.	Economical Door safety Interlock System .		
11.	Working space - 105mm X 230mm or higher.		
12.	Drain: Right and Left, Ø 40 mm or higher.		
13.	Water Valve: Right & Left.		
14.	Simplified Belt Release Adjustment Mechanism.		
15.	Aluminium Pulleys with Belt Drive Mechanism.		
16.	Power input 415V/ 50Hz (R + Y B + N + E).		
VI.	SPECIMEN HOT MOUNTING PRESS - 1 NO. MAKE & MODEL :		
1.	Sturdy table top model automatic Hydraulic Hot Mounting Press .		
2.	Corrosion resistant steel Cabinet with built in Electro Hydraulic system.		
3.	Electro Hydraulic Automatic system.		
4.	Display System should be		
a)	7" PLC User Friendly advanced LCD Touch Screen System or bigger		
b)	Pre Set Programming & Data Storage of Mounting Parameters up to 100 or more.		
c)	Setting of Heating Time, Cooling Time, Mount Temperature, Mounting Pressure, Ram up and down, Cycle Start can be done and controlled through the Touch Screen Pad.		
	Equipment should be		

Sl. No.	Specifications	Compliance Yes/No	Ref Page No.
5.	Cooling Process - Slow Cooling, Medium Cooling & Fast Cooling Mechanism.		
6.	Stainless steel body Pressure Transmitter		
7.	Quick Ram return to speed up reloading		
8.	1600 Watt mould heater or better		
9.	Dovetail slot for easy changeability of mould Assemblies		
10.	Slide Locking Mechanism		
11.	Automatic Water-Cooling System		
12.	Timer-Buzzer indication for heating and cooling cycles		
13.	Provision to accommodate 1", 1 ½ ", 2" ,30 mm ,40 mm & 50 mm Mould Sizes		
14.	1¼" should be the standard default mould size		
15.	Power input should be : 230V / 50Hz & 110V / 60Hz (1 + N + E)		
VII.	DOUBLE DISC MANUAL POLISHING MACHINE - 6 NOS. MAKE & MODEL :		
1.	Equipment should have a 8" Double Disc Polisher or bigger.		
2.	Variable speed from 50-1000 RPM.		
3.	Rigid table top scratch resistant thermoformed ABS cover.		
4.	0.5 HP High torque motor or better.		
5.	Imported drive for smooth speed change.		
6.	Corrosion resistant wash bowl free flow drain.		
7.	Flexible water jet with control valve.		
8.	Retractable water hose for easy cleaning bowl wash.		
9.	Aluminium disc of 8" Dia .		
10.	Stainless steel holding band.		
11.	Stainless Steel holding ring (Press Type).		
12.	Lid cover.		
13.	Safety emergency switch.		
14.	The working disc can be operated clockwise/counterclockwise.		
15.	Illuminated LED.		
16.	Easy start stop smooth function.		
17.	Variable time and RPM settings.		
18.	Sound rating : 75db@600 RPM at a distance of 1 meter or milder.		
19.	Front Control Panel with feather touch buttons.		
20.	Power input : 230 V / 50 Hz (L + N + E).		
VIII.	FULLY AUTOMATIC POLISHING MACHINE WITH CENTRAL PRESSURE – 1 NO. MAKE & MODEL :		
	Equipment should have a		
1.	Automatic Polishing Machine for finer polishing surface on Metallographic, Ceramic and Geological Samples, etc.		
2.	10" Single Aluminium Detachable Disc or bigger,		
3.	Corrosion Resistant FRP Hood ,		
4.	Variable Speed 30 - 150 RPM,		
5.	1 HP AC Motor or higher,		
6.	Central Pressure Loading System,		
7.	Load on sample should be 30 – 350 N. It should be centrally applied.		
8.	Specimen Leveling Plate for ensuring flatness,		
9.	Pneumatical loading,		
10.	Detachable Coolant Jet for manual cleaning of bowl after operation,		

Sl. No.	Specifications	Compliance Yes/No	Ref Page No.
11.	Provision to use disc of 8" dia or higher,		
12.	With interchangeability of Specimen Sizes of 1 ¼", 1 1/2:" & 2", 30mm, 40mm & 50mm,		
13.	Facilitates permanent fixing of Magnetic disc,		
14.	Machines offers manual mode for increased flexibility,		
15.	Aluminium Disc,		
16.	Holding Band,		
17.	Holding Ring,		
18.	Splash Guard to avoid spilling of water during polishing,		
19.	Coolant Jet to minimize heating of samples during operation,		
20.	Lid cover,		
21.	Display System should be with		
a)	7" Advanced PLC based Touch Screen System or bigger		
b)	Pre Set Programming,		
c)	Data base Storage system up to 100 or more		
22.	Automatic Specimen Head should be with		
a)	180 Watt Independent Polishing Head Motor or better		
b)	Polisher Head Variable Speed : 50 to 200 RPM or higher		
c)	1 ¼" Specimen Holder comes with the Machines as Standard		
d)	Sound rating :75db@600 RPM at a distance of 1 meter or lower		
e)	Motorized Movement – Up & Down		
f)	Clockwise & Anticlockwise rotation		
g)	Power input should be : 230V / 50Hz (Single Phase + Neutral + Earth)		
	This equipment should be supplied with		
23.	Magnetic substrate disc to attach to any conventional platen self-adhesive backing,		
24.	Ferromagnetic carrier sheet for sandpaper/cloths,		
25.	Water Filtering System for city water inlet. Filtering out impurities in the water ,		
26.	Single sample snout drier,		
27.	Automatic / Manual with variable Dosing Unit (3 x Diamond Suspension and 1 x Lubricant),		
28.	Silent Air compressor,		
29.	Ultrasonic Cleaner 2.5-liter tank capacity,		
30.	Emery paper storage rack,		
31.	Disc and cloth storage rack with enclosures.		
IX.	FULLY AUTOMATIC POLISHING MACHINE WITH INDIVIDUAL PRESSURE - 1 NO. MAKE & MODEL :		
	Equipment should have a		
1.	Automatic Polishing Machine for finer polishing surface on Metallographic, Ceramic, Geological Samples		
2.	10" Single Aluminium Detachable Disc or bigger		
3.	Corrosion Resistant FRP Hood,		
4.	Variable Speed 30 - 600 RPM,		
5.	1 HP High torque AC Motor or higher		
6.	Single/Individual Pressure Specimen loading		
7.	Load on sample should be 10 – 90 N. It should be applied separately on each sample.		
8.	Pneumatical loading system		
9.	Detachable Coolant Jet for manual cleaning of bowl after operation		
10.	Provision to use disc of 8" diameter also provided		
11.	With Interchangeability of Specimen Sizes of 1 ¼", 1 1/2:" & 2", 30 mm, 40 mm & 50 mm		

Sl. No.	Specifications	Compliance Yes/No	Ref Page No.
12.	Facilitate permanent fixing of Magnetic disc		
13.	Machines offers manual mode for increased flexibility		
14.	Aluminium Disc		
15.	Holding Band		
16.	Holding Ring		
17.	Splash Guard to avoid spilling of water during polishing		
18.	Coolant Jet to minimize heating of samples during operation		
19.	Lid Cover		
20.	1 ¼" Specimen Holder should come as a standard size		
21.	Automatic Specimen Head		
22.	180 Watt Independent Polishing Head Motor		
23.	Polisher Head Variable Speed : 30 to 150 RPM		
24.	Sound rating :75db@600 RPM at a distance of 1 meter or milder		
25.	Motorized Movement – Up & Down		
26.	Clockwise & Anticlockwise rotation		
27.	Power input should be : 230V / 50Hz (Single Phase + Neutral + Earth)		
28.	Display System should have a		
a.	7" or larger PLC based Touch Screen System		
b.	Pre Set Programming		
c.	Database Storage system up to 50 programmes.		
X.	ELECTROLYTIC POLISHING MACHINE - 1 NO. MAKE & MODEL :		
	Equipment should have a		
1.	The voltage and current have the function of coarse adjustment and fine adjustment switching,		
2.	Accurate and stable set voltage and current value, voltage and current regulation, display accuracy of two decimal places, voltage accuracy: 0.01V, current accuracy: 0.001A,		
3.	The polishing/corrosion area of the sample can be controlled (the opening diameter of the sample cover is 10mm, 15mm, 20mm),		
4.	Equipment should be capable of maintaining the electrolyte temperature from ambient temperature to -40 °C with liquid nitrogen cooling		
5.	Electrolytic Output : DC 0~60V / 0~20A continuously adjustable, digital display,		
6.	Voltage and current resolution : Voltage 0.01V/current 0.001A or smaller		
7.	Time Display : Working hours should be set by user,		
8.	Electrolyte Capacity : 300 to 1000 ml		
9.	Cooling System: External water for cooling		
10.	Corrosion working table : 270×230×340 mm or bigger		
	The following standard accessories should be provided with this equipment:		
a)	Electrolytic polishing corrosion tester – 1 set.		
b)	Electrical source control box – 1 set.		
c)	Water pipe connector – 1 set		
d)	Cooling water pipe – 2 pcs.		
e)	Power supply cord – 1 pcs.		
f)	Positive electrode – 1 set.		
g)	Cover plate – 3 pcs.		

Sl. No.	Specifications	Compliance Yes/No	Ref Page No.
XI.	AUTOMATIC VIBRATION POLISHING MACHINE - 1 NO. MAKE & MODEL :		
1.	Design for user-friendly operation, suitable for preparing high quality polished surfaces on various materials,		
2.	Table top model,		
3.	Should limit the crystallization of the abrasive solution, to preserve the polishing cloth and eliminates corrosion of the sample in the absence of the operator at the end of the polishing cycle,		
4.	Polishing Bowl size 305 mm or bigger		
5.	Disc size 300 mm (12") or bigger		
6.	Polishing cloths \varnothing 300 to 305 mm,		
7.	Programmable 7" HMI Touch Screen controller or bigger		
8.	Polishing progress displayed via a countdown and a bar graph		
9.	Quick bowl changing system		
10.	Design for polishing magnetic and cloth system		
11.	Polycarbonate transparent cover system		
12.	1" ,1 ¼",1 ½"&2" standard holders		
13.	Levelling plate for leveling the specimen,		
14.	Up to 20 specimens ($\varnothing=30$ mm, 1 1/4") can be polished simultaneously.		
15.	Automatic frequency control from 100-150Hz, e.g. for mass variation		
16.	Rotation direction clockwise		
17.	Manual and automatic operation mode		
18.	25 preset programmable system or more		
19.	Automatic cutoff system		
20.	Supply voltage of 230V AC		
XII.	VERTICAL METALLURGICAL MICROSCOPE - 10 NOS. MAKE & MODEL :		
1.	Trinocular Head - Inclined 30°, interpupillary distance: 48-76 mm, ratio 80:20 (80% for trinocular head, and 20 % for eyepiece)		
2.	Eyepiece- WF10x/22mm 10x Eyepiece (with one reticule)		
3.	Objectives- LWD Infinity Plan Objectives 5x, 10x, 20x, 50x		
4.	Nose piece- Quintuple		
5.	Mechanical Stage - Stage size of at least : 200 mm x 150 mm Travel range: 77 mm x 52 mm. Stage fast lowering unit: Up-Down moving range can be increased to a minimum of 50 mm.		
6.	Focusing- Coaxial Coarse and Fine Focusing unit with Coarse stroke: 25 mm or smaller, Fine stroke per rotation: 0.2 mm, fine division 2 μ m, Tightness adjustment, upper distance limiter.		
7.	Polarizing Unit - Polarizer /Analyzer		
8.	Illumination : - 5W LED lamp (Input voltage : 100 V – 240V)		
9.	Filters Blue/Green/Amber/Grey		
XIII.	INVERTED METALLURGICAL MICROSCOPE - 1 NO. MAKE & MODEL :		
	Basic mandatory technical specifications:		
1.	Should be an Inverted Metallurgical Microscope		
2.	Magnification 50x, 100x, 200x, 500x, 1000x or higher		
3.	Objective turret 6-fold M25		
4.	Focus drive, 3 step, manual		
5.	Reflector turret Fixed BF-splitter		

Sl. No.	Specifications	Compliance Yes/No	Ref Page No.
6.	Contrast techniques		
a.	control of intensity of illumination, filters, bright field and dark field,		
b.	oblique illumination,		
c.	polarized light,		
d.	differential interference contrast (DIC) and more		
7.	Illumination LED		
8.	Manual 3-Plate stage of 100 x 50 mm		
9.	Mounting frame 160x130 f. round insert		
10.	Round insert with 10 mm opening,		
11.	Round insert with 20 mm opening,		
12.	Round Insert with 30 mm opening,		
13.	C-Mount HC 0.55x or better		
	Mandatory accessories and units. – 1 No. each should be provided		
14.	Focus drive, 3 step, manual		
15.	Tube, Bino Fix		
16.	Suitable Eyepieces		
17.	LED without Shutter and short cable		
18.	Compensator slot		
19.	Polarizer ICR 29x11.5		
20.	Polarizer L ICR/P w. whole-wave plate		
21.	Analyzer DMI ICT/P		
22.	IC-Prism B1 for objective		
23.	IC-Prism D for objective		
24.	Side Port left 100/0, manual		
25.	Manual 3-Plate stage 100x50 mm		
26.	Mounting frame 160x130 f. round insert		
27.	Round insert with 10mm opening,		
28.	Round insert with 20mm opening,		
29.	Round Insert with 30mm opening,		
30.	C-Mount HC 0.55x,		
31.	Obj. N PLAN EPI 5x/0.12		
32.	Obj. N PLAN EPI 10x/0.25		
33.	Obj. N PLAN EPI 20x/0.40		
34.	Obj. N PLAN EPI 50x/0.75		
35.	Obj. N PLAN EPI 100x/0.85		
36.	Camera: minimum of 6 MP CMOS		
37.	One computer i5 processor, 500 gb of SSD storage and 8 gb RAM with 36" monitor.		
	This microscope should be provided with the metallography Image analysis software with following specifications		
38.	Enhanced Image Processing (For Integrating with the Microscope)		
39.	Phase Analysis: As per ASTM E562 Quantifies volume pct such as Graphite, Pearlite, Ferrite, Martensite, Retained Austenite, carbide and Porosity etc..		
40.	Grain size : As per ASTM E112 Standard methods such as Planimetric, Heyn Intercept, Hillard/Abrams circle intercept and manual grain analysis ALA grain size (ASTM E930) analysis		
41.	Inclusion rating measurement as per ASTM E45 Standard		
42.	Dendrite Arm Spacing for Aluminium and 3D printed samples		

Sl. No.	Specifications	Compliance Yes/No	Ref Page No.
43.	Decarburization depth measurement as per ASTM E1077		
44.	Particle size analysis		
45.	Coating Thickness measurement		
46.	Nodules: Nodularity Percentage, nodule count and graphite size according to valid standards (ASTM A 247)		
47.	Graphite Flakes: Maximum flake length measurement and types as per ASTM A 247		
48.	General Measurements such as length, area, radius and distance		
49.	Report Generation: Exports to CSV format		
50.	Standard samples for all the above measurements should be provided.		
XIV.	STEREO ZOOM MICROSCOPE - 1 NO. MAKE & MODEL :		
	Microscope should have the following technical specifications:		
1.	Ivesta 3 C Mount		
2.	Stereo Zoom Microscope		
3.	Greenough optical design should provide a very flat (plan) field of view and large depth of field		
4.	Complete apochromatic corrected microscopy system - 35° angle eye tubes - for comfort and convenience		
5.	9:1 zoom Ratio with magnification 6.1x-55x (10x eyepieces, no supplementary lens)		
6.	Click stops at 10x, 20x, 30x, 40x and 50x or higher,		
7.	12 mm Depth of Field with Fusion Optics or better		
8.	Provides field of view up to 37.6mm for fast, accurate inspection.		
9.	120 mm standard working distance (without lens shield) or better.		
10.	Camera: minimum of 6 MP CMOS or better		
11.	One computer i5 processor, 500 gb of SSD storage and 8 gb RAM with 24" monitor or bigger		
	Mandatory accessories and units. – 1 No. each should be provided		
12.	Eyepiece 10x/23B, adj., eyeglasses		
13.	Mountable Focus arm S Series		
14.	Horizontal arm ESD, 500 mm		
15.	Vertical column 470/35 mm		
16.	Base Plate Medium		
17.	LED3000 RL, 58 mm or better		
18.	Power Supply for LED3000/LED5000 or better		
19.	Diffusor for LED3000 or better		
20.	Dust cover (40 x 35 x 60), antistatic		
21.	India Power Cord		
22.	Video Tube		
XV.	DIGITAL AUTO FOCUS VIDEO MICROSCOPE – 1 NO. MAKE & MODEL :		
	Microscope should have the following technical specifications:		
1.	Column length - Height 280 mm, diameter 32mm or better		
2.	Base Plate size - 320*260 mm or better		
3.	LED light source LED Adjustable Ring Light		
4.	Sensor type- Colour CMOS		
5.	Pixel 2 million Pixel or higher		
6.	Pixel size- 1/2.8" or smaller		
7.	Power DC 5V		

Sl. No.	Specifications	Compliance Yes/No	Ref Page No.
8.	Output method HDMI		
9.	Display Frame rate- 1080P@60fps/1080P@50fps or better,		
10.	Scanning method Line by line scanning		
11.	White Balance Auto / Manual		
12.	Exposure- Auto / Manual		
13.	Electronic Shutter Speed 1/50s(1/60s)~1/10000s		
14.	Optical magnification 1~14 or higher		
15.	Digital magnification 1~ 6 or higher		
16.	Digital zoom Support		
17.	(Zoom ratio)- FOV (10cm Working Distance)		
18.	1X 171mm*92mm or better		
19.	14X 24.3mm*13.5mm or better		
	The following items should be provided with the microscope.		
20.	HDMI cable – 1 No.		
21.	Camera power adapter – 1 No.		
22.	Mouse – 1 No.		
23.	Microscope stand – 1 No.		
24.	LED ring light source (variable) – 1 No.		
25.	22 inch LCD Monitor – 1 No.		
XVI.	DIGITAL ROCKWELL HARDNESS TESTER WITH TOUCH SCREEN DISPLAY – 1 NO. MAKE & MODEL :		
1.	Preliminary testing force – 10 kgf (98.07 N)		
2.	Total Testing force - 60 kgf (588N), 100 kgf (980N), 150 kgf (1471N)		
3.	Rockwell Scale - HRA, HRB, HRC, HRD, HRE, HRF, HRG, HRH, HRK, HRL, HRM, HRR, HRP, HRS, HRV		
4.	Conversion Scale - Superficial Rockwell, Brinell, Vickers		
5.	Hardness measuring range - HRA:20-88, HRB:20-100, HRC:20-70, HRD:40-77, HRE:70-100, HRF:60-100, HRG:30-94, HRH:80-100, HRK:40-100, HRL:100-120, HRM:85-115, HRR:114-125		
6.	Dwell Time - 0-99 seconds		
7.	Resolution of hardness value - 0.1 HR or smaller		
8.	Load value error <0.5 % or lower		
9.	Max. Height of Specimen 220 mm		
10.	Distance of Indenter to outer wall 160 mm or better		
11.	Indication of Hardness Value - Touch screen display		
12.	Data output Inbuilt Printer, RS-232 Port		
13.	Power input - AC220V+5%, 50-60Hz		
	Equipment should be supplied with the following mandatory accessories:		
14.	Diamond Rockwell Indenter – 1 No.		
15.	Diameter 1.5875mm Ball Indenter – 1 No.		
16.	Weights (A, B, C) – Each 1 No.		
17.	Large, Medium, “V” shaped Testing Table – Each 1 No.		
18.	Standard hardness block (HRC High & Low, HRB) – 3 No.		
19.	Regulating screw – 4 No.		
20.	Dustproof cover – 1 No.		

Sl. No.	Specifications	Compliance Yes/No	Ref Page No.
21.	Instruction Manual – 1 No.		
XVII.	DIGITAL SUPERFICIAL ROCKWELL HARDNESS TESTER WITH TOUCH SCREEN DISPLAY - 1 NO. MAKE & MODEL :		
1.	Preliminary Testing force - 3kgf (29.42N)		
2.	Total Testing force- 15kgf (147.1N), 30kgf(294.2N), 45kgf(441.3N)		
3.	Rockwell Scale - HR15N, HR30N, HR45N, HR15T, HR30T, HR45T		
4.	Hardness measuring range - HR15N:70-94, HR30N:42-86,HR45N:20-77, HR15TW:67-93, HR30TW:29-82, HR45TW:10-72		
5.	Conversion Scale - Rockwell, Brinell, Vickers		
6.	Resolution ratio - 0.1 HR or smaller		
7.	Testing force error $\leq 1\%$ or smaller		
8.	Dwell Time - 0-60 sec		
9.	Max. Height of Specimen - 200 mm		
10.	Distance of Indenter to outer wall - 160 mm		
11.	Indication of Hardness Value - LCD touch screen display		
12.	Data output - In-built mini printer		
13.	Power Input - AC220V+5%, 50-60Hz		
	Equipment should be supplied with the following mandatory accessories.		
14.	Diamond Rockwell Indenter - 1 No.		
15.	Diameter 1.5875mm Ball Indenter - 1 No.		
16.	Weights (A, B, C) - Each 1 No.		
17.	Large, Medium, "V" shaped Testing Table - Each 1 No.		
18.	Hardness block (HR15N, HR30N, HR30T) - 3 No.		
19.	Dustproof cover - 1 No.		
XVIII.	DIGITAL BRINELL HARDNESS TESTER WITH TOUCH SCREEN DISPLAY - 1 NO. MAKE & MODEL :		
1.	Brinell Scale - HBW2.5/62.5, HBW2.5/187.5, HBW5/62.5, HBW5/125, HBW5/250, HBW5/750, HBW10/100, HBW10/250, HBW10/500, HBW10/1000, HBW10/1500, HBW10/3000		
2.	Testing Force - 62.5kgf(612.9N), 100kgf(980.7N), 125kgf(1226N), 187.5kgf(1839N), 250kgf(2452N), 500kgf(4903N), 750kgf(7355N), 1000kgf(9807N), 1500kgf(14710N), 3000kgf(29420N)		
3.	Test force accuracy - 62.5~250kgf $\leq 1\%$, 500~3000kgf $\leq 0.5\%$ or better.		
4.	Duration time - 1~99s		
5.	Hardness Measuring Range - 8 - 650HBW		
6.	Measuring device resolution - 0.5 %		
7.	Min. Measuring Unit - 0.625 μm		
8.	Max. Height of Specimen - 200 mm		
9.	Distance of Indenter to outer wall - 155mm		
10.	Indication of Hardness Value - Touch screen, USB Flash disk		
11.	Power input - AC220+5%,50~60Hz		
XIX.	METALLOGRAPHY CONSUMABLES MAKE & MODEL :		
1.	Vendor should provide metallography consumables such as emery sheets of various grades, polishing cloths, hot and cold mounting powders, diamond polishing pastes of 10, 3 and 1 micrometers, air canisters, cotton roles, colloidal silica gels, etc for 2 years from the day of installation of the equipment listed above.		

Sl. No.	Specifications	Compliance Yes/No	Ref Page No.
2.	LSS: Diamond Blade – 2 Nos.		
3.	LSS: Isomet – 5 Ltrs		
4.	LSS Plus- Diamond Blade – 2 Nos.		
5.	HSS plus - Diamond Blade – 3 Nos.		
6.	HSS plus - Coolant – 20 Ltrs		
7.	Medium- Abrasive Wheels- 45 Nos.		
8.	TWBG - Abrasive belt- 20 Nos.		
9.	H Auto - Phenolic- 3 Kg		
10.	H Auto - Transparent- 2 Kgs		
11.	H Auto - Conductive – 1 Kgs		
12.	H Auto - Epoxy- 1 Kgs		
13.	H Auto - Mould release spray- 10 Nos.		
14.	VTD- SiC Paper 8" (80 grit - 2000 grit)- 600 Nos. (50 Nos each)		
15.	VTD- Polishing CLoth (Micro, Selvyt, Velvet, Billiards) – 40 Nos. (15 each)		
16.	VTD- Aerosol spray – 20 Nos.		
17.	VTD- Diamond paste – 15 Nos.		
18.	VTD- Magnetic Disc – 1 No.		
19.	VTD- Ferromagnetic carrier sheet- 6 Nos.		
20.	FAPM- 10" sic (80- 2000 grit)- 600 Nos. (50 Nos. each)		
21.	FAPM- Polishing cloth(0.25 1,3,6,9, COloidal silica)- 30 Nos. (5 Nos. each)		
22.	FAPM- Diamond suspension (.25, 1,3,6,9)- 1.25 Ltrs- 250 ML each		
23.	FAPM- Alumina suspension (0.05, 0.1, 0.3, 1 micron)- 800 ml (200 ml each)		
24.	FAPM- Colloidal silica – 1.5 Ltr (.5 ltr each)		
25.	FAPM- Alumina powder- 300 gram (100 gram each)		
26.	FAPM- Diamond Disc- 5 Nos. (1No. each)		
27.	FAPM- Lubricant – 2 Ltrs		
XX.	SPECIALISED FURNITURE FOR POLISHING EQUIPMENT FOR MICROSCOPES MAKE & MODEL :		
1.	Vendor should supply Granite stone top tables of 8 numbers with a size of 4 feet length by 2.5 feet width by 2.5 feet height. Granite thickness should be 1 inch or higher.		
2.	Vendor should supply 15 numbers of sturdy branded rotatable chairs for the tables and microscopes.		

*** Reference page number is mandatory and should be mentioned in the technical compliance**

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

PROFORMA FOR FINANCIAL BID (BoQ)**SUPPLY OF PHYSICAL METALLURGY LAB EQUIPMENT, ACCESSORIES AND CONSUMABLES**

Tender No. IITM/SPS/PML/048/2023-24/SPL

Sl.No.	Item Description	Unit	Qty	Rate Per Unit	Total Cost (without GST)	GST (in %)	Total value incl. of GST
					(A)	(B)	
1	SUPPLY OF PHYSICAL METALLURGICAL LAB EQUIPMENT, ACCESSORIES AND CONSUMABLES as per technical specification in Annexure-A	Nos.	19			ENTER AND SUBMIT THE FINANCIAL BID IN THE CPP (e-PROCUREMENT POTAL)	
2.	METALLOGRAPHY CONSUMABLES (as per technical specification in Annexure-A)	Lot	1				
3.	ACCESSORIES FOR ELECTROLYTIC POLISHING MACHINE (as per technical specification in Annexure-A)	Lot	1				
4.	ACCESSORIES FOR INVERTED METALLURGICAL MICROSCOPE (as per technical specification in Annexure-A)	Lot	1				
5.	ACCESSORIES FOR STEREO ZOOM MICROSCOPE (as per technical specification in Annexure-A)	Lot	1				
6.	DIGITAL SUPERFICIAL ROCKWELL HARDNESS TESTER WITH TOUCH SCREEN DISPLAY (as per technical specification in Annexure-A)	Lot	1				
7.	Optional extended warranty for 3 years after standard warranty						
	3 rd Year						
	4 th Year						
	5 th Year						
8.	Optional AMC of the equipment for a period of 2 years after the extended warranty						
	6 th Year						
	7 th Year						
	TOTAL COST INCLUSIVE OF ALL						

Note:

The prices quoted by the bidders should be inclusive of Training, Installation, Transportation, GST and other charges.

Price quoted by the bidder in financial bid (BoQ) for **Sl. No. 1 to 6 viz. SUPPLY OF PHYSICAL METALLURGICAL LAB EQUIPMENT , ACCESSORIES AND CONSUMABLES** will alone be taken up for arrival of lowest bid (L1) values. **Sl. No.7 & 8 Optional Extended Warranty and Optional AMC** will not be considered for financial bid evaluation.

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

(To be given on the letter head of the bidder)

Tender No. IITM/SPS/PML/048/2023-24/SPL

Dated: _____

CERTIFICATE

(Bidders from India)

I have read the clause regarding restrictions on procurement from a bidder of a country which shares a land border with India and hereby certify that I am not from such a country.

OR

(Bidders from Country which shares a land border with India)

I have read the clause regarding restrictions on procurement from a bidder of a country which shares a land border with India and hereby certify that I am from _____ (Name of Country) and have registered with the Competent Authority. I also certify that I fulfil all the requirements in this regard and am eligible to be considered. *(Copy/ evidence of valid registration by the Competent Authority is to be attached)*

Place:

Date:

**Signature of the Bidder
Name & Address of the
Bidder with Office Stamp**

**FORMAT FOR AFFIDAVIT OF SELF-CERTIFICATION UNDER PUBLIC PROCUREMENT POLICY
(PREFERENCE TO MAKE IN INDIA) 2017**

Tender Reference Number: Tender No. IITM/SPS/PML/048/2023-24/SPL

Name of the item / Service: SUPPLY OF PHYSICAL METALLURGY LAB EQUIPMENT, ACCESSORIES AND CONSUMABLES

Date: _____

I/We _____ S/o, D/o, W/o,

Resident of

_____ hereby solemnly affirm and declare as under:

That I will agree to abide by the terms and conditions of the Public Procurement (Preference to Make in India) Policy vide GoI Order no. P-45021/2/2017-PP (B.E) dated 15.06.2017 (subsequently revised vide orders dated 28.05.2018, 29.05.2019 and 04.06.2020) MOCI order No. 45021/2/2017-PP (BE) Dt.16th September 2020 & P- 45021/102/2019-BE-Part(1) (E-50310) Dt.4th March 2021 and any subsequent modifications/Amendments, if any and

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

Tick (✓) and Fill the Appropriate Category	
<input type="checkbox"/>	I/We _____ [name of the supplier] hereby confirm in respect of quoted items that Local Content is equal to or more than 50% and come under “Class-I Local Supplier” category.
<input type="checkbox"/>	I/We _____ [name of the supplier] hereby confirm in respect of quoted items that Local Content is equal to or more than 20% but less than 50% and come under “Class-II Local Supplier” category.

The details of the location (s) at which the local value addition is made and the proportionate value of local content in percentage

Percentage of Local content : _____ %**

Location at which value addition done : _____

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.>

[Note: In case of procurement for a value in excess of Rs. 10 Crores, the bidders shall provide this certificate from statutory auditor or cost auditor of the company (in the case of companies) or from a practicing cost accountant or practicing chartered accountant (in respect of suppliers other than companies) giving the percentage of local content.]

This letter should be on the letterhead of the quoting firm and should be signed by a competent authority.

** Services such as
transportation, insurance, installation,
commissioning, and training and after
sales service support like AMC/CMC
cannot be claimed as local value
addition.

Tender Reference Number: Tender No. IITM/SPS/PML/048/2023-24/SPL
Name of the item / Service: SUPPLY OF PHYSICAL METALLURGY LAB EQUIPMENT, ACCESSORIES AND CONSUMABLES

(To be given on the letter head of the bidder)

Self-Declaration that the Service Provider has not been Black listed

I S/o
R/o police station District Director
/ Partner/ sole proprietor (Strike out whichever is not applicable) of
..... (Firm or Company) do hereby declare and solemnly affirm:

- I. That the Firm has not been Blacklisted or declared insolvent by any of the Union or State Government / Organization.
- II. That none of the individual / firm / Company Blacklisted or any partners or shareholder thereof has any connection directly or indirectly with or has any subsistence interest in the deponent business / firm company.
- III. That neither the Firm nor any of its partner has been involved / convicted in any criminal case / economic offence nor any criminal case / economic offence is pending against firm or any partner of the Firm before any Court of Law / Police.

Place:
Date:

Signature of the Tenderer
Name & Address of the
Tenderer with Office Stamp

Tender Reference Number: Tender No. IITM/SPS/PML/048/2023-24/SPL
Name of the item / Service: SUPPLY OF PHYSICAL METALLURGY LAB EQUIPMENT, ACCESSORIES AND CONSUMABLES

OEM CERTIFICATION FORM

(In Original Letter Head of OEM)

Tender No: Dated:

We are Original Equipment Manufacturers (OEM) of..... (Name of the company)

Ms..... (Name of the vendor) is one of our Distributors/Dealers/Resellers/Partners (tick one) for the and is participating in the above mentioned tender by offering our product model..... (Name of the product with model number).

..... Is authorized to bid, sell and provide service support warranty for our product as mentioned above.

Please mention Country of Origin

Name and Signature of the authorized Signatory of OEM along with Seal of the company with Date

Tender Reference Number: Tender No. IITM/SPS/PML/048/2023-24/SPL

**Name of the item / Service: SUPPLY OF PHYSICAL METALLURGY LAB EQUIPMENT, ACCESSORIES AND
CONSUMABLES**

(To be given on the letter head of the bidder)

Self-Declaration by the bidder

I hereby declare that spare parts and accessories will be available for smooth operation over at least 15 years from the date of installation. However, the consumables and parts required at the time of installation and standardisation should be given free of cost.

Place:

Date:

**Signature of the Bidder
Name & Address of the
Bidder with Office Stamp**