

	<p>भारतीय प्रौद्योगिकी की संस्थान मद्रास चेन्नै 600 036 INDIAN INSTITUTE OF TECHNOLOGY MADRAS Chennai 600 036 Central Skill Training & Fabrication Facility' (CSTF)</p>	 भारत 2023 INDIA वसुधैव कुटुम्बकम् ONE EARTH • ONE FAMILY • ONE FUTURE
---	---	---

Tender No. IITM/CSTF/3D Printers/22-23/01

**Due Date: 03.03.2023
Before 2.00 p.m.**

Dear Sir/Madam,

On behalf of the Indian Institute of Technology Madras, Tenders are invited in two bid system namely Technical Bid and Financial Bid for

Supply of Thermoplastic and Continuous Fiber reinforced plastic 3D Printers

conforming to the specifications enclosed.

Tender Documents may be downloaded from Central Public Procurement Portal. All tender documents including Technical and Financial bids should be submitted as per the tender documents.

LAST DATE for receipt of Tender	:	03.03.2023 before 02.00 p.m.
Date & Time of opening of Tender	:	03.03.2023 @ 03:30 p.m.

1	<p>Signing of Tender:</p> <p>The Tender is liable to be rejected if complete information is not given therein or if the particulars and date (if any) asked for in the schedule to the Tender are not fully filled in or not duly signed/authenticated. Specific attention is drawn to the delivery dates and terms and conditions enclosed herewith. Each page of the bids required to be signed and bears the official seal of the Bidders.</p> <p>If the application is made by a firm in partnership, it shall be signed (with seal) by all the partners of the firm above their full typewritten names and current addresses or alternatively by a partner holding power of attorney for the firm in which case a certified copy of the power of attorney shall accompany the application. A certified copy of the partnership deed along with current addresses of all the partners of the firm shall also accompany the application.</p> <p>If a limited company or a corporation makes the application, it shall be signed by a duly authorized person holding power of attorney for signing the application, in which case a certified copy of the power of attorney shall accompany the application. Such limited company or corporation may be required to furnish satisfactory evidence of its existence. The applicant shall also furnish a copy of the Memorandum of Articles of association duly attested by a Notary Public.</p>
2	<p>Period for which the offer will remain open:</p> <p>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>
3	<p>Prices :</p> <ul style="list-style-type: none"> • The prices quoted must be Net considering all scope of supply, installation and terms & conditions mentioned in the tender document. • All conditional tenders will be summarily rejected. • Quote should be in INR only
4	<p>No Advance Payment will be made. The Payment will be made only after satisfactory completion of the supply, installation and as per terms and conditions of the purchase order.</p>
5	<p>Delivery: The delivery period shall be 30 days from the date of purchase order</p>
6	<p>GST: As applicable and should be quoted separately as per BOQ.</p>
7	<p>Terms and Conditions:</p> <p>Failure to comply with any of the instructions stated in this document or offering unsatisfactory explanations for</p>

	non-compliance will lead to rejection of offers.
8	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.
9	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.
10	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.
11	Bidder shall submit along with this Tender: Name and full address of the Banker and their swift code and PAN No. and GSTIN number.
12	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.
13	Penalty & Liquidated Damages / Force Majeure: 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.
14	Warranty: 5 years warranty with continued AMC at no cost for up to 5years. 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 of the contract.
15	PRE-QUALIFICATION CRITERIA Eligibility Criteria-I 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 II) (E-43780) dated 24th August 2020. A declaration shall be submitted with the bid as per format given in Annexure – D . 2. Only 'Class-I local suppliers' and 'Class-II local suppliers', as defined under DIPP, MoCI Order No. P-45021/2/2017-PP (BE II) dated 16 th September 2020 and other subsequent orders issued therein, shall be eligible to bid in this tender. Declaration for Class-I / Class-II local suppliers should be submitted in the prescribed proforma format as per Annexure – E . Eligibility Criteria-II 1. 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 . 2. The firm must have an aggregate Financial turnover of at least Rs.70 Lakhs in the last five financial years i.e. 2017-18, 2018-2019, 2019-2020, 2020-2021 and 2021-2022 and it should be duly certified by Chartered Accountant (Necessary document proof should be attached) 3. The bidder should be a Manufacturer (OEM) or Authorized Supplier/Dealer. Necessary document proof should be submitted as per Annexure-H . 4. The bidder or their OEM should have supplied at least 2 nos. of material extrusion and 3D Continuous Fiber reinforced plastic 3D Printers with similar specifications in the last five years 2018, 2019, 2020, 2021 & 2022 to the Central Government / Central PSU / Central/State Autonomous / reputed firms. A copy of Purchase order and Work Completion Certificates / Performance Certificate should be attached.

	<p>5. Bidder should submit self-declaration stating that the equipment maintenance and spare parts supply will be made at least 10 years from the day of installation at IIT Madras.</p> <p>6. Bidder should provide any spare parts at free of cost during the AMC period for the continuous printing with a maximum interruption of one working day.</p> <p>7. Provide training to workshop staff or other machine operators (at no cost) during AMC period.</p> <p>8. Provide one dedicated manpower from the bidder or their authorized dealers to manage the machines for one year from the date of installation, and this can be extended at no cost for another 4 years on demand from IIT-Madras.</p>
16	<p>Number of Bids and their Submission: The bidders should submit the bids in two bid system as detailed below:</p> <p>Bid I Technical Bid The technical bid should consist of proof of EMD transfer, filled-in proforma of Technical bid submission as per details given in Annexure-B.</p> <p>The bidder should go through the technical bid (Annexure- A) of the tender document, understand the requirement of IITM before bidding and submit the technical bid covering the details given in Annexure-B along with all relevant documents proof. Any tender documents without these details shall be invalid and rejected.</p> <p>Bid II Financial Bid The financial bid should be submitted in excel format (BoQ) as per the proforma (Annexure C) and uploaded in the CPP e-procurement portal.</p>
17	<p>Evaluation of Bids:</p> <p>Stage I: Technical Bid evaluation Technical Bid Evaluation will be done in two stages.</p> <ol style="list-style-type: none"> 1. In the 1st stage, Bidder will be evaluated first for conformity with Pre-qualification Criteria (Eligibility criteria I &II) and those bidders who have complied with pre-qualification criteria will alone be evaluated further. 2. In the 2nd stage, the details of technical specification offered by the bidders will be evaluated by the technical committee for compliance. Only those bidders who have fully complied with Pre-qualification Criteria and technical specification will be considered for opening of financial bid. Bidder will be evaluated first for conformity with Prequalification Criteria I &II. <p>Stage II: Financial Bid Evaluation The Lowest financial bid among those who have qualified in the Technical bid evaluation will be declared as successful bidder (L1) and the order will be awarded to successful bidder (L1).</p>
18	<p>Selection of successful bidder and Award of Order: The order will be directly awarded to the technically qualified bidder as per the condition in para 3A of DIPP, MoCI Order No. 45021/2/2017-PP (BE II) dated 16th September 2020.</p>
19	<p>The bidders will not be entertained to participate in opening of Bids. The opening of the bids may be checked using the respective logins of the bidders.</p>
20	<p>The sealed bids should be submitted on or before due date to the following address:</p> <p style="text-align: center;">The Professor -In charge 'Central Skill Training & Fabrication Facility' (CSTF), (Formerly Central workshop) IIT Madras, Chennai- 600036</p>
21	<p>For any technical queries : Dr. G Balaganesan Senior technical Officer, CSTF IIT Madras Email: gaganesh@iitm.ac.in</p>

The Prof-In charge
Central Skill Training & Fabrication Facility
(CSTF)

DECLARATION OF THE TENDERER

It is hereby acknowledged that I/We have gone through all the points listed under “**Specifications, Guidelines, Special Terms and Conditions**” of tender document are 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 and EMD shall be forfeited.

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

TECHNICAL BID
Supply of Thermoplastic 3D printer and Continuous Fiber reinforced plastic 3D Printer
Tender No. IITM/CSTF/3D Printers/22-23/01

I. PRE-QUALIFICATION CRITERIA**Eligibility Criteria-I**

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 II) (E-43780) dated 24th August 2020. A declaration shall be submitted with the bid as per format given in **Annexure – D**.
2. Only 'Class-I local suppliers' and 'Class-II local suppliers', as defined under DIPP, MoCI Order No. P-45021/2/2017-PP (BE II) dated 16th September 2020 and other subsequent orders issued therein, shall be eligible to bid in this tender. Declaration for Class-I / Class-II local suppliers should be submitted in the prescribed proforma format as per **Annexure – E**.

Eligibility Criteria-II

1. 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**.
2. The firm must have an aggregate Financial turnover of at least Rs.70 Lakhs in the last five financial years i.e. 2017-18, 2018-2019, 2019-2020, 2020-2021 and 2021-2022 and it should be duly certified by Chartered Accountant (Necessary document proof should be attached)
3. The bidder should be a Manufacturer (OEM) or Authorized Supplier/Dealer. Necessary document proof should be submitted as per **Annexure-H**.
4. The bidder **or their OEM** should have supplied at least 2 nos. of material extrusion and 3D Continuous Fiber reinforced plastic 3D Printers with similar specifications in the last five years 2018, 2019, 2020, 2021 & 2022 to the Central Government / Central PSU / Central/State Autonomous /reputed firms. A copy of Purchase order and Work Completion Certificates / Performance Certificate should be attached.
5. Bidder should submit self-declaration stating that the equipment maintenance and spare parts supply will be made at least 10 years from the day of installation at IIT Madras.
6. Bidder should provide any spare parts at free of cost during the AMC period for the continuous printing with a maximum interruption of one working day.
7. Provide training to the staff or other machine operators (at no cost) during AMC period.
8. Provide one dedicated manpower from the bidder or their authorized dealers to manage the machines for one year from the date of installation, and this can be extended at no cost for another 4 years on demand from IIT-Madras.

II. Technical Specifications

S. No	Item No	Specifications	Qty
1	Thermoplastic material extrusion type 3D Printer	<p>A. Thermoplastic material extrusion type 3D Printer</p> <p>Build Volume: At least 200mm x 200mm x 200mm</p> <p>Compatible Materials: The machine is capable of 3D printing with a range of materials as below:</p> <ul style="list-style-type: none"> ○ Thermoplastics: PLA, ABS, PET-G, PA, PC, PETG, HIPS, PVA, PAS, PP, other common thermoplastic feedstock amenable for material extrusion based printing. 	20 Nos

- **Fiber filled (Chopped Fiber) Thermoplastics:** CF-Nylon, GF-Nylon, CG-PETG, GF-PETG, CF-ABS, GF-ABS, CG-PP, GF-PP, CF-PLA, GF-PLA.

Power Loss and Print Recovery:

The machine should resume printing automatically after stoppage due to power failure or any other reasons

Enclosed Build Volume:

The machine should be fully enclosed with sheet metal and the enclosed chamber is able to reach 50 °C or above

Safety:

- The machine should have a vent fan for safely exhausting any fumes generated during printing.
- The vent also should possess a HEPA filter for filtering of fumes at an appropriate location in the equipment
- The vent should have a provision to attach a duct.

Filament Run out:

- The machine should automatically pause printing and provide filament run out notification when the feedstock breaks or gets over
- Upon stoppage, equipment should instruct the user to reload material, and once the material is reloaded, printing should be resumed

Operational range

The Machine must be capable of operating at ambient temperature above 20 °C and above

Build plate specifications:

- Build plate should have a replaceable, flexible magnetic flex plate with PEI coating for easy removal of part once the print is done.
- The build plate temperature should reach up more than 100 °C and be maintained for the entire duration of the print.

Bed Level Sensor:

Before the start of printing, automatic Z axis zeroing and leveling for hassle free and calibration should be provided

Early print head clog prediction:

Sensor to predict print head clogs prior to actual clogging and provide notification to the user regarding potential clogging of nozzles should be provided.

Printer Accuracy :

The positional accuracy of the machine should be in the range of 10-15 micrometers in the Z axis and minimum 30 micronmeters in X and Y axes, respectively.

Data input:

- USB input
- SD card reader

- Wirelessly via Slicer (Wifi feature)

HMI:

- 3.2 inch or bigger screen with user friendly touch interface

Print Speed & Travel Speed

- Axes travel speed 150 mm/s or above
- Print speed 50-100 mm/s or above

B. Slicing Software with specific features (Qty: 1000 licenses)

Pre processing software:

- a. The hardware supplied should be compatible with the build files created by open-source pre-processing software (such as Open Cura™).
- b. The bidder can supply any indigenously developed preprocessing software with perpetual license in addition to point a. Software should have a capability to provide an endless number of print presets for both 3D printers.

Machine driver software

An indigenously developed driver software should be provided with a provision for standard user, calibration and admin privileges. The admin user should be able to access the machine usage and logs with a provision to download the data from the HMI using an external storage device.

Remote printing and monitoring

Remote printing using server and live print monitoring using a simple browser or app based interface should be provided

Vendor's continuous Support & Maintenance

Response time for any support/ assistance should be less than 6 working hours. The seller shall assign/appoint an application engineer specifically to ensure seamless onsite support, monitoring and assistance. AMC support should be provided for a period of 5 years at no additional cost. The Seller should provide necessary training to End User's representatives in the End User's Facility in-person for machine usage, machine regular maintenance and machine software usage.

Raw Materials and spares supply

The vendor shall supply the basic thermoplastics up to 50 kgs free of cost Each Desktop machine should be supplied along with the following items for the smooth operation upon installation. The cost may be indicated separately as needed.

Plastic Extrusion Compatible nozzles -

- i. 0.2 mm - 1 nos
- ii. 0.3 mm - 1 nos
- iii. 0.4 mm - 2 nos
- iv. 0.5 mm - 1 nos.

		<p>v. 0.8 mm - 1 nos.</p> <p>Mandatory upgrades of the equipment:</p> <p>Vendor should upgrade all the supplied machines to their latest equivalent model at the end of AMC period of 5 years at no additional cost.</p> <p>In case of such an upgrade, all the above support offered by Vendor should be extended for another 5 years at no additional cost and mutually agreed AMC cost upon upgrade.</p>	
2	Continuous Fiber reinforced plastic 3D Printer	<p><u>Continuous Fiber reinforced plastic 3D Printer</u></p> <p>Build Volume: At least 300mmX300mmX300mm</p> <p>Compatible Materials: The machine is capable of 3D printing with a range of materials as below:</p> <ul style="list-style-type: none"> ○ Thermoplastics: PLA, ABS, PET-G, PA, PC, PETG, HIPS, PVA, PAS, PP, other common thermoplastic feedstock amenable for material extrusion based printing. ○ Fiber filled (Chopped Fiber) Thermoplastics: CF-Nylon, GF-Nylon, CG-PETG, GF-PETG, CF-ABS, GF-ABS, CG-PP, GF-PP, CF-PLA, GF-PLA. ○ Continuous fiber reinforced Thermoplastics: CCF Nylon, CGF-Nylon, CAF-Nylon, CCF-PETG, CGF-PETG, CAF-PETG, CCF-ABS, CGF-ABS, CAF-ABS, etc. (CCF, CGF and CAF refers to Continuous Carbon fiber, Cont. Glass Fiber and Cont. Aramid Fibers respectively) <p>Power Loss and Print Recovery: The machine should resume printing automatically after stoppage due to power failure or any other reasons</p> <p>Enclosed Build Volume: The machine should be fully enclosed with sheet metal and the enclosed chamber is able to reach 50 °C or above</p> <p>Safety:</p> <ul style="list-style-type: none"> ○ The machine should have a vent fan for safely exhausting any fumes generated during printing. ○ The vent also should possess a HEPA filter for filtering of fumes at an appropriate location in the equipment ○ The vent should have a provision to attach a duct. <p>Filament Run out:</p> <ul style="list-style-type: none"> ○ The machine should automatically pause printing and provide filament run out notification when the feedstock breaks or gets over ○ Upon stoppage, equipment should instruct the user to reload material, and once the material is reloaded, printing should be resumed <p>Operational range</p>	1 No

The Machine must be capable of operating at ambient temperature above 20 °C and above

Build plate specifications:

- Build plate should have a replaceable, flexible magnetic flex plate with PEI coating for easy removal of part once the print is done.
- The build plate temperature should reach up more than 100 °C and be maintained for the entire duration of the print.

Bed Level Sensor:

Before the start of printing, automatic Z axis zeroing and leveling for hassle free and calibration should be provided

Early print head clog prediction:

Sensor to predict print head clogs prior to actual clogging and provide notification to the user regarding potential clogging of nozzles should be provided.

Printer Accuracy :

The positional accuracy of the machine should be in the range of 10-15 micrometers in the Z axis and minimum 30 micronmeters in X and Y axes, respectively.

Data input:

- USB input
- SD card reader
- Wirelessly via Slicer (Wifi feature)

HMI:

- 3.2 inch or bigger screen with user friendly touch interface

Print Speed & Travel Speed

- Axes travel speed 150 mm/s or above
- Print speed 50-100 mm/s or above

Slicing Software with specific features (Qty: 1000 licenses)

Pre processing software :

a. The hardware supplied should be compatible with the build files created by open source pre processing software (such as Open Cura™).

b. The bidder can supply any indigenously developed pre processing software with perpetual license in addition to point a.

For this item, an indigenously developed pre processing software should be mandatorily provided with a capability to generate machine files for handling continuous fibre printing.

Software should have a capability to provide an endless number of print presets for both 3D printers.

Machine driver software

An indigenously developed driver software should be provided with a provision for standard user, calibration and admin privileges.

		<p>The admin user should be able to access the machine usage and logs with a provision to download the data from the HMI using an external storage device.</p> <p>Remote printing and monitoring Remote printing using server and live print monitoring using a simple browser or app based interface should be provided</p> <p>Vendor’s continuous Support & Maintenance Response time for any support/ assistance should be less than 6 working hours. The seller shall assign/appoint an application engineer specifically to ensure seamless onsite support, monitoring and assistance. AMC support should be provided for a period of 5 years at no additional cost. The Seller should provide necessary training to End User’s representatives in the End User’s Facility in-person for machine usage, machine regular maintenance and machine software usage.</p> <p>Raw Materials and spares supply</p> <p>Mandatory upgrades of the equipment: Vendor should upgrade all the supplied machines to their latest equivalent model at the end of AMC period of 5 years at no additional cost. In case of such an upgrade, all the above support offered by Vendor should be extended for another 5 years at no additional cost and mutually agreed AMC cost upon upgrade.</p> <p>Each Continuous Fiber Machine should be supplied with 5 sets of compatible nozzles.</p>	
--	--	---	--

III. Special terms and Conditions

1. The bidder should also have the capability to source all materials mentioned technical specifications and any other combination of continuous fibers and thermoplastic matrix on-demand from IIT Madras and supply within reasonable time.
2. Continued Annual Maintenance Support at no cost for up to 5 years
3. Bidder should provide any spare parts at free of cost during the AMC period for the continuous printing with a maximum interruption of one working day.
4. Provide training to workshop staff or other machine operators (at no cost) during AMC period.
5. Provide one dedicated manpower from the bidder or their authorized dealers to manage the machines for one year from the date of installation, and this can be extended at no cost for another 4 years on demand from IIT-Madras.
6. Spare parts should be readily available with the bidder and the maximum lead time for any should be within 1 week.
7. A basic operational tool set should be supplied with each machine
8. Maintenance tool set of 5 nos. for Thermoplastic material extrusion type 3D Printer and 1 no for Continuous Fiber material extrusion based 3D Printer should be provided

PROFORMA FOR TECHNICAL BID**Supply of Thermoplastic 3D printer and Continuous Fiber reinforced plastic 3D Printer****Tender No. IITM/CSTF/3D Printers/22-23/01****A. PRE-QUALIFICATION CRITERIA**

Sl. No.	Description	Compliance (Yes/No)	Page Ref.No.
PRE-QUALIFICATION CRITERIA			
I. ELIGIBILITY CRITERIA - I			
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 23 rd July 2020, and MoCI Order No. P-45021/112/2020-PP (BE II) (E-43780) dated 24 th August 2020. A declaration as per format given in Annexure – D shall be submitted with the bid.		
2	Only 'Class-I local suppliers' and 'Class-II local suppliers', as defined under DIPP, MoCI Order No. P-45021/2/2017-PP (BE II) dated 16 th September 2020 and other subsequent orders issued therein, shall be eligible to bid in this tender. Declaration for Class-I and Class-II local suppliers should be submitted in the prescribed proforma as per Annexure-E		
II. ELIGIBILITY CRITERIA - II			
1	The bidder should not have been blacklisted / debarred by any Government/ regulatory bodies in India. A self-declaration format given in Annexure – F		
2	The firm must have an aggregate Financial turnover of at least Rs.70 Lakhs in the last five financial years i.e. 2017-18, 2018-2019, 2019-2020, 2020-2021 and 2021-2022 and it should be duly certified by Chartered Accountant (Necessary document proof should be attached)		
3	The bidder should be a Manufacturer (OEM) or Authorized Supplier/Dealer. Necessary document proof should be submitted as per Annexure-H .		
4	The bidder or their OEM should have supplied at least 2 nos. of material extrusion and 3D Continuous Fiber reinforced plastic 3D Printers with similar specifications in the last three years 2020, 2021 & 2022 and at least two installations to any of the CFTIs or State/Central government research labs/CoEs.		
5	Bidder should submit self-declaration stating that the equipment maintenance and spare parts supply will be made at least 10 years from the day of installation at IIT Madras.		
6	Bidder should provide any spare parts at free of cost during the AMC period for the continuous printing with a maximum interruption of one working day.		
7	Provide training to workshop staff or other machine operators (at no cost) during AMC period.		
8	Provide one dedicated manpower from the bidder or their authorized dealers to manage the machines for one year from the date of installation, and this can be extended at no cost for another 4 years on demand from IIT-Madras.		

B. TECHNICAL SPECIFICATION

S.No	Item No	Specifications	Qty	Compliance (Yes/No)	Page Ref. No
1	I	<p>C. Thermoplastic material extrusion type 3D Printer</p> <p>Build Volume: At least 200mm x 200mm x 200mm</p> <p>Compatible Materials: The machine is capable of 3D printing with a range of materials as below:</p> <ul style="list-style-type: none"> ○ Thermoplastics: PLA, ABS, PET-G, PA, PC, PETG, HIPS, PVA, PAS, PP, other common thermoplastic feedstock amenable for material extrusion based printing. ○ Fiber filled (Chopped Fiber) Thermoplastics: CF-Nylon, GF-Nylon, CG-PETG, GF-PETG, CF-ABS, GF-ABS, CG-PP, GF-PP, CF-PLA, GF-PLA. <p>Power Loss and Print Recovery: The machine should resume printing automatically after stoppage due to power failure or any other reasons</p> <p>Enclosed Build Volume: The machine should be fully enclosed with sheet metal and the enclosed chamber is able to reach 50 °C or above</p> <p>Safety:</p> <ul style="list-style-type: none"> ○ The machine should have a vent fan for safely exhausting any fumes generated during printing. ○ The vent also should possess a HEPA filter for filtering of fumes at an appropriate location in the equipment ○ The vent should have a provision to attach a duct. <p>Filament Run out:</p> <ul style="list-style-type: none"> ○ The machine should automatically pause printing and provide filament run out notification when the feedstock breaks or gets over ○ Upon stoppage, equipment should instruct the user to reload material, and once the material is reloaded, printing should be resumed 	20 Nos		

		<p>Operational range The Machine must be capable of operating at ambient temperature above 20 °C and above</p> <p>Build plate specifications:</p> <ul style="list-style-type: none"> ○ Build plate should have a replaceable, flexible magnetic flex plate with PEI coating for easy removal of part once the print is done. ○ The build plate temperature should reach up more than 100 °C and be maintained for the entire duration of the print. <p>Bed Level Sensor: Before the start of printing, automatic Z axis zeroing and leveling for hassle free and calibration should be provided</p> <p>Early print head clog prediction: Sensor to predict print head clogs prior to actual clogging and provide notification to the user regarding potential clogging of nozzles should be provided.</p> <p>Printer Accuracy : The positional accuracy of the machine should be in the range of 10-15 micrometers in the Z axis and minimum 30 micronmeters in X and Y axes, respectively.</p> <p>Data input:</p> <ul style="list-style-type: none"> ○ USB input ○ SD card reader ○ Wirelessly via Slicer (Wifi feature) <p>HMI:</p> <ul style="list-style-type: none"> ○ 3.2 inch or bigger screen with user friendly touch interface <p>Print Speed & Travel Speed</p> <ul style="list-style-type: none"> ○ Axes travel speed 150 mm/s or above ○ Print speed 50-100 mm/s or above <p>D. Slicing Software with specific features (Qty: 1000 licenses)</p> <p>Pre processing software :</p> <p>a. The hardware supplied should be compatible with the build files created by open source pre-processing software (such as Open Cura™).</p> <p>b. The bidder can supply any indigenously developed pre processing software with perpetual license in addition to point a.</p> <p>Software should have a capability to provide an endless number of print presets for both 3D printers.</p> <p>Machine driver software</p>			
--	--	---	--	--	--

		<p>An indigenously developed driver software should be provided with a provision for standard user, calibration and admin privileges.</p> <p>The admin user should be able to access the machine usage and logs with a provision to download the data from the HMI using an external storage device.</p> <p>Remote printing and monitoring</p> <p>Remote printing using server and live print monitoring using a simple browser or app based interface should be provided</p> <p>Vendor’s continuous Support & Maintenance</p> <p>Response time for any support/ assistance should be less than 6 working hours.</p> <p>The seller shall assign/appoint an application engineer specifically to ensure seamless onsite support, monitoring and assistance.</p> <p>AMC support should be provided for a period of 5 years at no additional cost.</p> <p>The Seller should provide necessary training to End User’s representatives in the End User’s Facility in-person for machine usage, machine regular maintenance and machine software usage.</p> <p>Raw Materials and spares supply</p> <p>The vendor shall supply the basic thermoplastics up to 50 kgs free of cost</p> <p>Each Desktop machine should be supplied along with the following items for the smooth operation upon installation. The cost may be indicated separately as needed.</p> <p style="padding-left: 40px;">Plastic Extrusion Compatible nozzles -</p> <ul style="list-style-type: none"> i. 0.2 mm - 1 nos ii. 0.3 mm - 1 nos iii. 0.4 mm - 2 nos iv. 0.5 mm - 1 nos. v. 0.8 mm - 1 nos. <p>Mandatory upgrades of the equipment:</p> <p>Vendor should upgrade all the supplied machines to their latest equivalent model at the end of AMC period of 5 years at no additional cost.</p> <p>In case of such an upgrade, all the above support offered by Vendor should be extended for another 5 years at no additional cost and mutually agreed AMC cost upon upgrade.</p>			
2	<p>Continuous Fiber reinforced plastic 3D Printer</p>	<p><u>Continuous Fiber reinforced plastic 3D Printer</u></p> <p>Build Volume: At least 300mmX300mmX300mm</p> <p>Compatible Materials: The machine is capable of 3D printing with a range of materials as below:</p> <ul style="list-style-type: none"> ○ Thermoplastics: PLA, ABS, PET-G, PA, PC, PETG, HIPS, PVA, PAS, PP, other common thermoplastic 	1 No		

		<p>feedstock amenable for material extrusion based printing.</p> <ul style="list-style-type: none"> ○ Fiber filled (Chopped Fiber) Thermoplastics: CF-Nylon, GF-Nylon, CG-PETG, GF-PETG, CF-ABS, GF-ABS, CG-PP, GF-PP, CF-PLA, GF-PLA. ○ Continuous fiber reinforced Thermoplastics: CCF Nylon, CGF-Nylon, CAF-Nylon, CCF-PETG, CGF-PETG, CAF-PETG, CCF-ABS, CGF-ABS, CAF-ABS, etc. (CCF, CGF and CAF refers to Continuous Carbon fiber, Cont. Glass Fiber and Cont. Aramid Fibers respectively) <p>Power Loss and Print Recovery: The machine should resume printing automatically after stoppage due to power failure or any other reasons</p> <p>Enclosed Build Volume: The machine should be fully enclosed with sheet metal and the enclosed chamber is able to reach 50 °C or above</p> <p>Safety:</p> <ul style="list-style-type: none"> ○ The machine should have a vent fan for safely exhausting any fumes generated during printing. ○ The vent also should possess a HEPA filter for filtering of fumes at an appropriate location in the equipment ○ The vent should have a provision to attach a duct. <p>Filament Run out:</p> <ul style="list-style-type: none"> ○ The machine should automatically pause printing and provide filament run out notification when the feedstock breaks or gets over ○ Upon stoppage, equipment should instruct the user to reload material, and once the material is reloaded, printing should be resumed <p>Operational range The Machine must be capable of operating at ambient temperature above 20 °C and above</p> <p>Build plate specifications:</p> <ul style="list-style-type: none"> ○ Build plate should have a replaceable, flexible magnetic flex plate with PEI coating for easy removal of part once the print is done. 			
--	--	--	--	--	--

		<ul style="list-style-type: none"> ○ The build plate temperature should reach up more than 100 °C and be maintained for the entire duration of the print. <p>Bed Level Sensor: Before the start of printing, automatic Z axis zeroing and leveling for hassle free and calibration should be provided</p> <p>Early print head clog prediction: Sensor to predict print head clogs prior to actual clogging and provide notification to the user regarding potential clogging of nozzles should be provided.</p> <p>Printer Accuracy : The positional accuracy of the machine should be in the range of 10-15 micrometers in the Z axis and minimum 30 micronmeters in X and Y axes, respectively.</p> <p>Data input:</p> <ul style="list-style-type: none"> ○ USB input ○ SD card reader ○ Wirelessly via Slicer (Wifi feature) <p>HMI:</p> <ul style="list-style-type: none"> ○ 3.2 inch or bigger screen with user friendly touch interface <p>Print Speed & Travel Speed</p> <ul style="list-style-type: none"> ○ Axes travel speed 150 mm/s or above ○ Print speed 50-100 mm/s or above <p>Slicing Software with specific features (Qty: 1000 licenses)</p> <p>Pre processing software :</p> <p>a. The hardware supplied should be compatible with the build files created by open source pre processing software (such as Open Cura™).</p> <p>b. The bidder can supply any indigenously developed pre processing software with perpetual license in addition to point a.</p> <p>For this item, an indigenously developed pre processing software should be mandatorily provided with a capability to generate machine files for handling continuous fibre printing.</p> <p>Software should have a capability to provide an endless number of print presets for both 3D printers.</p> <p>Machine driver software</p> <p>An indigenously developed driver software should be provided with a provision for standard user, calibration and admin privileges.</p> <p>The admin user should be able to access the machine usage and logs with a provision to download the data from the HMI using an external storage device.</p> <p>Remote printing and monitoring</p>			
--	--	--	--	--	--

		<p>Remote printing using server and live print monitoring using a simple browser or app based interface should be provided</p> <p>Vendor's continuous Support & Maintenance Response time for any support/ assistance should be less than 6 working hours. The seller shall assign/appoint an application engineer specifically to ensure seamless onsite support, monitoring and assistance. AMC support should be provided for a period of 5 years at no additional cost. The Seller should provide necessary training to End User's representatives in the End User's Facility in-person for machine usage, machine regular maintenance and machine software usage.</p> <p>Raw Materials and spares supply</p> <p>Mandatory upgrades of the equipment:</p> <p>Vendor should upgrade all the supplied machines to their latest equivalent model at the end of AMC period of 5 years at no additional cost. In case of such an upgrade, all the above support offered by Vendor should be extended for another 5 years at no additional cost and mutually agreed AMC cost upon upgrade.</p> <p>Each Continuous Fiber Machine should be supplied with 5 sets of compatible nozzles.</p>			
--	--	--	--	--	--

PROFORMA FOR FINANCIAL BID (BoQ)**Supply of Thermoplastic 3D printer and Continuous Fiber reinforced plastic 3D Printer****Tender No. IITM/CSTF/3D Printers/22-23/01**

Sl.No.	Item Description	Qty.	Unit Rate (in INR)	GST (in %)	Total Amount with GST (in INR)
1	Thermoplastic material extrusion type 3D Printer	20 Nos.			
2	Continuous Fiber reinforced plastic 3D Printer	1 No.			
3	Plastic Extrusion Compatible nozzles as mentioned in the technical bid	1 Lot			
GRAND TOTAL**					

NOTE:

** The rate should be inclusive of in supply, installation and commissioning of printers and other associated hardware.

Place:

Date:

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

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

No. _____

Dated: _____

CERTIFICATE

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 (whichever is applicable)

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 from _____ (Name of Country) and has been registered with the Competent Authority. I also certify that I fulfill all the requirements in this regard and is 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 SELF-CERTIFICATION UNDER PUBLIC PROCUREMENT POLICY
(PREFERENCE TO MAKE IN INDIA) 2017**

Tender Reference No. **Tender No. IITM/CSTF/3D Printers/22-23/01**

Name of the Product / Service: **Supply of Thermoplastic 3D printer and Continuous Fiber reinforced Plastic 3D Printer**

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 Gol Order no. P-45021/2/2017-PP (B.E.-II) dated 15.06.2017 (subsequently revised vide orders dated 28.05.2018, 29.05.2019 and 04.06.2020) MOCI order No. 45021/2/2017-PP (BE II) Dt.16th September 2020 & P- 45021/102/2019-BE-II-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**

<Insert Name, Designation and Contact No.>

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

Self-Declaration that the Service Provider has not been Blacklisted

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 Bidder
Name & Address of the
Bidder with Office Stamp

Tender Reference No. **Tender No. IITM/CSTF/3D Printers/22-23/01**

Name of the Product / Service: **Supply of Thermoplastic 3D printer and Continuous Fiber reinforced Plastic 3D Printer**

OEM CERTIFICATION FORM
(in Original Letter Head of OEM)

Tender No: Dated:

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

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