



भारतीय प्रौद्योगिकी संस्थान तिरुपति

Indian Institute of Technology Tirupati

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Tender No. IITT/MECH/2022-23/13

2nd May 2022.

NOTICE INVITING TENDER FOR SUPPLY, INSTALLATION, TESTING AND COMMISSIONING OF METAL AND POLYMER FORMING EQUIPMENT

(E-PROCUREMENT MODE ONLY)

Indian Institute of Technology Tirupati (IIT Tirupati) invites online bid`s (e-tender) in Two bid system from eligible Class-I & Class-II in line with Government Public Procurement order No.P-45021/2/2017-BE-II dated: 04.06.2020 for the following:

Item Description	Quantity (approx.)	Tender Fee (Inclusive of all taxes in Rs.)
SITC of Metal And Polymer Forming Equipment as per the specifications of the tender documents		1500/-
Item1: Vacuum Hot press based metal forming	1 No	
Item2: Metal and Polymer mixture forming	1 No	
Item3: Metal and Binder based forming	1 No	
Total		1500/-

“Bidder(s) can quote for all items or one or more item(s) based on the eligibility criteria”

The Tender Document can be downloaded from Central Public Procurement (CPP) Portal <http://eprocure.gov.in/eprocure/app> and bid is to be submitted online only through the same portal up to the last date and time of submission of tender.

Critical Dates of Tender:

1	Date and time of Online Publication/Download of Tenders	02.05.2022	18.00 hrs
2	Bid submission start date & time	02.05.2022	18.00 hrs
3	Bid submission close date & time	23.05.2022	15.00 hrs
4	Closing date & time for submission of EMD/Tender fee	23.05.2022	15.00 hrs
5	Opening of Technical bids	24.05.2022	15.00 hrs

1. About IIT TIRUPATI:

Indian Institute of Technology Tirupati (IIT Tirupati) is an Autonomous Institute under Ministry of Education, Govt. of India.

2. Technical Specifications: Schedule of requirement

S.No	Item Description with Specifications of Metal and Polymer Forming Equipment:		
1	<p data-bbox="276 499 1517 566">Item 1: Vacuum Hot press based metal forming – 1 No</p> <table border="1" data-bbox="276 566 1517 2000"><tr><td data-bbox="276 566 531 2000">(I) Hot Press and Furnace</td><td data-bbox="539 566 1517 2000"><ol style="list-style-type: none">1. Maximum working Hydraulic Press Capacity: 10 ton Hydraulic Press should be a double acting and piston stroke of 100 mm.2. Hydraulic Press tonnage will be variable and will contain proportional pressure relief valve.3. Bottom ram will be suspended, and top ram will be down stroking.4. Raw material inside Press: High density Graphite5. Load stability: ± 0.2 Ton on load application will be maintained within applied load.6. Proportional pressure relief valves must be direct operated with integral or remote pressure transducer which provides pressure regulation proportional to electronic reference signals and associated with electronic drivers which supply the proportional valve with proper current to align valve regulation to the reference signal, supplied to the electronic driver.7. Pressing Rod dimension: 50 mm (dia.) \times 150 mm (L); and made up of High-density Graphite8. Pressure Sensor: Digital type9. The effective hot zone geometry must be of 150 (width) \times 150 (height) \times 200 (depth)10. The vacuum chamber will double wall high-quality stainless-steel SS 304 L with water circulation between walls and other structures.11. The instrument must support a vacuum tight chamber and system will have a vacuum up to 10^{-3} mbar.12. Vacuum level will be $< 10^{-2}$ mbar with full load throughout the heating cycle.13. Operating Temperature: 1000 °C under Vacuum/Argon gas with 25 kg of heating load for 6 hours.14. Maximum working Temperature: 1250 °C, Graphite will be as heating element.15. Temperature accuracy: around ± 5 °C (from room temperature to 1000°C)16. Accessory kit for smooth running of equipment (for e.g. silicone O rings, Teflon piping, ferrules etc.) is required to be provided.</td></tr></table>	(I) Hot Press and Furnace	<ol style="list-style-type: none">1. Maximum working Hydraulic Press Capacity: 10 ton Hydraulic Press should be a double acting and piston stroke of 100 mm.2. Hydraulic Press tonnage will be variable and will contain proportional pressure relief valve.3. Bottom ram will be suspended, and top ram will be down stroking.4. Raw material inside Press: High density Graphite5. Load stability: ± 0.2 Ton on load application will be maintained within applied load.6. Proportional pressure relief valves must be direct operated with integral or remote pressure transducer which provides pressure regulation proportional to electronic reference signals and associated with electronic drivers which supply the proportional valve with proper current to align valve regulation to the reference signal, supplied to the electronic driver.7. Pressing Rod dimension: 50 mm (dia.) \times 150 mm (L); and made up of High-density Graphite8. Pressure Sensor: Digital type9. The effective hot zone geometry must be of 150 (width) \times 150 (height) \times 200 (depth)10. The vacuum chamber will double wall high-quality stainless-steel SS 304 L with water circulation between walls and other structures.11. The instrument must support a vacuum tight chamber and system will have a vacuum up to 10^{-3} mbar.12. Vacuum level will be $< 10^{-2}$ mbar with full load throughout the heating cycle.13. Operating Temperature: 1000 °C under Vacuum/Argon gas with 25 kg of heating load for 6 hours.14. Maximum working Temperature: 1250 °C, Graphite will be as heating element.15. Temperature accuracy: around ± 5 °C (from room temperature to 1000°C)16. Accessory kit for smooth running of equipment (for e.g. silicone O rings, Teflon piping, ferrules etc.) is required to be provided.
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		<p>17. Heating Rate: 10 °C/min (from room temperature to 1000 °C)</p> <p>18. Heat Insulation: preferably via Ceramic Fibre Composite</p> <p>19. Cooling System: Water chiller will be capacity of 50 litres</p> <p>20. Cooling water lines are provided to different system of the equipment from central manifold with individual control valves.</p> <p>21. Electrical design of the main instrument: Around 230 V, 1 phase, 50 Hz AC. [with in - built voltage stabilizer]</p> <p>22. Furnace Power Supply: The terminal voltage to the heating elements are below 22V. Lower terminal voltage should be preferred.</p> <p>23. Vacuum pump: Reputed double stage rotary vacuum pump with compound gauge should be supplied with the furnace.</p> <p>Accessories to be provided:</p> <ol style="list-style-type: none"> 1. High Temperature Hand Gloves – 2 pair, should sustain at 1200 °C 2. Stainless Steel Tongs – 1 Set 3. Non-Stick paste – Required
	(II) Calibration Requirements	<ol style="list-style-type: none"> 1. Temperature calibration system should be provided along with the unit. 2. Purity certificate of heating elements should be provided along with the set of ISO/DIN standard.
	(III) Control instrumentation	<ol style="list-style-type: none"> 1. Temperature Programmer and Control: TAIE PID (16 segments) Digital Temperature programmable controller cum indicator. 2. Temperature Sensor: K type simplex thermocouple (with Alumina sheath) to be provided in the furnace. 3. Programmable Logic Controller is provided for complete automation of vacuum/gas cycle, temperature cycle. 4. Panel will be provided with volt meters, ammeters, phase indicators, indicators for valves, indicators for heating power control, vacuum and gas system. 5. The control panel is programmed for press specific operations like automatic, manual and maintenance modes. 6. The control system should have all required recipes for automatic pressure control based on different compact sizes.
2	Item 2: Metal and Polymer mixture forming – 1 No	

(i) Main equipment – (Conical Twin Screw Extruder)

Material feasibility		Suitable for metal, ceramic powders and polymer granules
Screw	Diameter	Outer diameter of the screw (flight diameter) should be 30 mm
	L/D ratio	Ratio of flight length to flight diameter should be 35:1
	Type	Conical counter rotating twin screws with close intermesh
	Material of construction	High tensile nitro alloy steel (fully nitrided)
	Maximum processing temperature	Should be greater than or equal to 430 °C
Barrel	Type	Split type barrel and should facilitate easy cleaning and ought to be enabled with gas vent for unwanted gases to remove
	Material of construction	High tensile nitro alloy steel (fully nitrided)
	Maximum processing temperature	Should be greater than or equal to 430 °C
	Cooling setup	Water jacket should be provided for cooling
Heaters	Heating load	3 – 5 kW and heater should be enclosed with stainless steel material
	Maximum temperature	400 °C - 450 °C
Hopper	Capacity	2 – 3 kg
	Material of construction	Stainless steel sheet metal
Drive	Power	5 hp with appropriate gear boxes
Panel	Control panel	4 zone PID control with isolator switch, potential or ammeters, indicative lights
	PID accuracy	Less than or equal to $\pm 1\%$
	Drive control	4 – 5 HP AC adjustable speed drive
	Other requirements	It should have an emergency shutdown provision or switch. Transducers for measurement of pressure and temperatures are necessary. Safety switch to avoid major accident or damage should be provided.
Desired output	Rate	0.5 – 2.5 kg/hr
Extruder mounting	Type	Mild steel frame for mounting and supporting the extruder
Filament after extrusion	Accuracy	The filament should be extruded continuously and the diameter tolerance of the complete spool of filament should be ± 0.025 mm. It is mandatory.

(ii) Accessories or attachments

(1) Pelletizing setup (along with cooling tank)

Pelletizer	Cutter	Helical type and should at least have 75 mm dia. x 50 mm length but not exceeding 100 mm dia. x 75 mm length. Should able to cut a complete spool of metal and ceramic particle filled filament uninterruptedly.
	Rollers	Feed roller material should be of stainless steel whereas guide roller is of rubber material.
	Drive	0.5 hp adjustable speed drive
	Die	One strand with flange, adaptor, and heating system
	Mounting	Mild steel frame with caster wheels
Cooling tank	Size	Length 1500 mm, width 150 mm and depth of tank should 150 mm.
	Fitting and mounting	Cooling tank should be made up of stainless-steel fitting and should mount on castor wheels. Water inlet, outlet and overflow provision should be provided

(2) Gravimetric feeder (Quantity number: 2)

Gravimetric Feeder (Qty: 2 in number)	Type	Single screw gravimetric mode with weight scale
	Screw material	Stainless steel 316
	Housing material	Stainless steel 316
	Screw pipe length	200 to 300 mm
	Screw pipe diameter	25 mm
	Entry inlet size	100 mm X 20 mm
	Outlet size	25 mm
	Mounting	Horizontally mounted on load cell and material of construction can be a mild steel and better.
	Nature of raw material to handle	Should ensure the good flowability of metal and ceramic fine powder, crystal, and granules
	Power supply	240 V AC (1phase, Neutral & Ground, 5a)
	Drive	Minimum of 0.5 hp adjustable speed drive and motor should attach to gear box
	Capacity	300 - 400 gram/hr. (in line with extruder output)
	Safety and others	Control Panel should have an inbuilt drive circuit, Protection MCB, Start /Stop Switch. Mounting Plate & Accessories should be made up of mild steel.

(3) 3D filament attachment

Die	Sizes	Standard sizes of 1.75 mm
	Material	Stainless steel 316 L
	Die assembly	Complete with flange, adaptor, die and heaters and should be in a position to extrude filament continuously.

3

Item 3: Metal and Binder based forming– 1 No**(i) Main equipment**

Temperature(Max)	430 ⁰ C or higher
Band Heater Type	Ceramic
Number of Heating zones	3 or better
Compatible Materials	PLA / ABS / PET / PETG / TPU / TPE / PA / PEEK / PEKK, and metal particle as well as ceramic particle filled composite granules.
Extusion Screw Type	Mixing Screw, Swappable
Extrusion Type	Vertical
Filament Diameter Range	0.5mm to 3mm
Filament Diameter Accuracy	The filament should be extruded continuously and the diameter tolerance of the complete spool of filament should be \pm 0.025 mm. It is mandatory.
Nozzle extruder Replaceable, 4 mm diameter	
Compression stage	Minimum 3
Voltage	110-230 V
Frequency	50-60 Hz
Hopper Volume capacity	1-2 liters
RPM Range	2 to 10 RPM or higher
Barrel and Screw	Rust free hard materials for barrel, fully nitrided screw
Dimensions(mm)	600 x 300 x 500 or smaller
Weight	35 kgs or lower
Spool Diameter Control	Automatic with optical sensor

(ii) Accessories

Low Temperature Purge Material	2kg
High Temperature Purge Material	2kg
PLA Granulate	2kg
HDPE	2kg
Copper powder	2kg
Stainless steel powder	2kg
Nozzle	2 nos
Puller Wheel	2 nos
Spool Holder	1 nos
Spool	1 nos

(iii) Other Terms

Warranty	3 years
Personalized Offline Training	2 years
Phone Support	2 years

Terms and conditions applicable for all above machines and accessories (for item1, item2, item3)

(I) Standards, Safety and Training

- On-site comprehensive training for lab staff and support services till customer satisfaction with the system
- Suppliers of the instrument must provide free installation, commissioning and testing of the equipment at the IIT Tirupati laboratory
- The manufacturer should certify to provide for a minimum period of 3 years warranted and adequate servicing of the instrument and facility to upgrade it whenever applicable
- Manufacturer/Supplier should have ISO certification for quality and safety standards

(II) Documentation

- User/technical/maintenance manuals should be supplied
- Certificate of calibration and inspection
- List of equipment available for providing calibration and routine preventive maintenance support as per manufacturer documentation in service/technical manual
- List of critical spare parts and accessories with their part number and costing
- Compliance report to be submitted in a tabulated and pointwise manner mentioning the page/para number of original catalogue/data sheet. Any point, if not substantiated with authenticated catalogue/manual, will not be considered

Important Note(s):

- Essential utility kit including essential spares for trouble free maintenance for 3 year should be supplied

- The supplier must demonstrate that it has a proven appropriate set-up and capability to provide after-sales service efficiently and effectively

Spares and service availability: Minimum 5 Years should be provided for all the items.

“Bidder(s) can quote for all items or one or more item(s) based on the eligibility criteria”

- **All offered products technical Specifications and Brochures are to be submitted along with the Technical Bid.**
- **The detailed scope of coverage of Warranty shall be provided in the compliance statement -Annexure-VII.**
- The Bidder shall furnish, as part of its bid, documents establishing the conformity of the Equipment that the Bidder proposes to supply under the Contract to the requirements of the Purchaser, as given in the Tender Document.
- The documentary evidence of conformity of the Equipment to the Tender Document may be in the form of written descriptions supported by Brochure / literature / diagrams / certifications, including: (a) A detailed description of the essential technical, functional and performance characteristics of the Equipment that the Bidder is proposing to supply; (b) Technical details of the major subsystems/components of the Equipment.

3. TENDER FEE & BID SECURITY DECLARATION DETAILS:

3.1 Tender Fee of Rs.1500/- (Rupees fifteen hundred only) should be submitted through ECS (Bank transfer / NEFT / RTGS) in favour of Indian Institute of Technology Tirupati.

3.2 Bank A/c Details for crediting Tender Fee:

Name : Indian institute of Technology Tirupati Main Account
Bank : State Bank of India
Account No : 35523338208
IFSC Code : SBIN0006677

3.3 Tender Fee and Bid Security Exemption:

I) **Micro and Small Enterprises (MSEs):**

Micro and Small Enterprises (MSEs) as defined in MSE Procurement Policy issued by Department of Micro, Small and Medium Enterprises (MSME) **for goods produced and services rendered**, are exempted from Tender fee and Bid Security. However, they have to enclose **valid self-attested registration certificate(s)** along with the tender to this effect.

Accordingly, MSEs shall be required to submit valid **Udyam Registration Certificate** for availing benefit under MSE Procurement Policy.

The benefit as above to MSEs shall be available only for Goods produced and services rendered by MSEs. However, traders are excluded from the purview of MSE Procurement Policy.

II) Startup(s):

Startup(s) as recognized by **Department for Promotion of Industry and Internal Trade (DPIIT)**, Govt. of India, are exempted from Tender fee and Bid Security. However, they have to enclose *valid self-attested registration certificate(s)* along with the tender to this effect.

Eligible MSE and startup bidders who seeks exemption from Tender fee/Bid Security as per clause no. (c) above, if they withdraw or modify their bids during the period of validity, or if they are awarded the contract and they fail to sign the contract, or to submit a performance security before the deadline defined in the request for bids document, they will be suspended for the period of three years or as decided by the competent authority from being eligible to submit bids for contracts with the entity that invited the bids.

3.4 The Bidders will have to upload scanned copy of Payment details towards tender fee and the same will be accepted only on verification and confirmation by the Institute. Any delay in credit will not be entertained by the Institute. **(As per the format attached in Annexure – I)**

3.5 Other than eligible MSE and Startup bidders, Bid Security Declaration:

Bidders should have to submit the Bid Security Declaration (As per the format attached in annexure-II) in duly filled and signed condition.

4. ELIGIBILITY CRITERIA

4.1 Other Important Documents (OIDs)

Firm Incorporation Certificate, PAN details, GST details are to be provided.

4.2. Statutory Documents:

- I) The Bidder should give self-declaration certificate for acceptance of all terms & conditions of tender documents. A duly completed certificate to this effect is to be submitted as per the Annexure-I.
- II) The firm should not be in the active debarred list by any Central / State Government / Public Undertaking / Institute and no criminal case registered / pending against the firm or its owner / partners anywhere in India. A duly completed certificate to this effect is to be submitted as per Annexure-III.

III) **Experience and Past Performance:**

The Supplier should have supplied a similar make and model to other CFTI institutes like IITs, IISc, IISER in last 3 years i.e. during **2017-18 to 2019-20 or 2018-19 to 2020-21** in India and Vendor should provide satisfactory installation certificates with product details as proof with customer contacts email and phone number as per the **Annexure-IV**.

IV) The Annual Turnover should be at least Rs. 12 Lakhs and be profitable during each of the previous three financial years i.e. **during 2017-18 to 2019-20 or 2018-19 to 2020-21**. Audited financial Statements or Financial Statements showing turnover duly signed by a Chartered Accountant are to be submitted as per the **Annexure-V**.

V) **In case the bidder is a Class-I / Class-II in line with the Public Procurement (Preference to Make in India) Order 2017 No. P-45021/2/2017-PP (BE-II) dated 04 Jun 2020 as amended from time to time. A Self-Declaration Certificate regarding “Class-I/Class-II Supplier” for the tendered items as per the Annexure-VI is to be submitted.**

As per the OM of Department of Promotion for Industry and Internal Trade No. P-45021/102/2019-BE-II-Part(1) dated: 04.03.2021. The bidders can't claim themselves as Class-I local suppliers/Class-II local suppliers by claiming the services such as transportation, insurance, installation, commissioning, training and after sales service support like AMC/CMC etc. as local value addition.

- a. 'Local Content' means the amount of value added in India which shall, unless otherwise prescribed by the Nodal Ministry, be the total value of the item procured (excluding net domestic indirect taxes) minus the value of imported content in the item (including all custom duties) as a proportion of the total value, in percent.
- b. 'Class-I local supplier' means a supplier or service provider, whose goods, services or works offered for procurement, has local content equal to or more than 50% as defined under this order.
- c. 'Class-II local supplier' means a supplier or service provider, whose goods, services or works offered for procurement, has minimum local content of 20% but less than 50%, as defined under this order.
- d. 'Non-local supplier' means a supplier or service provider, whose goods, services or works offered for procurement, has local content less than 20%, as defined under this order.
- e. Complaint redressal mechanism: In case any complaint received by the procuring agency or the concerned Ministry/Department against the claim of a bidder regarding local content/domestic value addition in an electronic product, the same shall be referred to STQC.
- f. The bidder shall be required to furnish the necessary documentation in support of the domestic value addition claimed in an electronic product to

STQC. If no information is furnished by the bidder, such laboratories may take further necessary action, to establish the bonafides of the claim.

- g. A complaint fee of Rs. 2 lakh or 1% of the value of the domestically manufactured products being procured (subject to a maximum of Rs.5 lakh), whichever is higher, to be paid by Demand Draft to be deposited with STQC. In case, the complaint is found to be incorrect, the complaint fee shall be forfeited. In case, the complaint is upheld and found to be substantially correct, deposited fee of the complainant would be refunded without any interest.
- h. False declarations will be in breach of the Code of Integrity under Rule 175 (1)(i)(h) of the General Financial Rules for which a bidder or its successors can be debarred for up to two years as per Rule 151 (iii) of the General Financial Rules along with such other actions as may be permissible under law.

VI) The bidder should be OEM or OEM authorized Dealers / Channel partners / Distributors of reputed brand having authorization for sales and after sales support. Valid OEM authorization letter is required to participate in this tender.

VII) Prior Registration and / or Screening of bidders:

Any bidder from a country which shares a land border with India will be eligible to bid in this tender only if the bidder registered with the competent authority. **The concerned bidder(s) are required to attach the relevant valid Registration Certificate along with the bid for consideration.**

“Bidder” (including the term ‘tenderer’, consultant or service provider in certain contexts) means any person or firm or company, including any member of a consortium or joint venture (that is an association of several persons, or firms or companies), every artificial juridical person not falling in any of the descriptions of bidders stated hereinbefore, including any agency branch or office controlled by such person, participating in a procurement process.

“Bidder from a country which shares a land border with India” for the purpose of this Order means :-

- An entity incorporated, established or registered in such a country; or
- A subsidiary of an entity incorporated, established or registered in such a country or
- An entity substantially controlled through entities incorporated, established or registered in such a country; or
- An entity whose beneficial owner is situated in such a country; or
- An Indian (or other) agent of such an entity; or
- A natural person who is a citizen of such a country; or
- A consortium of joint venture where any member of the consortium or joint venture falls under any of the above.

The detailed terms & conditions issued from time to time in this regard by Government of India will be applicable.

VIII) Authorized Representatives:

Bids of bidders quoting as authorised representative of a principal manufacturer would also be considered to be qualified, provided:

- (i) Their principal manufacturer meets all the criteria above without exemption, and
- ii) The principal manufacturer furnishes a legally enforceable tender-specific authorisation assuring full guarantee and warranty obligations as per the general and special conditions of contract;
and
- iii) The bidder himself should have been associated, as authorised representative of the Principal Manufacturer for same set of services as in present bid (supply, installation, satisfactorily commissioning, after sales service as the case may be) for same or similar item for past three years ending on bid opening date.

4.3 TECHNICAL CRITERIA

Bidders should comply the specification of the tendered item in all respect. The detailed format is attached at Annexure-VII. The bidder is to complete the same in all respect and submit accordingly

5. FINANCIAL BID DETAILS

5.1 Financial bid i.e. BOQ given with tender (in **Excel format**) to be downloaded first and uploaded after filling all relevant information strictly as per the format failing which the offer is liable for rejection. Kindly quote your offer on FOR IIT Tirupati (inclusive of all taxes and charges). **Vendor should quote prices in BOQ only, offers indicating rates anywhere else shall be liable for rejection.**

5.2 Concessional Custom Duty / Concessional GST is applicable to IIT Tirupati as a Research Institution. Necessary Certificate to this effect shall be provided by IIT Tirupati to the supplier.

6. TIME SCHEDULE:

S. No.	Particulars	Date	Time
a.	Date of Online Publication of Tender	02.05.2022	18.00 hrs
b.	Bid Submission Start Date	02.05.2022	18.00 hrs
c.	Bid Submission Close Date	23.05.2022	15.00 hrs
d.	Closing Date & Time for Submission of EMD & Tender Fee	23.05.2022	15.00 hrs
e.	Opening of Technical Bids	24.05.2022	15.00 hrs

7. AVAILABILITY OF TENDER

The tender document can be downloaded from <http://eprocure.gov.in/eprocure/app> and be submitted only through the same website.

8. BID VALIDITY PERIOD

The bid will remain valid for 90 days from the date of opening as prescribed by IIT Tirupati. A bid valid for a shorter period shall be rejected, being non-responsive.

9. BID SUBMISSION

9.1 Instruction to Bidder

- I) Bidders are required to enrol on the e-Procurement module of the **Central Public Procurement Portal (URL: <https://eprocure.gov.in/eprocure/app>)** by clicking on the link "**Online Bidder Enrolment**" on the CPP Portal. **The registration is completely free of charge.**
- II) Possession of a valid Class II/III DSC in the form of smart card / e-token is a prerequisite for registration and participating in the bid submission activities. DSCs can be obtained from the authorised certifying agencies recognized by CCA India (e.g. Sify/TCS/nCode/eMudhra etc).
- III) Bidders are advised to register their valid email address and mobile numbers as part of the registration process. These would be used for any communication from the CPP Portal.
- IV) 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.
- V) The Bidders are required to log in to the site through the secured log-in by entering their respective user ID / password and the password of the DSC.
- VI) The CPP portal also has user manuals with detailed guidelines on enrolment and participation in the online bidding process. The user manuals can be downloaded for reference.

9.2 TENDER CLARIFICATION

- I) In case the bidders require any clarification regarding the tender documents, they are requested to contact our office Ph. no: 0877-2503572, Email ID: purchase@iittp.ac.in on or before due date.
- II) Technical and Specifications related Clarifications contact our office No : 0877

2503410 Email ID: evmrs@iittp.ac.in on or before due date.

III) 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.

9.3 ONLINE BID SUBMISSION PROCEDURE

Cover-1: The file should be saved in a PDF version numbered sequentially and should comprise of the following items:

Packet-1:

Duly Completed Scanned PDF copy of, PAN, GST, Firm Registration certificate and Annexure-I to VIII with relevant supporting documents

Only the relevant documents as per the tender clauses are to be uploaded along with duly completed checklist as per the annexure-IX. Uploading of other than the required documents may liable for rejection of the bid.

Cover-2:

A standard BOQ format has been provided in excel format. Bidders are required to download the BOQ excel file and fill their financial offer on the same BOQ format. After filling the same, submit it online in excel format, without changing the financial template format.

Note:

If the bid is incomplete and / or non-responsive it will be rejected during technical evaluation. The bidder may not be approached for clarifications during the technical evaluation. So, the bidders are requested to ensure that they provide all necessary details in the submitted bids.

10. BID OPENING

10.1 Technical Bids will be opened on **24.05.2022 @ 15.00 Hrs.**

10.2 Financial Bids of the eligible bidders will be opened on a later date. The date and time for opening of Financial Bids will be announced later.

10.3 **Bids should be summarily rejected, if tender is submitted other than through online or original tender fee/Bid security declaration are not submitted within stipulated date / time.**

11. BID EVALUATION

Based on results of the Technical evaluation IIT Tirupati evaluates the Commercial Bid of those Bidders who gets qualify in the Technical evaluation. The Commercial Bid with the lowest price will be the highest evaluated bid.

11.1 Purchase Preference

I) **Micro and Small Enterprises (MSEs):**

Micro and Small Enterprises (MSEs) as defined in MSE Procurement Policy issued by Department of Micro, Small and Medium Enterprises (MSME) **for goods produced and services rendered**, may be provided following purchase preference:

Item wise Quantity	Price Quoted by MSE	How the tender shall be finalized
Cannot be split	L1	Full Order on MSE
Cannot be split	Not L1 but within L1 + 15%	Full Order on MSE subject to matching L1 Price

II) **Preference to Make in India**

a) In procurement goods or works which are covered under by para 3(b) of the extant Public Procurement (Preference to Make in India) Order 2017 dated 04 June 2020 and which are **divisible** in nature, the “Class-I Local Supplier” shall get purchase preference over “Class-II Local Supplier” as well as “Non-Local Supplier” as per following procedure:

- i) **Among all qualified bids, the lowest bid will be termed as L1. If L1 is “Class-I Local Supplier”,** the contract for full quantity will be awarded to L1.
- ii) **If L1 bid is not a “Class-I Local Supplier”,** 50% of the order quantity shall be awarded to L1. Thereafter, the lowest bidder among the “Class-I Local Supplier” will be invited to match L1 price for the remaining 50% quantity subject to the Class-I Local Supplier’s quoted price falling within the margin of L1 + 20%, and contract for that quantity shall be awarded to such “Class-I Local Supplier” subject to matching the L1 price. In case such lowest eligible “Class-I Local Supplier” fails to match L1 price or accepts less than the offered quantity, the next higher “Class-I Local Supplier” within the margin of L1 + 20% shall be invited to match the L1 price for remaining quantity and so on, and contract shall be awarded accordingly. In case some quantity is still left uncovered on Class-I local suppliers, then such quantity may be ordered on the L1 bidder.

b) In procurement goods or works which are covered under by para 3(b) of the extant Public Procurement (Preference to Make in India) Order 2017 dated 04 June 2020 and which are **not divisible** in nature, and in procurement of services where the bid is evaluated on price alone, the “Class-I Local Supplier” shall get purchase preference over “Class-II Local Supplier” as well as “Non-Local Supplier” as per following procedure:

- i) **Among all qualified bids, the lowest bid will be termed as L1.**

If L1 is “Class-I Local Supplier”, the contract will be awarded to L1.

ii) **If L1 is not a “Class-I Local Supplier”, the lowest bidder among the Class-I Local Supplier, will be invited to match the L1 price subject to Class-I Local Supplier’s quoted price falling within the margin of L1 + 20%, the contract shall be awarded to such Class-I Supplier subject to matching the L1 price.**

iii) **In case such lowest eligible Class-I Local Supplier fails to match the L1 price, the “Class-I Local Supplier” with the next higher bid within the margin of L1 + 20% shall be invited to match the L1 price and so on and contract shall be awarded accordingly. In case none of the of Class-I Local Supplier within the margin of L1 + 20%, the contract may be awarded to the L1 bidder.**

iv) **Class-II Local Supplier will not get purchase preference.**

12. PAYMENT TERMS

No advance payment will be made in any case. Bills in Duplicate should be sent and the payment shall be released generally within 30 days, only after it is ensured that the items / quality of the items supplied are to the entire satisfaction of IIT Tirupati and completed the entire work within the stipulated delivery schedule. If any item is found defective, or not of the desired quality etc., the same should be replaced by the firm(s) immediately for which no extra payment shall be made.

13. WARRANTY OF QUALITY AND QUANTITY

13.1 The awardee shall give Minimum **3-years Onsite warranty for all the items** on successful completion of supply, and acceptance of supplied items.

13.2 The awardee shall give warranty that all items are as per specification(s), conforming to the specified design and there are no defects in the process of manufacturing, packaging, transportation and delivery.

13.3 Upon receipt of notice from IIT Tirupati for defective material, the firm shall **within 15 days** of receipt of the notice, replace the defective material, free of cost at the destination. The firm shall take over the defective material at the time of their replacement. No claim whatsoever shall lie on IIT Tirupati for the replaced goods thereafter. If the firm fails to replace the defective goods within a reasonable period, IIT Tirupati may proceed to take such remedial actions as may be necessary, at the company’s risk and expense.

14. LIQUIDATED DAMAGES

In case of delay in Supply by the stipulated date, IIT Tirupati reserves the right of imposing penalty @0.5% per week on the value of the undelivered items subject to maximum 10% of the cost of undelivered items.

15. DELIVERY SCHEDULE

15.1 The successful bidder should execute the order successfully i.e. Supply, Installation of ordered item within **12 weeks for all the items** at IIT Tirupati transit campus, Venkatagiri Road, Yerpedu Post, Tirupati, Chittoor District from the date of issue of the purchase order. In case of any damage/Broken/Expired items found, the item(s) should be replaced **within 15 days** at IIT Tirupati. The bidder has to make own arrangement for unloading and positioning of items at the desired location of IIT Tirupati.

16. PERFORMANCE SECURITY DETAILS

- 16.1 The successful tenderer will have to deposit the performance security valid for **39 months for all the items** in the form of DD / TDR / FDR / Bank Guarantee @**03% of the total order value** at the earliest from the date of issue of the award letter. No interest will be paid by IIT Tirupati on the deposit.
- 16.2 Performance Security will be refunded to the supplier, after it duly performs and completes the contract/warranty period in all respects.
- 16.3 Performance Security will be forfeited if the firm fails to perform/abide by any of the terms or conditions of the contract.
- 16.4 In case, the firm fails to execute the order successfully, within specified delivery period, the same goods/items will be procured from open market and the difference of cost, if any, will be recovered from Performance Security or from pending bill(s) of the defaulting firm or from both in case the recoverable amount exceeds the amount of Performance Security.

17. TERMS AND CONDITIONS

17.1 Termination for Insolvency

- I) The IIT Tirupati may at any time terminate the Contract by giving a written notice to the awarding firm, without compensation to the firm, if the firm becomes bankrupt or otherwise insolvent as declared by the competent Court, provided that such termination will not prejudice or affect any right of action or remedy, which has accrued or will accrue thereafter to the department.
- II) IIT Tirupati and/or the firm are entitled to withdraw/cancel the rate contract

by serving one-month notice on each other. However, once a purchase order is placed on the supplier for supply of a definite quantity in terms of the rate contract during the validity of the rate contract, that purchase order becomes a valid and binding contract.

- III) The courts of Tirupati alone will have the jurisdiction to try any matter, dispute or reference between the parties arising out of this purchase. It is specifically agreed that no court outside and other than Tirupati Court shall have jurisdiction in the matter

17.2 Force Majeure

- I) Should any force majeure circumstances arise, each of the contracting parties be excused for the non-fulfilment or for the delayed fulfilment of any of its contractual obligations, if the affected party within 15 days of its occurrence informs in a written form the other party.
- II) Force Majeure shall mean fire, flood, natural disaster or other acts such as war, turmoil, sabotage, explosions, epidemics, quarantine restriction, strikes, and lockouts i.e. beyond the control of either party.

17.3 Arbitration

- I) All disputes of any kind arising out in connection with the executing the order shall be referred by either party (IIT TIRUPATI or the bidder) after issuance of 30 days' notice in writing to the other party clearly mentioning the nature of dispute to a single arbitrator acceptable to both the parties. The venue for arbitration shall be IIT TIRUPATI India. The jurisdiction of the courts shall be Tirupati, Andhra Pradesh, India.

17.4 Other Conditions

- I) The bidder has to upload the relevant & readable files only as indicated in the tender documents. In case of any irrelevant or non-readable files, the bid may be rejected.
- II) IIT Tirupati will not be liable for any obligation or supplies made unless the Official Purchase Order has been placed by the Purchase Department.
- III) IIT Tirupati reserves the right to accept or reject any or all the tenders in part or in full or may cancel the tender, without assigning any reason thereof.
- IV) IIT Tirupati reserves the right to relax / amend / withdraw any of the terms and conditions contained in the Tender Document without assigning any reason thereof. Any inquiry after submission of the quotation will not be entertained.
- V) IIT Tirupati reserves the right to modify/change/delete/add any further terms and conditions prior to issue of purchase order.
- VI) In case the bidders/successful bidder(s) are found in breach of any condition(s) at any stage of the tender, Performance Security shall be forfeited.

- VII) False declaration/documents will be in breach of the Code of Integrity under Rule 175(1) (h) of the General Financial Rules for which a bidder or its successors can be debarred for up to two years as per Rule 151 (iii) of the General Financial Rules along with such other actions as may be permissible under law.
- VIII) Repeat Order: IIT Tirupati reserves the right to place repeat order up to 100% of the quantities within a period of 12 months from the date of successful completion of purchase order at the same rates and terms subject to the condition that there is no downward trend in prices.
To take care of any change in the requirement during the currency of the contract, a plus/minus option clause for 25 per cent is incorporated in the tender document, reserving purchaser's right to increase or decrease the quantity of the required goods up to that limit without any change in the terms and conditions and prices quoted by the tenderers.
- IX) Conditional tenders will not be considered in any case.
- X) In case of doubt in material, the expenditure on testing of equipment will be borne by the tenderer.
- XI) Institute reserve the right to increase/decrease the order quantity at any period of times during the validity of the contract.
- XII) IIT Tirupati may issue amendment/corrigendum to tender documents before due date of submission of bid. Any amendment/corrigendum to the tender document if any, issued by IIT Tirupati will be posted on CPP Portal. For the bidders, submitting bids on downloaded tender document, it is 'bidders' responsibility to check for any amendment/corrigendum on the website of IIT Tirupati or check for the same CPP Portal before submitting their duly completed bids.**

UNDERTAKING

To
The Registrar,
 Indian Institute of Technology
 Tirupati-Renigunta Road, Settipalli post,
 Tirupati 517506.

Tender No. IITT/MECH/2022-23/13 dated: 02.05.2022.

Name of the Tender/Supply: Notice Inviting Tender for Supply, installation, testing and Commissioning of Metal and Polymer Forming Equipment.

Sir,

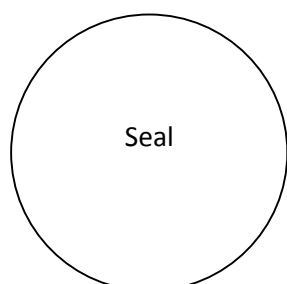
I /we hereby submit our bid for Supply, installation, testing and Commissioning of Metal and Polymer Forming Equipment.

I/ We enclosed here with the following in favor of Indian Institute of Technology Tirupati towards Tender Fee.

Particular	Amount	Payment Reference Details	Payment Date
Tender Fee (Including Tax)	1500/-		

1. I / We hereby reconfirm and declare that I / We have carefully read, understood & complying the above referred tender document including instructions, terms & conditions, scope of work, schedule of quantities and all the contents stated therein. I / We also confirm that the rates quoted by me / us are inclusive of all taxes, duties etc., applicable as on date.
2. I /we have gone through all terms and conditions of the tender document before submitting the same.

Date:
Place:



Authorized Signatory

Name:

Designation:
Contact No:

On Company Letter Head

Bid Security Declaration

To
The Registrar,
Indian Institute of Technology
Tirupati-Renigunta Road, Settipalli post,
Tirupati 517506.

Tender No. IITT/MECH/2022-23/13 dated: 02.05.2022.

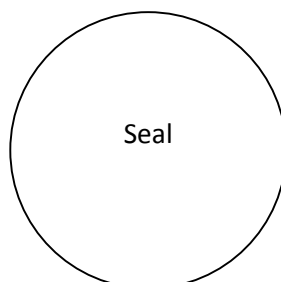
Name of the Tender/Supply: Notice Inviting Tender for Supply, installation, testing and Commissioning of Metal and Polymer Forming Equipment.

Sir,

We, the undersigned declare that

1. We understood that, according to the tender conditions, bids must be supported by a Bid Security Declaration.
2. We accept that we will automatically be suspended from being eligible for bidding in any contract with the Institute for the period of **3 years** starting from the bid closing date, if we are in breach of our obligation(s) under the bid conditions, because we;
 - (a) have withdrawn our bid during the period of bid validity specified in the letter of bid; or
 - (b) having been notified of the acceptance of our bid by the institute during the period of bid validity, (i) fail or refuse to execute the contract, if required, or (ii) fail or refuse to furnish the performance security, in accordance with the tender conditions.

Date:
Place:



Authorized Signatory

Name:

Designation:

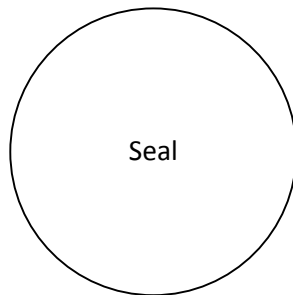
Contact No :

**CERTIFICATE
(To be provided on letter head of the firm)**

I hereby certify that the above firm is not in the active debarred list by any Central/State Government/Public Undertaking/Institute nor is any criminal case registered / pending against the firm or its owner / partners anywhere in India.

I also certify that the above information is true and correct in every respect and in any case at a later date it is found that any details provided above are incorrect, any contract given to the above firm may be summarily terminated and the firm may be blacklisted.

Date:



Place:

Authorized Signatory

Name:

Designation:

Contact No.:

ANNEXURE – IV

a) Experience: (As per tender Clause No.4.2 (III))

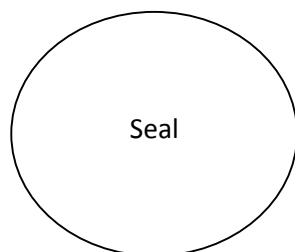
Year	Name of the Item with Specification (Technical specification brochure to be attached)	Purchase Order No. & Date (Copy of the Orders to be attached)	Date of successfully completion of SITC of ordered Item (copy of Installation report from client to be attached)	Contact Details of Client
2017-18				
2018-19				
2019-20				
2020-21				

b) Past Performance: (As per tender Clause No.4.2 (III))

Year	Purchase Order No. & Date (Copy of the Orders to be attached)	Quantity	Date of successfully completion of SITC of ordered Item (copy of report from client to be attached)	Whether supplied item(s) is in successful operation for at least one year (Certificate from client to be attached)	Contact Details of Client [email and phone no]
2017-18					
2018-19					
2019-20					
2020-21					

Date :

Place :



Authorized Signatory

Name:

Designation:

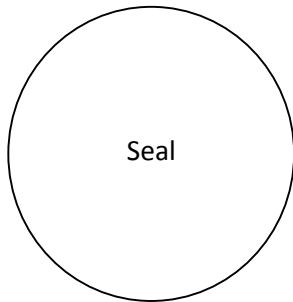
Contact No.:

ANNEXURE – V

Annual Turnover and Profit Details:

Evaluation Criteria				Remark	Specific page no. where the proof of documents are enclosed
Bidder's Annual Turnover and Profit for last three financial years	Financial Year	Turnover in Rs.	Annual Profit in Rs.	-	
	2020-21			Supporting Documents are to be attached along with the Annexure-V [i.e. Audited financial Statements or Financial Statements showing turnover duly signed by a Chartered Accountant are to be submitted]	
	2019-20				
	2018-19				
	2017-18				

Date:



Place:

Authorized Signatory:

Name:

Designation:

Contact No.:

Format for Self-Declaration under preference to make in India order

In line with Government Public Procurement Order No. P-45021/2/2017-BE-II date. 15.06.2017 & P-45021/2/2017-PP (BE-II) dated: 04 June 2020. We hereby certify that we M/s. _____ (supplier name) are **CLASS-I/Class-II (Please specify clearly)** supplier meeting the requirement of local content more than 20% as defined in above orders for the material against Enquiry No. IITT/MECH/2022-23/13 dated: 02.05.2022.

Details of location at which local value addition will be made as follows: (Complete address to be mentioned)

Percentage of Local Content: _____

(As per the OM of Department of Promotion for Industry and Internal Trade No. P-45021/102/2019-BE-II-Part(1) dated: 04.03.2021. The bidders can't claim themselves as Class-I local suppliers/Class-II local suppliers by claiming the services such as transportation, insurance, installation, commissioning, training and after sales service support like AMC/CMC etc. as local value addition)

We also understand, false declarations will be in breach of the Code of Integrity under rule 175 (1) (i) (h) of the General Financial Rules for which a bidder or its successors can be debarred for up to two years as per Rule 151 (iii) of the General Financial Rules along with such other actions as may be permissible under law.

Seal and signature of Supplier

Date :

Place :

Technical Compliance statement

Item Description with Specifications of Metal and Polymer Forming Equipment:	Compl ied (Yes/ No)	Remar ks, if any	Offere d Make & Model	% of Local Content as per Tender Clause No.4.2(V)	Coun try of Origi n		
<p>Item1: Technical Specifications for Dry electro finishing equipment – 01 No.</p> <table border="1" data-bbox="108 792 970 2056"> <tr> <td data-bbox="108 792 341 2056">(I) Hot Press and Furnace</td> <td data-bbox="341 792 970 2056"> <ol style="list-style-type: none"> 1. Maximum working Hydraulic Press Capacity: 10 ton Hydraulic Press should be a double acting and piston stroke of 100 mm. 2. Hydraulic Press tonnage will be variable and will contain proportional pressure relief valve. 3. Bottom ram will be suspended, and top ram will be down stroking. 4. Raw material inside Press: High density Graphite 5. Load stability: ± 0.2 Ton on load application will be maintained within applied load. 6. Proportional pressure relief valves must be direct operated with integral or remote pressure transducer which provides pressure regulation proportional to electronic reference signals and associated with electronic drivers which supply the proportional valve with proper current to align valve regulation to the reference signal, supplied to the electronic driver. 7. Pressing Rod dimension: 50 mm (dia.) \times 150 mm (L); and made up of High-density Graphite 8. Pressure Sensor: Digital type </td> </tr> </table>	(I) Hot Press and Furnace	<ol style="list-style-type: none"> 1. Maximum working Hydraulic Press Capacity: 10 ton Hydraulic Press should be a double acting and piston stroke of 100 mm. 2. Hydraulic Press tonnage will be variable and will contain proportional pressure relief valve. 3. Bottom ram will be suspended, and top ram will be down stroking. 4. Raw material inside Press: High density Graphite 5. Load stability: ± 0.2 Ton on load application will be maintained within applied load. 6. Proportional pressure relief valves must be direct operated with integral or remote pressure transducer which provides pressure regulation proportional to electronic reference signals and associated with electronic drivers which supply the proportional valve with proper current to align valve regulation to the reference signal, supplied to the electronic driver. 7. Pressing Rod dimension: 50 mm (dia.) \times 150 mm (L); and made up of High-density Graphite 8. Pressure Sensor: Digital type 					
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	<p>9. The effective hot zone geometry must be of 150 (width) × 150 (height) × 200 (depth)</p> <p>10. The vacuum chamber will double wall high-quality stainless-steel SS 304 L with water circulation between walls and other structures.</p> <p>11. The instrument must support a vacuum tight chamber and system will have a vacuum up to 10^{-3} mbar.</p> <p>12. Vacuum level will be $< 10^{-2}$ mbar with full load throughout the heating cycle.</p> <p>13. Operating Temperature: 1000 °C under Vacuum/Argon gas with 25 kg of heating load for 6 hours.</p> <p>14. Maximum working Temperature: 1250 °C, Graphite will be as heating element.</p> <p>15. Temperature accuracy: around ± 5 °C (from room temperature to 1000°C)</p> <p>16. Accessory kit for smooth running of equipment (for e.g. silicone O rings, Teflon piping, ferrules etc.) is required to be provided.</p> <p>17. Heating Rate: 10 °C/min (from room temperature to 1000 °C)</p> <p>18. Heat Insulation: preferably via Ceramic Fibre Composite</p> <p>19. Cooling System: Water chiller will be capacity of 50 litres</p> <p>20. Cooling water lines are provided to different system of the equipment from central manifold with individual control valves.</p> <p>21. Electrical design of the main instrument: Around 230 V, 1 phase, 50 Hz AC. [with in - built voltage stabilizer]</p> <p>22. Furnace Power Supply: The terminal voltage to the heating elements are below 22V. Lower terminal voltage should be preferred.</p> <p>23. Vacuum pump: Reputed double stage rotary vacuum pump with compound gauge should be supplied with the furnace.</p>					
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	<p>Accessories to be provided:</p> <ol style="list-style-type: none"> 1. High Temperature Hand Gloves – 2 pair, should sustain at 1200 °C 2. Stainless Steel Tongs – 1 Set 3. Non-Stick paste – Required 					
(II) Calibration Requirements	<ol style="list-style-type: none"> 1. Temperature calibration system should be provided along with the unit. 2. Purity certificate of heating elements should be provided along with the set of ISO/DIN standard. 					
(III) Control instrumentation	<ol style="list-style-type: none"> 1. Temperature Programmer and Control: TAIE PID (16 segments) Digital Temperature programmable controller cum indicator. 2. Temperature Sensor: K type simplex thermocouple (with Alumina sheath) to be provided in the furnace. 3. Programmable Logic Controller is provided for complete automation of vacuum/gas cycle, temperature cycle. 4. Panel will be provided with volt meters, ammeters, phase indicators, indicators for valves, indicators for heating power control, vacuum and gas system. 5. The control panel is programmed for press specific operations like automatic, manual and maintenance modes. 6. The control system should have all required recipes for automatic pressure control based on different compact sizes. 					
Item 2: Metal and Polymer mixture forming – 1 No						
(i) Main equipment – (Conical Twin Screw Extruder)						
Material feasibility	Suitable for metal, ceramic powders and polymer granules					

Screw	Diameter	Outer diameter of the screw (flight diameter) should be 30 mm				
	L/D ratio	Ratio of flight length to flight diameter should be 35:1				
	Type	Conical counter rotating twin screws with close intermesh				
	Material of construction	High tensile nitro alloy steel (fully nitrided)				
	Maximum processing temperature	Should be greater than or equal to 430 °C				
Barrel	Type	Split type barrel and should facilitate easy cleaning and ought to be enabled with gas vent for unwanted gases to remove				
	Material of construction	High tensile nitro alloy steel (fully nitrided)				
	Maximum processing temperature	Should be greater than or equal to 430 °C				
	Cooling setup	Water jacket should be provided for cooling				
Heaters	Heating load	3 – 5 kW and heater should be enclosed with stainless steel material				
	Maximum temperature	400 °C - 450 °C				
Hopper	Capacity	2 – 3 kg				
	Material of construction	Stainless steel sheet metal				
Drive	Power	5 hp with appropriate gear boxes				
Panel	Control panel	4 zone PID control with isolator switch, potential or ammeters, indicative lights				
	PID accuracy	Less than or equal to ± 1%				
	Drive control	4 – 5 HP AC adjustable speed drive				
	Other requirements	It should have an emergency shutdown provision or switch. Transducers for measurement of pressure and temperatures are necessary. Safety switch to avoid major accident or damage should be provided.				

Desired output	Rate	0.5 – 2.5 kg/hr
Extruder mounting	Type	Mild steel frame for mounting and supporting the extruder
Filament after extrusion	Accuracy	The filament should be extruded continuously and the diameter tolerance of the complete spool of filament should be ± 0.025 mm. It is mandatory.

(ii) Accessories or attachments

(4) Pelletizing setup (along with cooling tank)

Pelletizer	Cutter	Helical type and should at least have 75 mm dia. x 50 mm length but not exceeding 100 mm dia. x 75 mm length. Should be able to cut a complete spool of metal and ceramic particle filled filament uninterruptedly.
	Rollers	Feed roller material should be of stainless steel whereas guide roller is of rubber material.
	Drive	0.5 hp adjustable speed drive
	Die	One strand with flange, adaptor, and heating system
	Mounting	Mild steel frame with castor wheels
Cooling tank	Size	Length 1500 mm, width 150 mm and depth of tank should be 150 mm.
	Fitting and mounting	Cooling tank should be made up of stainless-steel fitting and should mount on castor wheels. Water inlet, outlet and overflow provision should be provided

(5) Gravimetric feeder (Quantity number: 2)

Gravimetric Feeder (Qty: 2 in number)	Type	Single screw gravimetric mode with weight scale
	Screw material	Stainless steel 316

	Housing material	Stainless steel 316				
	Screw pipe length	200 to 300 mm				
	Screw pipe diameter	25 mm				
	Entry inlet size	100 mm X 20 mm				
	Outlet size	25 mm				
	Mounting	Horizontally mounted on load cell and material of construction can be a mild steel and better.				
	Nature of raw material to handle	Should ensure the good flowability of metal and ceramic fine powder, crystal, and granules				
	Power supply	240 V AC (1phase, Neutral & Ground, 5a)				
	Drive	Minimum of 0.5 hp adjustable speed drive and motor should attach to gear box				
	Capacity	300 - 400 gram/hr. (in line with extruder output)				
	Safety and others	Control Panel should have an inbuilt drive circuit, Protection MCB, Start /Stop Switch. Mounting Plate & Accessories should be made up of mild steel.				

(6) 3D filament attachment

Die	Sizes	Standard sizes of 1.75 mm
	Material	Stainless steel 316 L
	Die assembly	Complete with flange, adaptor, die and heaters and should be in a position to extrude filament continuously.

Item 3: Metal and Binder based forming– 1 No**(i) Main equipment**

Temperature(Max)	430 ⁰ C or higher
Band Heater Type	Ceramic
Number of Heating zones	3 or better
Compatible Materials	PLA / ABS / PET / PETG / TPU / TPE / PA / PEEK / PEKK, and metal particle as well as ceramic particle filled composite granules.
Extusion Screw Type	Mixing Screw, Swappable
Extrusion Type	Vertical
Filament Diameter Range	0.5mm to 3mm
Filament Diameter Accuracy	The filament should be extruded continuously and the diameter tolerance of the complete spool of filament should be ± 0.025 mm. It is mandatory.
Nozzle extruder Replaceable, 4 mm diameter	
Compression stage	Minimum 3
Voltage	110-230 V
Frequency	50-60 Hz
Hopper Volume capacity	1-2 liters
RPM Range	2 to 10 RPM or higher
Barrel and Screw	Rust free hard materials for barrel, fully nitrided screw
Dimensions(mm)	600 x 300 x 500 or smaller
Weight	35 kgs or lower
Spool Diameter Control	Automatic with optical sensor

(ii) Accessories

Low Temperature Purge Material	2kg
High Temperature Purge Material	2kg
PLA Granulate	2kg
HDPE	2kg
Copper powder	2kg
Stainless steel powder	2kg
Nozzle	2 nos
Puller Wheel	2 nos
Spool Holder	1 nos
Spool	1 nos

(iii) Other Terms					
Warranty	3 years				
Personalized Offline Training	2 years				
Phone Support	2 years				
<p>Terms and conditions applicable for all above machines and accessories (for item1, item2, item3)</p> <p>(I) Standards, Safety and Training</p> <ul style="list-style-type: none"> • On-site comprehensive training for lab staff and support services till customer satisfaction with the system • Suppliers of the instrument must provide free installation, commissioning and testing of the equipment at the IIT Tirupati laboratory • The manufacturer should certify to provide for a minimum period of 3 years warranted and adequate servicing of the instrument and facility to upgrade it whenever applicable • Manufacturer/Supplier should have ISO certification for quality and safety standards <p>(II) Documentation</p> <ul style="list-style-type: none"> • User/technical/maintenance manuals should be supplied • Certificate of calibration and inspection • List of equipment available for providing calibration and routine preventive maintenance support as per manufacturer documentation in service/technical manual • List of critical spare parts and accessories with their part number and costing • Compliance report to be submitted in a tabulated and pointwise manner mentioning the page/para number of original catalogue/data sheet. Any point, if not substantiated with authenticated catalogue/manual, will not be considered <p><u>Important Note(s):</u></p>					

<ul style="list-style-type: none"> • Essential utility kit including essential spares for trouble free maintenance for 3years should be supplied • The supplier must demonstrate that it has a proven appropriate set-up and capability to provide after-sales service efficiently and effectively <p><u>Spares and service availability:</u> Minimum 5 Years should be provided for all the items.</p> <p><u>Specify the scope of warranty:</u></p>					
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COMPANY DETAILS

Name of the bidder		
Date of Incorporation / Registration details		
PAN Number		
GST Registration Number		
Bidder's Bidding Capacity for the tendered items (As a Manufacturer/ Trader/ dealer / channel partner / system integrator, etc.)		
Bank Details	Account Number	
	IFS Code	
	Bank Name	
	Branch Name	
Registered Office Address		
Authorized Signatory Details (Company/Firm Authorization by the competent authority, to be attached)	Name	
	Designation	
	Email	
	Phone	
Details of Contact other than Authorized Signatory	Name	
	Designation	
	Email	
	Phone	

Date:

Signature and Seal of the Tenderer:

Place:

Name in Block Letter:

Designation:

Contact no.

CHECKLIST FOR BIDDERS TO BE SUBMITTED IN DULY FILLED AND SIGNED

Tender Clause No.	Name of the Document	Document Particulars	Submitted (Yes/No)	Page No. of the attached Document
3.1	Tender Fee			
3.4	Bid security Declaration (Annexure-II)			
3.3	Valid Tender Fee / EMD Exemption Certificate			
4.1.	PAN Card			
	Incorporation/Registration certificate of company			
	GST Registration copy			
4.2.(I)	Tender acceptance letter (Annexure I)			
4.2.(II)	Non-Blacklisting undertaking (Annexure III)			
4.2.(III)	The Supplier should have supplied a similar make and model to other CFTI institutes like IITs, IISc, IISER in last 3 years i.e. during 2017-18 to 2019-20 or 2018-19 to 2020-21 in India and Vendor should provide satisfactory installation certificates with product details as proof with customer contacts email and phone number as per the Annexure-IV .			
4.2.(IV)	The Annual Turnover should be at least Rs. 12 Lakhs and be profitable during each of the previous three financial years i.e. during 2017-18 to 2019-20 or 2018-19 to 2020-21 . Audited financial Statements or Financial Statements showing turnover duly signed by a Chartered Accountant are to be submitted as per the Annexure-V .			
4.2.(V)	The bidder should be a <u>Class-I/ Class II</u> in line with the Public Procurement (Preference to Make in India) Order 2017 No. P-45021/2/2017-PP (BE-II) dated 04 Jun 2020. A Self-Declaration Certificate regarding “Class-I & Class-II Supplier” for the tendered items as per the Annexure-VI is to be submitted.			
4.2.(VI)	The bidder should be OEM or OEM authorized Dealers / Channel partners / Distributors of reputed brand having authorization for sales and after sales support. Valid OEM authorization letter is required to participate in this tender.			
4.2.(VII)	Any bidder from a country which shares a land border with India will be eligible to bid in this tender only if the bidder registered with the competent authority. The concerned bidder(s) are required to attach the relevant valid Registration Certificate along with the bid for consideration.			
4.3	Technical Compliance Statement : Annexure-VII.			
11.1 (I)	Purchase Preference: (if applicable)			

	Micro and Small Enterprises (MSEs):			
11.2 (II)	Purchase Preference: Make in India			
12	Payment Term: Within 30 days after SITC.			
13	Onsite Warranty: Minimum 3-years Onsite warranty for all the items.			
2	Spares and service support: Minimum 5 years for all the items from the date of supply			
15	Delivery: FOR IIT Tirupati within 12 weeks for all the items.			
8	Bid validity: 90 days from the date of opening of the tender			
	Company details : Annexure-VIII			

Note:

- 1) **Submission of tender without the above mentioned documents will lead to rejection/disqualification of the tender.**
- 2) **It is mandatory for the bidder to assign page numbers to the tender documents and the same has to be mentioned in the above checklist.**

Signature of the bidder with stamp