

भारतीय प्रौद्योगिकी संस्थान (भारतीय खनि विद्यापीठ), धनबाद

धनबाद, झारखण्ड, भारत, पिन-826004

(मानव संसाधन विकास मंत्रालय, भारत सरकार के अधीन राष्ट्रीय महत्त्व का एक संस्थान)

INDIAN INSTITUTE OF TECHNOLOGY (INDIAN SCHOOL OF MINES), DHANBAD DHANBAD, JHARKHAND, INDIA, PIN-826004

(An Institute of National Importance under Ministry of H.R.D., Govt. of India)

STORES & PURCHASE SECTION Phone:(0326) 2235678 || Email : purchase@iitism.ac.in || Website : www.iitism.ac.in

NIT No.: ECE-PRJ-325-18-19 Date: December 24, 2018

NOTICE INVITING TENDER

Subject: NIT No. ECE-PRJ-325-18-19 for Supply and Installation of Electron Beam Gun cum Thermal Evaporation System - 1 Qty

Indian Institute of Technology (Indian School of Mines), Dhanbad invites tenders/ quotations for supply and installation of Electron Beam Gun cum Thermal Evaporation System in our ECE Department. Particulars of tender cost, earnest money deposit and date and time of submission and opening of tenders are as under:

S No	Items	Particulars
1.	Tender cost	Rs. 1,180.00 (Inclusive all taxes)
2.	Earnest money deposit	Rs. 25,000.00
3.	Last date and time for submission of tenders	15.01.2018 at 1:00 P.M.
4.	Date and time of opening of tenders	15.01.2018 at 3:00 P.M.

Tender document containing following document is available in our website www.iitism.ac.in/tender page, which may kindly be referred.

- 1. Technical specifications as per Annexure-I
- 2. General terms & condition as per Annexure-II
- 3. Acceptance of terms & conditions as per Annexure-III
- 4. Financial bid format–IV
- 5. Compliance Statement as per Annexure -V

Encl: As above

Assistant Registrar (P&S)



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Annexure-I

Technical Specification

ELCETRON BEAM CUM THERMAL EVAPORATION SYSTEM

Description: The thin film deposition unit will be comprised of a Single electron beam gun cum thermal evaporation source. The vacuum system consisting of Oil diffusion pump and two stagesoil rotary pump together with system of valves and vacuum measuring hardwares. Details about the required technical specifications are given below:

S.NO	Items	ions arc	SIVCIIL	, , , , , , , , , , , , , , , , , , ,		Specifications
1		Boom	Gun	Cum	(
1	Electron Thermal Chamber	Beam	Gun Evapo		(A)	 ✓ ACUUM CHAMBER: A box type (D shape) vacuum chamber fabricated out of non-magnetic stainless steel and electro-polished SS 304. Approximate outer dimensions of 400mm (W) x 400mm (D) x 450-500mm (H). ✓ Necessary ports required for Pumping, evaporation sources, Gas Inlet, Vent, gauge, feedthrough, view port, port for substrate holder etc. ✓ All sub-assemblies should be electro-polished. ✓ The leak rate of the chamber should be better than 10-9 mbar l/sec.
					(B)	 THERMAL EVAPORATION SOURCE: 1 set of LT evaporation electrical feed through and evaporation source holder for evaporation made of electrolytic pure copper, with 200 A current carrying capacity for sector evaporation source holder to be provided as a standard which can accept Filament / Basket / Boat as evaporation source. A 200 Amps power supply capable of delivering 200 A at 10 V, 100 A at 20 V Output power is controlled by means of thyristor controller Separate digital panel meters should be provided for secondary current through current transformers. Manual shutter for cover the single evaporation source during pre- melting
					(C)	SpecialSubstrate Holder➤ A special substrate holder is provided which can
						7 11 special substrate floract is provided which can



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			hold minimum of six numbers of fibers at a time
			for coating. The fixture is attached to the top
			plate. Substrate fixture is designed such that the
			fibers are exposed 360 Deg with Rotation
			towards the Evaporation source for deposition on
			fiber surface.
			➤ Motor and Gear mechanism should be provided
			to achieve the rotation up to 20 rpm
2	Electron Beam Gun & Power	(A)	Electron Beam Gun (Source):
	Supply		No. of Pockets: 4 Nos.
			Beam Deflection Angle: 270 deg.
			Turret drive : Manual
			Magnet : Alnico
			High Voltage Feedthroughs: Teflon insulated rated
			for 15 K.V. /100 Amps.
			Crucible Size: Top OD: 18mm and Depth: 16mm
		(B)	Power Supply:
			Power Supply: Solid State
			Power Input : 440 VAC, 50 Hz., 3 Phase
			Maximum Output Power : 3 K.W.
			H.T. Voltage : 0-7 K.V. adjustable
			Filament Supply : 10 V @ 30 Amps.
			Emission Current: 500 Milliamps.max.
			Control : Thyristor Controlled
			Scan Unit : Beam Scan should be Provided
		(C)	Plug in Emitter assembly for easy filament
			replacement.
			Secondary Electron absorber will be provided to
			eliminate the cross contamination.
			Insulators will be covered by shields to protect from
			coatings & there by increasing the life period.
			Crucibles will be made-up of OFHC copper for
			better Thermal Conduction & to get clean Vacuum.
			Remote Controller will be provided for easy of
			operation.
			All the safety interlocks will be provided like Water,
			Door & Vacuum.
3	Vacuum Pumping System	(A)	High vacuum pump:
			A Oil Diffusion pump having suitable pumping
			speed (minimum 600 lit/sec) to achieve chamber
			vacuum level better than 2x10 ⁻⁶ mbar
			➤ Ultimate Pressure: Better than 2x10 ⁻⁶ mbar to be
			achieved in chamber after high vacuum valve
			opens and initially back filled with pure and dry



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			Argon / Nitrogen gas and liquid nitrogen trap
			filled with liquid nitrogen.
		(B)	Roughing pump:
			➤ A Two Stage Oil Rotary pump (≥12 m³ /hr or
			Higher)
		(C)	HIGH VACUUM VALVE:
			➤ Manual or motorized poppet high Vacuum Valve
			to Isolate Vacuum Chamber from pumping
			system.
			➤ Inbuilt Liquid Nitrogen Trap of 1.4 Lt Capacity
			is incorporated below the High Vacuum Valve.
		(D)	VACUUM VALVES:
			➤ A Combination Valve having provision for both
			roughing and backing Operation should be
			provided for high vacuum applications.
			➤ A Vent valve, fine control needle valves should
			be provided
		(E)	SS Plumbing line &Collar
			SS Plumbing line with flexible hoses & KF
			connections wherever required with necessary
			interlocks should be provided;
		(F)	VACUUM GAUGES:
			Digital Pirani gauge with high pressure sensor to
			monitor the backing and roughing pressure in the
			range of 1000 mbar to 1 x10 ⁻³ mbar and Digital
			Penning Gauges to monitor the vacuum range of
			$\geq 10^{-3}$ mbar to $\geq 10^{-6}$ mbar should be provided.
4	Control Console &		> To house all the displays of Pumps, Gauges,
	Instrumentation		Power Supplies, controller, etc.,
			> Should be easy for maintenance;
5	Mounting Frame /		> Necessary pumping systems can be
	Support Stand		accommodated below the stand.
			The unit is mounted on 4 castor wheels for
			mobility and easy maneuverability.
6	Water Chiller (Closed		> 1.5TR capacity water chiller to be provided for
	loop)		the whole unit with interlocks, tank,etc.,
7	Warranty		\geq 212 months from the date of commissioning and
			acceptance of equipment
8	Eligibility Criteria		Must have supplied minimum 3 nos. of similar
			equipments to Government labs / Govt.
			Institutions / Universities, etc., List of
			Organization names with user details to be
			submitted along with offer where similar type



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		supplied earlier to above said institutions /
		Universities / etc.
		Registration certificates
9	Utilities	➤ Details to be provided in the offer for space,
		power supply, gases, etc for system operation
10	Manuals	➤ Operation Manual to be given after installation
		and acceptance of equipment
11	User Training	➤ Training for 1-2 users from Indian Institute of
		Technology (Indian School of Mines),
		Dhanbad should be provided to make them well
		familiar with the operation of various
		components and successful growth of the thin
		films using the given deposition units.
12	Associated Accessories	Spares
	and parts	➤ O-rings and gasket-1 Set
		Tungsten Helical -6 No's
		Tungsten Basket-6 No's
		molybdenum Boats- 2 No's
		Diffusion pump oil-250cc
		➤ Rotary pump oil – 5 Ltrs
		➤ Pirani gauge sensor- 1 No
		Penning Gauge sensor-1 No
		Graphite Liners for E Beam Source- 4 Nos.
		Moly Liners for E Beam Source- 4 Nos.
		Electron Beam Gun Emitter Filament-5 Nos.
		Should be supplied fortrouble free running of the
		equipment.



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Annexure-II

GENERAL TERMS & CONDITIONS NIT No. ECE-PRJ-325-18-19

Sealed tenders under two-bid system are invited from manufacturers/ their authorized dealers/agents for supply and installation in IIT (ISM) Dhanbad of items specified in *Annexure-I*.

- 1. Offer should be submitted under **TWO BID** system in two separate sealed covers i.e. "*Techno-commercial bid*" and "*Price bid*".
- 2. a) In a tender, either the Indian agent on behalf of the principle/OEM itself can bid but both cannot bid simultaneously for the same item/product in the same tender.
 - b) If an agent submit bid on behalf of the principle/OEM, the same agent shall not submit a bid on behalf of another principle/OEM in the same tender for the same item/product. There must be authorization letter for this tender reference issued by principle/OEM in firm of the agent.
- 3. **Techno-commercial Bid**: should contain the following documents/information:
 - a. Tender Cost: Cost of the tender document is to be paid by way of online only through the link: https://www.onlinesbi.com/prelogin/icollecthome.htm?corpID=272342. Tender cost is *non-refundable and non-transferable*. Alternatively, intending tenderers may download the complete set of tender document from IIT (ISM) website (www.iitism.ac.in) and submit the same duly signed on all pages by the tenderers along with receipt of tender cost.
 - **b.** Earnest Money Deposit (EMD): Should be submitted in form of A/C payee demand draft drawn in favor of Registrar, IIT (ISM), Dhanbad and payable at any other Bank/ Branch located in Dhanbad. It can also be submitted in the form of bank guarantee issued by a Nationalized Bank in India in the format given in Annexure-IV.
 - c. Tenders without payment of tender cost and EMD may not be considered unless the tenderer is exempt from such payment under Govt. Rules/Regulations as amended from time to time and claims such exemption along with relevant and valid supporting documents.
 - **d.** All relevant technical specifications/details of offered items, drawings, printed technical leaflets, and commercial details which are necessary to ensure that offer is complete in all respects.
 - e. A 'Compliance Statement' along with a certificate and duly signed that the tenderer satisfies the technical requirements given in **Annexure-I**. The said statement should be in a tabular form with the columns: sl. no., (2) technical requirement as per NIT; (3) what is offered by the tenderer; and (4) status of compliance: Complied/Not complied).
 - f. IIT (ISM) does not bind itself to offer any explanation to those bidders whose Technical Bids have not been found acceptable by the Evaluation Committee of the Institute.
- 4. The packing, forwarding, freight and transit insurance charges, if any must be included in the price and should not be claimed separately. Duties & taxes, if applicable, are to be shown separately clarifying whether those are extra or included in the price. *Price bids of only technically short-listed tenderers shall be opened*.
- 5. Educational discount, if any, should be clearly mentioned.
- 6. Being an IITs and equipment will be used for research purpose. Hence, GST may be charged @ 5% as per Institute's notification.
- 7. IIT (ISM) is entitled for custom, excise Duty Exemption under Govt of India notifications and is registered with DSIR, Govt of India for this purpose. This may be taken into consideration while quoting minimum possible rate. IIT (ISM) has not agreed any high sea sales Purchase. IIT (ISM) will provide only custom duty exemption certificate for availing concessional custom duty. IIT (ISM) will not pay any extra custom duty other than duty exemption certificate.



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- 8. IIT (ISM) does not issue form 'C' or 'D' for concessional Sales tax/VAT. Hence, full rate of sales tax as applicable to educational institutions against the form of certificate (enclosed as Annexure V) should be indicated.
- 9. Warranty: Minimum 12 months from the date of installation and commissioning at the site.
- 9. Validity: Offer must be valid for a period of 180 days from the date of opening of tender.
- 10. Price should be quoted on FOR, Dhanbad basis only.
- 11. Your full address for correspondence and name address of the beneficiary's banker should be clearly indicated in the offer.
- 12. One set of technical literature/catalogue with the detail specification of the material under purchase should be furnished with the offer.
- 13. Earliest/expected delivery period should be clearly indicated.
- 14. The offer should reach through post/ courier only at the earliest in a sealed envelope superscribed 'Enquiry Reference Number and due date' address to

Assistant Registrar (P&S),

Indian Institute of Technology (Indian School of Mines),

Dhanbad-826004, Jharkhand, India.

- 15. **Performance Bank Guarantee (PBG):** Successful bidder has to submit a bank guarantee issued by a Nationalized Bank in India towards PBG within two weeks of placement of purchase order for an amount equal to 10% of order value of purchase order and valid till the period beyond two months of completion of warranty period should be submitted in favour of **REGISTRAR**, **IIT (ISM) DHANBAD**.
- 16. **Delivery Period and Liquidated Damage**: The ordered materials/work complete in all respects are required to be delivered and installed within the period stipulated in the purchase order failing which liquidated damages of 1% per week for the delayed period subject to maximum of 5% of the total basic value of the order shall be deducted from the invoice of the supplier.
- 17. **Inspection:** Inspection shall be carried out at IIT (ISM), Dhanbad after arrival of the materials and decision of the Institute in this regard shall be final.
- 18. **Rejection and Replacement**: Rejection, if any, shall be notified to the supplier within 30 days of receipt and inspection of the material/workmanship. Rejected materials/work is to be removed by the supplier at his own risk and cost from IIT (ISM). Campus within 14 days of intimation of rejection. Defective Supplies are required to be replaced within 15 days of the removal of the rejected materials/work.
- 19. **Risk Purchase:** IIT (ISM) shall be at liberty to realize from the supplier the differential amount, if any, which it shall have to incur on purchase of the material/work at higher price(s) from elsewhere in the market, if the supplier, due to their fault, fails to supply the ordered quality and quantity of the material/work within the stipulated time.
- 20. Conditional offer will not be accepted.
- 21. Any kind of advance or part payment will not be released.
- 22. Payment will be made within 30-45 days after satisfactory supply, inspection, installation/commissioning & acceptance and on submission of pre-receipted tax invoice, delivery challan, warranty certificate and installation report in triplicate and performance bank guarantee followed by its verification. The invoice should be duly certified by the Head of Dept to which supply is made or any other IIT (ISM) official authorized for this purpose.
- 29. **Last date** for receipt of tenders and date & time for opening of the same is given above. In the event last date is a holiday/declared as a holiday, next working date will be the last date for submission/ opening of tender. IIT(ISM) may extend/ revise these date & time as per its rules.

30. (i) Tender shoul	d be submitted in a sealed (cover/envelope	and must be	superscribed	as:
"Tender No	(NIT no. should	be mentioned	d for	(tendered



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item should be mentioned) due on	(tender opening date should be mentioned) at
(tender opening time should be mentioned).	
(ii) All tender shall be received upto to the time and	date as stated in the tender notice, after which no
tender shall be accepted in any circumstances.	
(iii) All tender must be send by Registered Post/Spe	ed Post/Courier along with Courier receipt, during
IIT (ISM) working days, working hours only (i.	.e. Monday to Friday). Please note that no hand delivery of
tender will be received at any circumstances.	
31 HT (ISM) reserves the right to account or reject any	or all the hide in part or in full without accioning any reason

- 31. IIT (ISM) reserves the right to accept or reject any or all the bids in part or in full without assigning any reason and does not bind himself to accept the lowest bid. The Institute at its discretion may change the quantity/quality/parameters/upgrade the criteria/drop any item(s) or part thereof at any time before or after placing the order. IIT(ISM) reserves the right to change/ cancel the purchase order at any stage without assigning any reason/ notice thereof.
- 32. In case of any dispute, the decision of IIT (ISM) shall be final and binding on the bidders/tenderers.



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Annexure-III

ABOVE TERMS AND CONDITIONS OF THE NIT ARE ACCEPTED

1	Name and address of the	
	tenderer	
2	Telecom nos. of the	
	tenderer i.e. phone	
	& email id.	
3	Signature, name &	
	designation of the person	
	signing on behalf of the	
	tenderer & his/her office	
	seal	
4.	Name & designation of	
	the contact person & his	
	phone/mobile no.	



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Annexure-IV

Format for Financial Bid

NIT No.: ECE-PRJ-325-18-19	Date:
Bidders Ref: No.	Date:
GSTIN No.:	

Subject: Supply & Installation of Electron Beam Gun cum Thermal Evaporation System

Sl. No.	Full Description of Items with (HSN Code/SAC Code)	Qty.	Rate	Amount
		Packing & F	orwarding	
			(if any)	
			Total	
			GST	
		Freig	ght (if any)	
		Installati	on (if any)	
Amount	should be in figure as well as word (FOR IIT(ISM),	Gr	and Total	
Dhanbad	basis)			

Note:

- 1) All the details must be provided as per prescribed format only
- 2) Prices quoted by the bidders should include GST, HSN Code, SAC Code, duties, livies, transportation cost and insurance costs etc. if any



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Annexure-V

Compliance Statement

Sl. No	Technical requirement as per	What is offered by the tenderer	Status of Compliance
	NIT		Complied/Not Complied