



भारतीय प्रौद्योगिकी संस्थान (भारतीय खनि विद्यापीठ), धनबाद

धनबाद, झारखण्ड, भारत, पिन-826004

(मानव संसाधन विकास मंत्रालय, भारत सरकार के अधीन राष्ट्रीय महत्व 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

No.: ECE-PRJ-287-18-19

Date: .11.2018

Request for Quotation

To

M/s Hind High Vacuum Company Pvt. Ltd.

No. 31, 32, 33, 34 & 37, Kiadb Industrila Area,

Dabaspeta, Nelamangala Taluk,

Bangalore Rural – 562

Email: sed@hhv.in, eed@hhv.in

Subject: Supply and installation of Fiber Coating Unit

Sir,

Indian Institute of technology (Indian School of Mines), Dhanbad is interested for the purchase of the materials/ equipment listed below:

S No	Description of item(s)	Quantity	Delivery
1	Fiber Coating Unit, Model: Smartcoat (specification as per attached annexure)	01	At the earliest

INSTRUCTIONS:

- 1) Please attach relevant technical literature of the item.
- 2) Please mention warranty/ guarantee period in your offer. Equipment/ material supplied must have minimum warranty/ guarantee of three years.
- 3) Please mention after sales service information in your offer.
- 4) ***Please attach a certificate that the quoted price is not more than that of any other Govt. organization/ institution in India. This has to be mentioned in the offer letter clearly.***
- 5) The rates should be quoted for each item separately.
- 6) Rates quoted will be taken as inclusive of all taxes unless given separately. IIT (ISM) does not issue any Form 'C' or 'D' towards sales tax concessional rate. Hence, full rate of tax applicable should be quoted.
- 7) The items/ materials shall be required to be delivered at ECE Deptt. of IIT (ISM) Dhanbad at the risk and cost of the tenderer.
- 8) Your tender must be **valid for minimum 90 days** from the date of opening of tender.
- 9) The stores are required to be delivered within 30 days late delivery may not be accepted.
- 10) GST Registration Number should be clearly mentioned in your offer, failing which your offer may not be considered.
- 11) The items offered should be of good quality confirming to BIS standards, wherever applicable.
- 12) The successful bidder has to submit performance bank guarantee @10% of total order value within one week from the date of purchase order as per rule.
- 13) ***Advance or part payment is not admissible.*** Payment shall normally be made within 4-6 weeks subject to receipt and acceptance & installation of the ordered materials/items and submission of bills, PBG followed by its verification etc. (as per Purchase Order Terms).
- 14) In the event of the supplier failed to supply the materials or install the same as contractual condition, IIT (ISM) shall have the right to deploy suitable agency/ third party to get the job completed at the risk and cost of the supplier.



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- 15) **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.
- 16) Tender may please be submitted ***in sealed cover only superscribed with Enquiry No. ECE-PRJ-287-18-19 and due date as is 10.12.2018.***
- 17) IIT (ISM) reserves the right to accept and/or to reject any/all tenders without assigning any reason.

Assistnat Registrar (P&S)



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Annexure – I

TECHNICAL SPECIFICATION

Fiber Coating Unit

Description: The Fiber Coating unit should be comprised of a Single thermal evaporation source. The vacuum system consisting of Oil diffusion pump and two stages oil rotary pump together with system of valves and vacuum measuring hardware's. Details about the required technical specifications are given below:

S.NO	Items		Specifications
1	Thermal Evaporation Chamber	(A)	<p><u>VACUUM CHAMBER:</u></p> <ul style="list-style-type: none"> ➤ 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)	<p><u>THERMAL EVAPORATION SOURCE:</u></p> <ul style="list-style-type: none"> ➤ 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 should be 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
		(E)	<p><u>Special Substrate Holder</u></p> <ul style="list-style-type: none"> ➤ A special substrate holder should be provided which can hold minimum of six numbers of fibers at a time for coating. The fixture should be attached to the top plate. Substrate fixture should be designed such that the ends of the fibers are exposed towards the Evaporation source for deposition on fiber surface.



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			<ul style="list-style-type: none"> ➤ Motor and Gear mechanism should be provided to achieve the rotation up to 20 rpm
3	Vacuum Pumping System	(A)	<p><u>High vacuum pump:</u></p> <ul style="list-style-type: none"> ➤ A Oil Diffusion pump having suitable pumping speed (minimum 600 lit/sec) to achieve chamber vacuum level at least 5×10^{-7} mbar ➤ Ultimate Pressure: $\leq 5 \times 10^{-7}$ mbar to be achieved in chamber after high vacuum valve opens and initially back filled with pure and dry Argon / Nitrogen gas and liquid nitrogen trap filled with liquid nitrogen.
		(B)	<p><u>Roughing pump:</u></p> <ul style="list-style-type: none"> ➤ A Two Stage Oil Rotary pump (12 m^3 /hr or Higher)
		(C)	<p><u>HIGH VACUUM VALVE:</u></p> <ul style="list-style-type: none"> ➤ Motorized poppet high vacuum valve with built in facility to automatically throttle the pumping system by 'cracking' the valve, for maintaining accurate process pressure for ion cleaning. ➤ Inbuilt Liquid Nitrogen Trap of 1.4 Lt Capacity is incorporated below the High Vacuum Valve.
		(D)	<p><u>VACUUM VALVES:</u></p> <ul style="list-style-type: none"> ➤ Electro magnetically operated right angle valves for roughing and backing should be provided for high vacuum applications ➤ Electromagnetic vent valve, fine control needle valves should be provided
		(E)	<p><u>SS Plumbing line & Collar</u></p> <ul style="list-style-type: none"> ➤ SS Plumbing line with flexible hoses & KF connections wherever required with necessary interlocks should be provided;
		(F)	<p><u>VACUUM GAUGES:</u></p> <ul style="list-style-type: none"> ➤ Digital Pirani gauge with high pressure sensor to monitor the backing and roughing pressure in the range of 1000 mbar to 1×10^{-3} mbar and Digital Penning Gauges with inverted magnetron sensor to monitor the vacuum range of 10^{-2} mbar to 10^{-7} mbar should be provided.
4	Control Console & Instrumentation		<ul style="list-style-type: none"> ➤ To house all the displays of Pumps, Gauges, Power Supplies, controller, etc., ➤ Should be easy for maintenance;
5	Mounting Frame / Support Stand		<ul style="list-style-type: none"> ➤ Necessary pumping systems can be accommodated below the stand. ➤ The unit should be mounted on 4 castor wheels for mobility and easy maneuverability.
6	Water Chiller (Closed loop)		<ul style="list-style-type: none"> ➤ Suitable capacity water chiller to be provided for the whole unit with interlocks, tank, etc.,
7	Warranty		<ul style="list-style-type: none"> ➤ At least 12 months from the date of commissioning and acceptance of equipment
8	Eligibility Criteria		<ul style="list-style-type: none"> ➤ Must have supplied minimum 5 nos. of similar



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			<p>equipments to Government labs / Govt. Institutions / Universities, etc., List of Organization names with user details to be submitted along with offer where similar type supplied earlier to above said institutions / Universities / etc.</p> <p>➤ Registration certificate</p>
9	Utilities		<p>➤ Details to be provided in the offer for space, power supply, gases, etc for system operation</p>
10	Manuals		<p>➤ Operation Manual to be given after installation and acceptance of equipment</p>
11	User Training		<p>➤ 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.</p>
12	Associated Accessories and parts		<p>Spares</p> <ul style="list-style-type: none"> ➤ 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 ➤ Inverted magnetron sensor-1 No <p>Should be supplied for trouble free running of the equipment.</p>