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From: Director, CSIR-NPL
Ref No. 14-VII/SS(3063-OTE)25PB/T-08 Dated : 03.06.2026

CORRIGENDUM

With reference to NPL's Open Tender ID: **2026_CSIR_278157_1** for "**UHV Deposition Chamber**". **All the prospective bidders are hereby informed that the following changes have been made in the technical specifications of the captioned tender. Revised specifications are as follows:**

Original Specifications	Final Specifications decided after Pre-Bid meeting
As tendered	Attached as **Annexure A**

Revised technical specifications (annexure-A) is also attached with this corrigendum. Accordingly, all the interested bidders may submit their offer as per revised technical specification.

Please also note that bids submitted without taking these changes into consideration will be rejected summarily.

All other terms will remain the same. The same is also available on CSIR-NPL official website http://www.nplindia.in under Tender Link.

03/06/26
Sr. Controller of Stores & Purchase

03.06.2026

FORM TO BE FILLED BY IO WHILE CONVENING PRE-BID MEETING OF TSC.

FileNo.- 14-VII/SS(3063-OTE)25PB Date:26-05-2026

Pre-bid Meeting (To be typed clearly by the I/O)

Name of Indentor_______Dr. Sangeeta Sahoo____________

Item Description_______UHV Deposition Chamber_________

No. of Budgetary Quotes______01___________________

(1) A pre-bid meeting of TSC was held on_____**26-05-2026**________

(2) Following bidders (**total numbers: 03**) participated in the Pre-bid Meeting: **(i)** NB Instrument Pvt. Ltd. B2A, B3, Rakesh Deep Building, 11, Gulmohar Commercial Complex, Yusuf Sarai, New Delhi-110049 (India), **(ii)** Excel Innovators and Integrators, Gala No 9 & 10, Bldg no 2, Dias Industrial Estate, Sativali Naka, Vasai (E), Palghar - 401208, Maharashtra, **(iii)** Vacuum Techniques Pvt. Ltd. 2/13, 1st Phase, 1st Stage, Peenya Industrial Area, Bangalore, KA 560058, India,. Following queries were raised by participating Bidders:

Name of the Firm	Queries Raised	Remarks, if any
NB Instrument Pvt. Ltd. **B2A, B3, Rakesh Deep Building, 11, Gulmohar Commercial Complex, Yusuf Sarai, New Delhi-110049 (India)**	As per specs 1.1.3 and 2.1.2a under UHV Chamber and Near UHV chamber Specification, respectively, the substrate holder heating requirement is mentioned as: a) from room temperature to 800°C or more during rotation b) from room temperature to 1000°C without rotation Seek clarification whether 800°C without rotation may be considered, provided all other UHV deposition performance requirements are fully met. If 1000°C static heating is essential for a specific process requirement, kindly confirm.	**Discussed in PBC (email communication attached)**
	Requested to kindly modify the commercial terms with an option to quote in multicurrency (USD/Euro/Pound sterling etc.)	**email communication attached**
Excel Innovators and Integrators, Gala No 9 & 10, Bldg no 2, Dias Industrial Estate, Sativali Naka, Vasai (E), Palghar - 401208, Maharashtra	Specs 2.2 Vacum pumping system 2.2.1 Turbo Molecular Pump : Pfeiffer HiPace 700 / Edwards nEXT 730 / Leybold Turbo vac 900 iX or equivalent with **CF100 flange** May be corrected as **'DN160CF flange'** instead of **'CF100 flange'**	**Discussed in PBC (email communication attached)**
	Why S.No. 5.0 to 9.0 are not included in BOQ?	**Discussed in PBC (email communication attached)**

Indentor's recommendation

1. The comments, as received from bidders during PBC, and our response is as follows:

Tender Specification and its number	Comment of bidder	Response of Indentor (Accepted/ Not accepted)	Revised specification (If any)	Justification for non-acceptance
specs 1.1.3 and 2.1.2a	**NB Instrument Pvt. Ltd.** Seek clarification whether 800°C without rotation may be considered, provided all other UHV deposition performance requirements are fully met. If 1000°C static heating is essential for a specific process requirement, kindly confirm	Not accepted	**No change**	We need higher temperature as the project demands so
Related to commercial terms in Bid document	**NB Instrument Pvt. Ltd.** As our Principal M/s Korvus Technology is from U.K. and want to participate is this tender with foreign currency only. Therefore, we also request you to kindly modify the commercial terms with an option to quote in multicurrency (USD/Euro/ Pound sterling etc.)	Not accepted	**No Change**	Since it is a Domestic tender not GTE
2.2.1 page 29	**M/S Excel Innovators and Integrators** The Hipace 700 has a DN 160 CF flange.	Accepted	**Spec 2.2.1 has been modified in revised specification Annexure A**	NA
Related to BOQ (page 30 and 31) of the Bid Document	**M/S Excel Innovators and Integrators** The BOQ requests a breakup price for each item which is not possible as over all cost includes assembly, testing, packing, shipping, installation and warranty expenses. We would request you to remove the break up cost and let vendors provide the total project cost (Like how it is in GEM). (page 30 and 31) If you require a breakup price, you should include those components as optional items	Not accepted	**No Change**	As they are part of the main equipment supply

Technical Specification format	**M/S Excel Innovators and Integrators** Please separate different chambers by providing a space between rows. (between 1.7 and 2 on page 28 and 2.6 and 3 in page 29	Accepted	**Specification are rearranges to make them more understandable and clear as in revised specification Annexure A**	NA

Final recommended specifications are as attached at Annexure A and signed by I/O:

Corrigendum to Tender may be issued.

Recommended Revised Date of Tender submission (if any) is 23.06.2026 up to 3.00 PM.
The specifications are generic and broad based.

Submitted to TSC for necessary approvals.

FORM TO BE USED BY TSC FOR FINALISING PRE-BID MINUTES

File No.14-VII/SS(3063-OTE)25PB **Date: 27-05-2026**

TSC Minutes (To be typed clearly by the I/O)

Based on the Pre-bid meeting and recommendation of I/O, following changes have been made in the specifications:

Original Specification	Final specification
2.2.1. Turbo Molecular Pump : Pfeiffer HiPace 700 / Edwards nEXT 730 / Leybold Turbo vac 900 iX or equivalent with CF100 flange and integrated controller, suitable for Near UHV vacuum.	**2.2.1.** Turbo Molecular Pump : Pfeiffer HiPace 700 / Edwards nEXT 730 / Leybold Turbo vac 900 iX or equivalent with **DN 160CF** flange and integrated controller, suitable for Near UHV vacuum.

The file is forwarded to Purchase Section for uploading the final specifications and TSC minutes on the website and CPPP Portal. **(With change)**

Declaration: We hereby declare that we have no conflict of interest with any of the bidder in this tender.

Annexure A

Revised Technical details for UHV Deposition Chamber

UHV Chamber Specification (vacuum better than 2×10^{-9} mbar UHV)

S.No.	Description
1.0	**UHV Chamber Specification (vacuum better than 2×10^{-9} mbar UHV)**
1.1	**Chamber Overview** **1.1.1** Spherical (diameter ≥ 14") or equivalent square shaped UHV chamber with support frame equipped with three (3) X 2-inch magnetron sputtering sources. All CF Flanges and UHV Viewports/SS blanks.
	1.1.2. Three (3) X 2-inch magnetron sputtering sources. Each sputtering source has an individual gas inlet line for process gases. All CF Flanges.
	1.1.3 Substrate holder : Diameter: 2 inches; heating Molybdenum heater capable of heating substrate **(a)** from room temperature (RT) to 800°C during rotation and **(b)** from room temperature to 1000°C without rotation. Rotation: Substrate holder can rotate continuously, driven by a stepper motor. Variable speed from 0 to 10 RPM Movement: Up / down vertical movement of total 25mm to adjust substrate position during deposition.
	1.1.4. Sputtering geometry: One sputtering source mounted parallel to the substrate surface, tilt adjustable. Two sputtering sources mounted confocally at an angle relative to the substrate. Base pressure: lower than 2×10^{-9} mbar (ultra-high vacuum).
1.2	**Vacuum Pumping System**
	1.2.1. Turbo Molecular Pump: Pfeiffer HiPace300 / Edwards nEXT 300 / Leybold Turbovac 350i with CF100 flange or equivalent with integrated controller
	1.2.2. Ion Pump with controller: Included to maintain UHV vacuum levels and provide clean pumping.
	1.2.3. Backing Pump: Pfeiffer HiScroll 12 / Edwards nXDS 15i / Leybold scroll VAC 15 plus or equivalent dry scroll pump used to back TMP
	1.2.4. Gate Valves : One CF100 and one CF150 manual Gate valves for isolating the chamber from the pumping systems as well as throttling
1.3	**Vacuum Gauges and Measurement**
	1.3.1. One Cold cathode gauge with readout capable of measuring vacuum pressures down to1×10^{-10} mbar for precise UHV monitoring.

	1.3.2. One Capacitance manometer gauge with measurement range from 1× 10^{-1} to 1 × 10^{-3} mbar for accurate pressure reading during deposition phase
1.4	**Gas Delivery System**
	1.4.1. Two independent Mass Flow Controllers (MFCs): **1.4.1a.** One MFC (0-100 sccm) for Argon gas feeding to all three sputtering sources via high vacuum valves. **1.4.1b.** One MFC (0-100 sccm) for Nitrogen gas feeding directly into the chamber with its own high vacuum valve. Gas lines for Ar and N_2 are physically separated to avoid cross-contamination.
1.5	**Chamber Access and Viewports**
	1.5.1. Two view ports installed on the chamber, each equipped with manual shutters.
	1.5.2. Access Ports for gauges, pump, gas inlet and few spares for future upgradation.
1.6	**Baking Capability:** Entire chamber designed to bake-out at 150°C to reduce contamination and out gassing during operation
1.7	**Cooling Capability :** Water manifold with flow switch / flow meters

Near UHV Chamber Specification

S.No.	Description
2.0	**Near UHV Chamber Specification**
2.1	**Chamber Overview** **2.1.1.** Spherical (diameter ≥ 14”) or equivalent square shaped UHV Chamber with stand equipped with three (3) 2-inch magnetron sputtering sources, each with individual gas inlet. All CF Flanges and UHV Viewports/SS blanks.
	2.1.2.Substrate holder: **2.1.2a.** Diameter: 2inches; heating : Molybdenum heater capable of heating substrate (a) from room temperature (RT) to 800°C during rotation and (b) from room temperature (RT) to 1000°C without rotation **2.1.2b.** Rotation : Substrate holder driven by stepper motor. Variable speed from 0 to10 RPM Movement: Up / down vertical movement of total 25mm to adjust substrate position during deposition.
	2.1.3. Sputtering geometry: One sputtering source mounted parallel to substrate surface (tilt able preferred). Two sputtering sources mounted confocally at an angle. Base pressure : lower than 5× 10^{-8} mbar (Near UHV).
2.2	**Vacuum Pumping System**
	2.2.1. Turbo Molecular Pump : Pfeiffer HiPace 700 / Edwards nEXT 730 / Leybold Turbo vac 900 iX or equivalent with DN 160CF flange and integrated controller, suitable for Near UHV vacuum.

	2.2.2. Backing Pump: Pfeiffer Hi Scroll 12/Edwards nXDS15i / Leybold scroll vac 15 plus or equivalent dry scroll pump used to back TMP
	2.2.3. Gate Valves: One CF150 manual gate valve to isolate / throttle chamber from pumping system.
2.3	**Vacuum Gauges and Measurement**
	2.3.1. Cold cathode readout capable of displaying vacuum pressures down to 1×10^{-8} mbar.
	2.3.2. Capacitance manometer gauge with measurement range from 1×10^{-1} to 1×10^{-3} mbar for accurate pressure reading during deposition phase.
2.4	**Gas Delivery System**
	2.4.1. Two independent Mass Flow Controllers (MFCs): **2.4.1a.** One MFC (0-100sccm) for Argon feeding all three sputtering sources through high vacuum valves. **2.4.1b.**One MFC (0-100sccm) for Nitrogen feeding chamber gas inlet through high vacuum valve. Separate gas lines for Ar and N_2 gases.
2.5	**Chamber Access and Viewports**
	2.5.1. One CF100 door **(with possibility of sample loading and unloading)** on chamber with viewport for observation and access.
	2.5.2. Ports for gauges, pump, gas inlet and few spares for future upgradation
2.6	**Cooling Capability** Water manifold with flow switch / flow meters.

Load Lock Chamber Specification (Base pressure: lower than 1×10^{-6} mbar)

S.No.	Description
3.0	**Load Lock Chamber Specification (Base pressure: lower than 1×10^{-6} mbar)**
3.1	**Chamber Overview**
	3.1.1. An appropriate sized spherical or equivalent square shaped Load-lock chamber with stand equipped with one 2-inch magnetron sputtering source mounted at bottom of the chamber with Argon gas inlet.
	3.1.2. Ports for gauges, pump, gas inlet, transfer arm etc. Appropriate view ports and transfer ports (CF 63) to connect to two above chamber, Loading port.
	3.1.3. Substrate holder: Diameter: 2 inches; Room temperature operation; Rotation of substrate holder; Up/down vertical movement of 25mm in-situ
3.2	**Vacuum Pumping System**
	3.2.1. Turbo Molecular Pump: Pfeiffer HiPace300/ Edwards nEXT 300/ Leybold Turbovac 350i or equivalent with CF100 flange and integrated controller
	3.2.2. Backing Pump: Pfeiffer HiScroll 12/ Edwards nXDS15i / Leybold scroll vac 15 plus or equivalent dry scroll pump used to back TMP.

	3.2.3 Valves: **3.2.3a.**One manual CF100 gate valve for TMP isolation. **3.2.3b.** Two manual CF100 gate valves for substrate transfer (sized for 2" samples).
3.3	**Vacuum Gauges and Measurement**
	3.3.1. Cold cathode gauge with readout for vacuum measurement.
	3.3.2. Pirani gauge for rough vacuum measurement.
3.4	**Gas Delivery System**
	3.4.1. Two independent MFCs (0-100 sccm): **3.4.1a.** One for Argon feeding the sputtering source through high vacuum valve. **3.4.1b.** One for Oxygen feeding chamber through high vacuum valve. Separate gas lines for Ar and O_2.
3.5	**Chamber Access and Viewports** Appropriate high vacuum compatible view port installed along with Quick access to the chamber throughCF150 front door
3.6	**Transfer System** Two magnetic transfer arms for substrate movement between Load Lock, Near UHV and UHV chambers. And one spare transfer arm.

Common Items

S.No.	Description
4.0	**Common Items**
4.1	**Instrumentation and Electronics**
	4.1.1. Instrumentation rack housing all controllers, electronics, and power distribution components.
	4.1.2. An additional sample transfer rod
	4.1.3.UPS (based on the total load)
	4.1.4. Power Supplies: **4.1.4a.** One(1)× 600W DC power supplies for sputtering sources. **4.1.4b.** One (1) × 300W RF power supply for RF sputtering or substrate biasing. **4.1.4c.** Controllers for substrate rotation, heating, and stepper motor control.

	4.1.4d. Integrated water flow sensors with interlock systems to monitor and ensure proper cooling.
4.2	**Cooling System**
	4.2.1. Each chamber equipped with individual water manifolds. Water manifolds connected to a common chiller system rated for 2kW cooling capacity. **4.2.2.** Cooling system designed to cool: 7 sputtering magnetron sources. 2 substrate heaters (UHV and Near UHV chambers).
5.0	**Installation:** Accessibility criterion
	5.1. Achieving desirable ultra-high vacuum after complete installation 5.2. Formation of plasma using both DC and RF power source
6.0	**Installation by:** Manufacturer
7.0	**Training:** At least three days training
8.0	**Warranty:** one year standard warranty
9.0	**Spare part availability:** vendor/supplier may ensure for atleast 5 years support towards supply of spare parts