

SECTION-C

Tender no. IPR/TN/PUR/ET/20-21/16 dated 24-02-2021

TECHNICAL SPECIFICATIONS OF MULTI POCKET ELECTRON BEAM EVAPORATOR

Sr. No.	Description	Requirements
1	E-beam evaporator	
1.1	Type	Multi pocket
1.2	Number of pockets	Minimum 3 pockets
1.3	Operation	All pockets could be used individually or in combination for co-evaporation
1.4	Compatibility	UHV compatible (1×10^{-7} mbar or better)
1.5	Temperature range	150°C-2600°C or higher range
1.6	Baking temperature	Minimum 200°C
1.7	Cooling	Water cooling
1.8	Evaporation types	From rods and crucibles
1.9	Crucible	Suitable crucible for the evaporator
1.10	Mounting flange	35CF/40CF
1.11	Other requirements	Minimum 20mm adjustable Z-shift for material feed.
1.12		Integrated shutter arrangement should be provided
1.13		Flux monitoring of evaporated material.
2	Power supply	
2.1	High voltage for evaporation	1000 V or better
2.2	Control	Option for controlling filament current and emission current.
2.3	Operation capability	Option for operating all the pockets simultaneously.
3	Accessories	Kindly quote separately for all essential accessories.
4	Spare parts	Kindly quote separately for important spare parts as optional items.
5	Test report required for dispatch clearance	<ol style="list-style-type: none"> 1. UHV testing report of evaporator for a vacuum level of 1×10^{-7} mbar. 2. Water leak testing report. 3. Plot/table of heating power versus temperature showing the temperature rise in the range of 150°C-2600°C. 4. Plot of uniformity of film thickness using 8 mm crucible diameter with any metallic film of 100 nm or above with an acceptable variation of $\pm 10\%$ in film thickness, over a sample of 10x10 mm at a distance of 8 cm or above from the

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		evaporator.
6.	Delivery time	Within 16 weeks from the receipt of purchase order.
7.	Installation	The system should be successfully installed at FCIPT campus of IPR by the vendor.
8.	Acceptance at IPR	<p>System will be accepted after successful demonstration of deposition at 1×10^{-7} mbar or better pressure under mounting condition in the presence of representative of the vendor. FCIPT/IPR will provide the proper UHV system with base pressure of 5×10^{-8} mbar for the same. The vendor should demonstrate following experiments.</p> <ol style="list-style-type: none"> 1. Demonstration of simultaneous evaporation from all the pockets using 3 different materials namely Silver, Titanium and Cobalt with crucible mounting. Simultaneous evaporation of metals will be confirmed by analysing the sample through Scanning Electron Microscope (SEM) and Energy Dispersive X-ray Spectroscopy (EDX) by scientists at FCIPT/IPR. Film thickness of 50-100 nm will be confirmed using SEM analysis. 2. Demonstration of independent operation of each pockets. Evaporation from each pocket will be confirmed by SEM and EDX analysis. Film thickness of 50-100 nm will be confirmed using SEM analysis.
9.	Training	Minimum one day training should be given by authorized person from the company at FCIPT campus of IPR after successful installation.
10.	Operational manual	Vendor should provide detailed operational manual along with the product in both hard copy and soft copy.
11.	Warranty	Minimum 1 year warranty from the date of installation and acceptance at FCIPT campus of IPR.

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COMPLIANCE STATEMENT OF MULTI POCKET ELECTRON BEAM EVAPORATOR

IPR Specification			Vendor's Specification
Sr. No.	Description	Requirements	
1	E-beam evaporator		
1.1	Type	Multi pocket	
1.2	Number of pockets	Minimum 3 pockets	
1.3	Operation	All pockets could be used individually or in combination for co-evaporation	
1.4	Compatibility	UHV compatible (1×10^{-7} mbar or better)	
1.5	Temperature range	150°C-2600°C or higher range	
1.6	Baking temperature	Minimum 200°C	
1.7	Cooling	Water cooling	
1.8	Evaporation types	From rods and crucibles	
1.9	Crucible	Suitable crucible for the evaporator	
1.10	Mounting flange	35CF/40CF	
1.11	Other requirements	Minimum 20mm adjustable Z-shift for material feed.	
1.12		Integrated shutter arrangement should be provided	
1.13		Flux monitoring of evaporated material.	
2	Power supply		
2.1	High voltage for evaporation	1000 V or better	
2.2	Control	Option for controlling filament current and emission current.	
2.3	Operation capability	Option for operating all the pockets simultaneously.	
3	Accessories		
		Kindly quote separately for all essential accessories.	
4	Spare parts		
		Kindly quote separately for important spare parts as optional items.	
5	Test report required for dispatch clearance	5. UHV testing report of evaporator for a vacuum level of 1×10^{-7} mbar. 6. Water leak testing report. 7. Plot/table of heating power versus	9.

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		<p>temperature showing the temperature rise in the range of 150°C-2600°C.</p> <p>8. Plot of uniformity of film thickness using 8 mm crucible diameter with any metallic film of 100 nm or above with an acceptable variation of $\pm 10\%$ in film thickness, over a sample of 10x10 mm at a distance of 8 cm or above from the evaporator.</p>	
6.	Delivery time	Within 16 weeks from the receipt of purchase order.	
7.	Installation	The system should be successfully installed at FCIPT campus of IPR by the vendor.	
8.	Acceptance at IPR	<p>System will be accepted after successful demonstration of deposition at 1×10^{-7} mbar or better pressure under mounting condition in the presence of representative of the vendor. FCIPT/IPR will provide the proper UHV system with base pressure of 5×10^{-8} mbar for the same. The vendor should demonstrate following experiments.</p> <p>3. Demonstration of simultaneous evaporation from all the pockets using 3 different materials namely Silver, Titanium and Cobalt with crucible mounting. Simultaneous evaporation of metals will be confirmed by analysing the sample through Scanning Electron Microscope (SEM) and Energy Dispersive X-ray Spectroscopy (EDX) by scientists at FCIPT/IPR. Film thickness of 50-100 nm will be confirmed using SEM analysis.</p> <p>4. Demonstration of independent operation of each pockets. Evaporation from each pocket will be confirmed by SEM and EDX analysis. Film thickness of 50-100 nm will be confirmed using SEM analysis.</p>	
9.	Training	Minimum one day training should be given by authorized person from the company at FCIPT campus of IPR after successful installation.	

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10.	Operational manual	Vendor should provide detailed operational manual along with the product in both hard copy and soft copy.	
11.	Warranty	Minimum 1 year warranty from the date of installation and acceptance at FCIPT campus of IPR.	

**AUTHORIZED SIGNATORY
OFFICIAL SEAL & DATE**