Laser Ablation Unit

HINDHIVAC Laser Ablation unit is specially designed for evaporation of special material under high vacuum condition with the help of laser beam., Since the laser beam is the cleanest source for heating the material, the thin film produced will have high purity compared to thin films produced by conventional evaporation methods. The Laser Ablation unit and the gadgetories inside chamber are carefully designed using quartz window for laser beam entry at 45^0 angle to the target. Target holder is made to rotate on its axis for uniform erosion of the material. Opposite to the evaporation target , substrate holder with heating facility is provided for heating the substrate to 900^0 C. The chamber with gadgetories is evacuated to a vacuum of 10^{-6} m.bar range using **HINDHIVAC** high speed vacuum pumping system. The equipment is complete with the chamber gadgetories high vacuum system control instruments with measuring gauges. Required safety interlocks is built in the system to protect system and the operator.

TECHNICAL SPECIFICATIONS

Parameters		
1.	Chamber Size	300 mm dia x 350 mm height (both ends open and achieve vacuum sealing with top plate and bottom plate)
2.	Base plate size	330mm dia, 4 nos of 25mm dia blank holes
3.	Material	Stainless steel SS-304
4.	CHAMBER GADGETORIES:	
	a. Substrate heater cum holder	40 mm dia to hold substrate of 1" size and heat the substrate up to 900^0 C
	b. Target rotation	By DC gear motor & drive with rotary vacuum shaft seal
	c. Target holder	40 mm dia holder 3nos with manual selector
5.	VACUUM PUMPING SYSTEM	
	a. Oil diffusion pump type & speed	OD-114D (diffstack type), 280 Lit/Sec.
	b. Rotary Vacuum Pump type & speed	ED-21, 350 Lit/min
	c. High Vacuum Valve	100mm butterfly valve type
	d. Roughing, Backing Valve	25mm size (CV-25)
	e. Vacuum Gauge	Digital Pirani, Penning Gauge with sensor to read vacuum in the range of 0.5 mbar to 1 x 10^{-3} mbar and 10^{-3} to10^{-6} mbar
6.	Ultimate Vacuum (when LNT filled with Liquid Nitrogen)	1 x 10^{-6} mbar
7.	Utilities Required	
	a. Power	230V AC, 50Hz, Single Phase, peak power consumption ~ 7KVA
	b. Water	4.5 Lit/min at 15-20^0 C inlet pressure of 2Kg/cm^2
	c. Liquid Nitrogen	4-5 liters for one charge

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