



**INDIAN INSTITUTE OF TECHNOLOGY BOMBAY**  
**MATERIALS MANAGEMENT DIVISION**  
**Powai, Mumbai 400076**

**TECHNICAL SPECIFICATION FOR FREEZE DRYER (BENCHTOP LYOPHILIZER)**

- The system should be a compact benchtop design with a small footprint and capable of handling all type of aqueous, alcoholic, organic (DMSO, DMF etc.) and inorganic samples.
- Operating voltage: 230 V
- Should have an overall condenser chamber capacity  $\geq 8L$ .
- The condenser temperature should be between  $-85^{\circ}C$  to  $-105^{\circ}C$ .
- The refrigeration system must be of cascade type with two compressors circuit
- The condenser cooling coils must be external for ease of cleaning
- Should have an advanced PLC based controller for easy operation and to monitor the critical freeze-drying parameters like Temperature, vacuum level, and alarm conditions.
- The system should have hot gas defrost option for fast turnaround time.
- The display should show real-time graphical screen, data logging to review system parameters during a run.
- The system should have a vacuum control valve for controlling the vacuum level.
- The system should be supplied with a Stainless steel manifold (drum type) with 18 Ports/valves to connect flasks of different sizes complete with adaptors/ valves etc .and S.S Shelf racks (3 or more).
- Flasks (wide mouth safety coated) of 300ml and above and corresponding adaptors.
- Combination Rotary Vane/diaphragm vacuum Pump for superior handling of organic solvents (eg. Teflon coating)
- Filter trap and Activated charcoal inserts Cartridge for use with organic solvents.
- Stopping Trainer for stoppering a small number of vials on a manifold.
- Other important and necessary accessories such as connectors, adapters for ampules, etc. for the functioning of system to be included
- The system should come with 3 years of warranty