

SPECIFICATION FOR BENCHTOP CASCADE FREEZE DRY SYSTEM

1. System should be a compact bench top design with a small footprint and capable to handle aqueous samples.
2. Should have an upright stainless steel collector coil condenser with Ice Holding capacity 2.5 Liters of ice before defrosting.
3. The system should be capable of removing 2.0 litres of water in 24 hrs.
4. It should have 1/3 hp or more HCFC/CFC-free refrigeration system to cool collector to -55°C or below.
5. Should have LED based wave display to indicate that temperature and vacuum conditions are right to add samples.
6. Should have a Moisture sensor to prevent vacuum pump start up when moisture is detected in the collector chamber.
7. Should have Vacuum control option to maintain set point vacuum level.
8. The system should have a special arrangement for preventing the oil back-streaming into the collector chamber during the power outage.
9. Should have LCD that displays system operating parameters, set Up parameters and alarm messages
10. The display should also give the information like total number of hours of refrigeration operation and since the Refrigeration was serviced and the total number of hours of vacuum pump operation and since the vacuum pump was serviced.
11. The system should have an Audible and visual alarm system for alarm conditions like Power failure (Inbuilt feature to protect the system from Power cuts / failure), Improper line voltage supply, Collector temperature rise above -40° C, Service vacuum pump (after 1000 hours of vacuum use), Moisture in collector.
12. The system should have a RS232 Port to transmit data to a user supplied computer. Data Transmission intervals may be user- configured.
13. The system should be supplied with a Stainless-steel drying manifold with 12 Ports to connect flasks of different sizes complete with adaptors/ valves etc.
14. A two stage Rotary Vane vacuum pump with minimum displacement capacity of 90 L/min. Ultimate vacuum (partial pressure) 2×10^{-3} mbar.
15. **Other important accessories** such as flasks, adaptors, ampules, serum bottles, three tier product shelves for tray drying etc. to be quoted in the optional.
16. If quoting on behalf of foreign manufacturer an authorization letter specific for this particular enquiry / tender must be enclosed otherwise the quotation will not be considered.
17. Suitable stabilizer to be provided along with the system.
18. Should have complete maintenance contract for 2 years with annual maintenance contract for 5 years