

Department of Biochemical Engineering and Biotechnology

Indian Institute of Technology Delhi

Hauz Khas New Delhi 110 016

NIQ for the purchase of Lyophilizer (Freeze dryer) Bench type with the following Technical Specification:

- Upright stainless steel collector coil capable of removing over 2 liters of water in 24 hours and holding 4.5 liters of ice before defrosting
- At least 1/3 hp HCFC / CFC-free refrigeration system to cool collector to -50°C .
- Permanently installed 10-port stainless steel drying chamber for connecting upto 10 flasks or vials/ampules for drying purpose with thick acrylic lid and neoprene gasket.
- Brushed stainless steel epoxy-coated Steel exterior
- LCD displays for operating parameters, set up parameters and alarm messages.
- Display of vacuum and Temperature.
- Audible Alarm system for improper line voltage supply, collector temperature rise, Moisture in collector or Power failure
- Vacuum break valve
- Vacuum control to maintain set point vacuum level
- Moisture sensor to prevent refrigeration or vacuum start up when moisture is detected in the collector chamber area.
- RS-232 port.
- Automatic start-up switch for collector cool down and vacuum pull down with manual override switches.
- Side-mounted, retractable collector drains line.
- Vacuum connection, three feet vacuum hose and two clamps.
- Operational at 230 V, 50 Hz
- Ultimate vacuum (partial pressure) 2×10^{-3} mbar (1.5 micron)
- Rotary vane Vacuum pump with displacement capacity of 117L/min.
- On/ off switch
- Two inlet adapters
- Mode selector with two positions: High vacuum and high throughput
- Gas ballast with three positions: Closed, Low Flow and High flow.
- Single phase direct drive motor, totally enclosed and fan cooled on the motor overheat, automatic thermal overload device to switch off the pump. On cooling down of the pump motor should restart automatically.
- Isolation valve to seal the inlet to prevent oil and air contamination of the system in the event of power failure.
- Four each one liter bottles of vacuum pump oil should be included
- One exhaust filter with oil mist and odor filter elements should be included

ACCESSORIES

- 48 Port Ampule Manifold to allow connection of up to 48 ampules simultaneously with Ampule Valve adapters and ampule 3 Way adapter

- 40ml/ 120ml flask with proper stainless steel adapter for holding flasks
- Replacement Filter Paper of proper diameter pore size of 17 microns.
- 1.5 ml Pre-scored flat bottom ampules.

Terms and Conditions:

- Technical and financial bids should be in separate sealed envelope and super scribed by NIQ number and date.
- Sealed quotations should be addressed in the Name of Dr. Prashant Mishra and reach to Head, Department of Biochemical Engineering and Biotechnology, Indian Institute of Technology Delhi, Hauz Khas. New Delhi-110016 by **February 27, 2013.**
- The prices should be quoted at FOB
- Propriety and agency certificate will be required wherever applicable.
- Institute reserves the right to accept or reject any or all the quotation without showing any reasoning.
- Minimum Three years of warranty must be given.

