

## Appendix-I

Sr. No.	Name of the item with Specifications	Qty.
1	<p><b>Liquid Nitrogen Pressurized Cylinder</b></p> <p><b>Capacity :</b> 200 liters  <b>Configuration :</b> Vertical  <b>Inner material of cylinder :</b> Austenitic stainless steel (SS 304L)  <b>Outer material of cylinder :</b> Carbon Steel  <b>Outlet port dimension for liquid :</b> ½ inch and 3/8 inch  <b>Outlet port dimension for vapor :</b> ½ inch and 3/8 inch  <b>Transfer line fitting type :</b> Standard  <b>Insulation :</b> Super insulation material or perlite  <b>Construction :</b> It should be double walled and vacuum jacketed  <b>Max allowable pressure :</b> 24 bar  <b>Liquid nitrogen storage pressure :</b> 15 bar minimum  <b>Liquid nitrogen set pressure at outlet :</b> 3 bar  <b>Design temperature :</b> 77 K to 324 K  <b>Outlet temperature of liquid :</b> 77 K  <b>Liquid flow rate :</b> 0.1 liter / min to 4 liter /min  <b>Static evaporation rate :</b> 0.5 liter/day maximum</p> <p><b>It must containing following:</b></p> <p>Safety valve  Vent valve  Liquid fill &amp; withdrawal Valve  <b>Pressurizing valve :</b> (There should be a vaporizer with appropriate pressure regulation for auto pressurization of the tank.)  Gas withdrawal valve  Bursting disc  <b>Level gauge :</b> (Should be provided to see the level of liquid nitrogen inside the Storage Tank)  Combined pressure regulator &amp; economizer  <b>Pressure gauge :</b> (Pressure gauges should be provided to see the pressure inside the LN2 chamber)  Evacuation port cum safety device  <b>Support Structure :</b> Heavy-duty footing and large diameter with supports. Caster base (wheeled) with temperature resistant handles for easy movement  <b>Safety of Vacuum chamber :</b> There should be provision of automatic safety of vacuum chamber through safety valve or some other way in case of sudden pressure rise in the chamber  <b>Safety of inner liquid nitrogen chamber :</b> There should be provision of three way Pressure Relief Valves (PRV)  <b>Warranty :</b> 2 year minimum</p>	01 No.

**Tentative tests to be carried out at Vendor site:**

- Liquid Storage capacity - As per specification
- Configurations- As per specification
- Transfer Line Fittings and Fitting type as per standard available.
- Safety of Vacuum chamber - As per specification
- Safety of inner liquid nitrogen chamber - As per specification
- Pressure gauges - As per specification
- Level Indicator - As per specification
- Valve - As per specification
- Vent Line - As per specification
- Filing Lines - As per specification
- Pressurization of the tank - As per specification