

Technical specification for Glove Box Inert Gas workstation

Sl. No.	Description
1	<p>Glove Box Work Station (2 port)</p> <p>a) Stand having castors and machine feet and following specifications Inner Box Dimensions 900-950 mm x 1150-1250 mm x 775-800 mm [H x L x D]</p> <p>b) Two Aluminum glove ports (diameter~220mm) with anti-corrosion coating,</p> <p>c) One pair gloves should be supplied with the system.</p> <p>d) Glove box should be modular and expandable with bolted side panels</p> <p>e) Inside surface Brushed finish Ra 1.2 µm Outside surface Coated, white (RAL 9003)</p> <p>f) Leak rate < 0.05 Vol %/h or lower</p> <p>g) Front Window safety glass with interior anti-corrosion film.</p> <p>h) Dust filter 0.3 micron, class H13 should be included in the work station</p> <p>i) Stainless Steel sliding shelves (3 Nos) should to be included in the work station.</p> <p>j) Automatic Box pressure range ±15mbar with oil-free pressure relief valve</p> <p>k) Automatic positive pressure regulation system without vacuum pump should be possible. It should include Water proof Foot pedal for box pressure manipulation</p> <p>l) Glove box should have 3 DN 40 feed through, one should be electrical</p> <p>m) Fluorescent lamp should be front mounted with Automatic switch off facility</p>
2	<p>Large Antechamber:</p> <p>a. Cylindrical type made of 2.5mm SS, steel and brush- finished interior</p> <p>b. Dimensions, Inner diameter 390mm and Length 600mm</p> <p>c. Sliding tray stainless steel should be included with antechamber</p> <p>d. Doors should be Aluminum, anodized, thickness 10mm with spindle lock</p> <p>e. Pressure gauge, analog display to be included in the antechamber</p>

	f. Vacuum/ Refill process Handling : Manual operation
3	<p>Mini Antechamber:</p> <p>a. Mini- Antechamber – Inner dimenions, diameter 150 mm and Length 400 mm</p> <p>b. Hinged doors and Stainless sliding tray and 3 way valve</p>
4	<p>Gas purification</p> <p>a. Should be located underneath the Glove box</p> <p>b. Siemens PLC Controlled with Color Touch panel for operation of all purification and regeneration system functions including box pressure, oxygen and moisture levels. With facility for remote monitoring of glove box parameters and provision for sending alerts and notifications about upcoming service schedule and ready upgrade facility of voice assisted control of the glove box is required.</p> <p>c. PLC controlled purifier and to maintain purity < 1ppm H₂O and O₂ (at complete pressure range)</p> <p>d. Automatic PLC controlled regeneration sequence with nitrogen N₂ /Argon and Hydrogen (5-10%)</p> <p>e. Circulation unit speed between 90 to 100 m³/hour speed</p> <p>f. Blower speed reduction , user-defined O₂ and H₂O level for auto increase of blower speed</p> <p>g. Positive Pressure regulation without vacuum pump should be possible.</p> <p>h. Activation of above features should be possible at user's Set Time.</p> <p>i. Vacuum pump Rotary vane pump with Oil mist filter, Oil re-circulation and automatic gas ballast control, 17m³/h pumping capacity, dual stage required to connect the pump to the system. Automated Switch off of Vacuum pump should be possible</p>
5	Heat Exchanger should be integrated with the box
6	Solvent adsorption unit with suitable adsorbent 5Kg minimum, should be integrated with Glove Box Should include inline and bypass valves. Upgrade Provision for PLC controlled re-generable solvent trap and PLC controlled inline in circulation piping positioned solvent sensor range 0 to 500ppm are needed.
7	<p>Purging Mechanism:</p> <p>a. Purging to be automatically activated, when the Oxygen in the glove box is exceeded the set limit, able to set between (10-999ppm) and continuously purging till the set point is reached and automatically start the</p>

	<p>circulation of the gas purifier.</p> <p>b. Automatic and adjustable mechanism for regular gas purge with time, duration and the day.</p> <p>c. Glove box purging to be operated by the operational panel of the purifier up to 200 l/min with PLC control as well as manual regulation valve.</p>
8	<p>Oxygen Sensor:</p> <p>a. PLC controlled and operated by the system touch panel</p> <p>b. Inline positioned in circulation line before the purifier</p> <p>c. Solid state sensor</p> <p>d. Measuring range: 0-1000 ppm</p> <p>e. Maintenance and calibration free</p>
9	<p>Moisture Sensor:</p> <p>a. PLC controlled and operated by the system touch panel</p> <p>b. Inline positioned in circulation line before the purifier</p> <p>c. Solid state sensor</p> <p>d. Measuring range: 0-500 ppm</p> <p>e. Maintenance and calibration free</p>
10	<p>Recirculating Chiller</p> <p>a. Temperature Range 5 to 25° C</p> <p>b. Temperature Controller Microprocessor Digital PID</p> <p>c. controller cum Indicator, Accuracy +/-1 °C</p> <p>d. Temp. Stability +/-0.1 °C, Sensor PT100 Sensor</p> <p>e. Cooling Capacity at 0°C 1500 watts</p> <p>f. Bath Volume 10 - 12 Ltrs, Flow rate 15 Ltrs per minute</p> <p>g. Pump Type should be Chemical resistant magnetic pump</p> <p>h. Pump Pressure 2 bar</p>
11	<p><u>Terms & Conditions :</u></p> <p>a. Warranty on the complete system should be for minimum 1 year from the date of installation.</p> <p>b. Glove box, Purification System and Sensors should be from single manufacturer</p>

	<ul style="list-style-type: none">c. Vendors are required to provide brochures / literature while complying the specifications.d. Manufacturers must have supplied > 10 glove box any model with purifier and sensors especially in institutes and should have satisfactory running of the system at purchaser's site in last 5 years.e. Vendor must be able to perform factory acceptance testing of the product and demonstrate all the features prior to the dispatchf. The technical and price bid should indicate the model and part numbers of itemsg. Upgrade options should be readily available and should be quoted with full informationh. Local service centre is required
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