



INDIAN INSTITUTE OF TECHNOLOGY BOMBAY  
MATERIALS MANAGEMENT DIVISION  
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Ref. PR No. 1000043443

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Item Description - **4-Port Glove Box**

Sr. No	Item Description	Detailed Technical Specification	Technical Compliance (Yes / No)	Additional Information (if any)
1.	<b>Glove Box</b>			
a)	<b>Box Module</b>	<ul style="list-style-type: none"><li>- Single length and Single Sided (4-port) : 2,200 (w) X 900 (h) X 780 (D) mm</li><li>- Modular structure with elastomer gasket front panel</li><li>- Material: SUS 304 Stainless Steel, Main body: 4mm thick</li><li>- <b>75mm Hole &amp; Flange at left and side end panel, Size TBD</b></li><li>- <b>Vacuum Line in/out for Spin Coater inside</b></li><li>- <b>Ceiling Nut pre-installed, for future installation of Laminar Flow inside</b></li><li>- Height Adjustable Shelves</li><li>- Side end pane: 4 mm thick, 0.3-micron filter: 2 ea</li><li>- LED Lamp</li><li>- 9" Glove port (M/C) 4 ea</li></ul>		

		<ul style="list-style-type: none"> <li>- Butyl Gloves (8" dia. 0.4mm (15mil) thickness): 2 pair</li> <li>- Window: 10mm thick, Scratch &amp; High impact Resistance, Polycarbonate Window</li> <li>- Electrical Outlet (1 Kit) : 230V/50Hz x 4 receptacle x 10A</li> <li>- Glove Port cover: Protect atmosphere during glove replacement</li> <li>- Service port feed through: 3 X KF40 flange and ports, 1/4" 1 ea. and 3/8" 1 ea.</li> <li>- Manual purge vent valve with KF Flange NW25</li> <li>- Leakage Certification: No detectable leak at 17mbar with Helium Spectrometer calibrated and &lt;0.001 Vol% / Hour</li> </ul>		
b)	<b>Automatic Pressure Controller (7" Full Color Touch Screen Panel)</b>	<ul style="list-style-type: none"> <li>- -12.5 to +12.5 mbar, Limits easily adjustable</li> <li>- Read pressure and set limits, Manual foot switch for automatic control On or Off</li> <li>- Easily data (O2, H2O, Pressure) transferrable Logger</li> <li>- Two solenoid valves are operated. Gas pressure: 10 to 30 psi. Approx. 25 psi suggested</li> <li>- Foot pedal for box pressure</li> </ul>		

		<p>adjustment</p> <ul style="list-style-type: none"> <li>- APC, it is to discharge the positive pressure gas out directly without passing through the vacuum pump, It is an option to protect vacuum pump when a toxic gases used inside Glove box.</li> </ul>		
c)	<b>Support Stand</b>	<ul style="list-style-type: none"> <li>- 2,200 (L) x 9.0 (H) X 780 (D) mm</li> <li>- Material: SS400 (Steel), Caster: Separate type 3" Foot Master, Height Adjustable pad</li> <li>- Painting</li> </ul>		
d)	<b>Mini Antechamber Left Side</b>	<ul style="list-style-type: none"> <li>- 150(dia.) x 290 (length) mm, Door is vertical Lifting mechanism</li> <li>- Gauge: Bourdon tube dial type, vacuum: <math>1 \times 10^{-3}</math> torr</li> <li>- Manual vacuum / refill valve</li> </ul>		
e)	<b>Vacuum Pump</b>	<ul style="list-style-type: none"> <li>- Direct drive oil-sealed rotary vane vacuum pump.</li> <li>- Actual pumping speed: 180L/min</li> <li>- Ultimate pressure: <math>5 \times 10^{-3}</math> torr.</li> <li>- Inlet &amp; Outlet Connection: NW25</li> <li>- Oil mist trap with exhaust pipe &amp; flange.</li> </ul>		
f)	<b>Dri Trap (Integrated Purification System)</b>	<ul style="list-style-type: none"> <li>- Circulation Blower: <math>106 \text{ m}^3/\text{h}</math></li> <li>- (Variable speed control, Max pressure: 5.9 Kpa, 220V, 3Ph, 60Hz)</li> <li>- Working gas: N2 or Ar Gas for</li> </ul>		

		<p>Circulation</p> <ul style="list-style-type: none"> <li>- N2/H2 or Ar/H2 mixture gas for regeneration (H2 Gas: 3-5%)</li> <li>- Automatic atmosphere reduction for 1 ppm atmosphere</li> <li>- Oxygen/Moisture removal capacity: 80L for O2 and 2,500g for H2O</li> <li>- Control: Programmable Logic Controller type</li> <li>- (Automatic purification regeneration process)</li> <li>- Electro-Pneumatic valve for regeneration</li> <li>- Single Column Purifier: Purifier charger Capacity</li> </ul>		
2.	<b>Moisture Analyzer</b>	<ul style="list-style-type: none"> <li>- Type: Thin-film capacitive polymer sensor</li> <li>- Measurement range: 0 ~ 1,000ppm</li> <li>- Accuracy: <math>\pm 2^{\circ}\text{C}</math></li> </ul>		
3.	<b>Oxygen Trace Analyzer</b>	<ul style="list-style-type: none"> <li>- Measurement system: Zirconia Oxygen concentration cell</li> <li>- Measurement range: 0.001ppm – 100%</li> <li>- Display range: 0-1,000ppm</li> <li>- Repeatability: <math>\pm 0.5\% \text{FS}</math> or less 0-1% range or more</li> <li>- <math>\pm 1.0\% \text{FS}</math> or <math>\pm 0.1 \text{ppm}</math> whichever is bigger or less than</li> <li>- 0-1% range</li> </ul>		

4.	<b>ECO Mode</b>	<ul style="list-style-type: none"> <li>- Energy-Saving for vacuum pump</li> <li>- It is to have energy-saving and reduce noise from pump and blower, during overnight and weekend when inactivate operation, The pump and blower are automatically inactivate when the system pressure and oxygen level maintained within the set value.</li> </ul>		
5.	<b>Auto Box Purge</b>	<ul style="list-style-type: none"> <li>- Automatic Box purge depending upon O2 or H2O Concentration Level or programmable</li> </ul>		
6.	<b>Solvent Trap (Chemical Type)</b>	<ul style="list-style-type: none"> <li>- This trap will be installed inside support stand of glove box.</li> <li>- Removal of organic solvents (DCM, Pentane, THF etc.)</li> <li>- PLC controlled automatic regenerable solvent filter</li> <li>- Special design plumbing &amp; Chemical filter.</li> <li>- Pneumatic isolation valves and NW40 clamping.</li> </ul>		
7.	<b>Gas Gun</b>	N2/Ar. insertion Gun inside Glovebox		
8.	<b>T-Type Antechamber for Glovebox connection</b>	<ul style="list-style-type: none"> <li>- Size: 390 inside dia. x 750mm length</li> <li>- Vacuum capacity: <math>1 \times 10^{-3}</math> torr, Door is vertical Lifting mechanism.</li> <li>- Tray: S/S Sliding Tray</li> <li>- Vacuum gauge: Bourdon Dial gauge</li> <li>- Connect to right side of 4-port Glovebox with a flange, to connect with a Thermal Evaporator Glovebox</li> </ul>		

		<p>future</p> <ul style="list-style-type: none"> <li>- including a vac. Pump including a 400 liter/min vacuum pump</li> </ul>		
9.	<b>Laminar Flow System</b>	<p><b>Laminar Flow System for 4 port box module Installed at overhead mounted, pre-installed with Glovebox initial supply</b></p> <ul style="list-style-type: none"> <li>- Down to clean room class 1 conditions or Particle class 2</li> <li>- ULPA filter units from H13 up to U16</li> <li>- optimized gas flow uniformity e.g. 0.3m/s at the pass line</li> <li>- Controlled gas flow under isothermal conditions</li> <li>- Oxygen &lt;1ppm</li> <li>- Moisture &lt; 1ppm</li> <li>- 1.5 times better flow efficiency than standard Non-Laminar flow system Glovebox.</li> </ul>		
10.	Warranty	<ul style="list-style-type: none"> <li>- The instrument should be supplied with One year Warranty</li> </ul>		