



## Super Glove Box Specification

This single workstation system is equipped with an integrated gas purification system (one column), PLC controller (with a touchscreen HMI), electronics enclosure, large and small antechambers, replaceable sight glass, and vacuum pump, Attainable purity of this system is H<sub>2</sub>O < 1 ppm, O<sub>2</sub> < 1 ppm.

### 1. Features

**Closed Loop Gas Circulation** – Inert gas in a closed loop. The gas is circulated by the blower and purifier, H<sub>2</sub>O, O<sub>2</sub> can be removed continuously.

**Auto Purging** – The replacement of the atmosphere inside the glove box can be achieved automatically by the purging valves.

**Automatic Regeneration** – H<sub>2</sub>O and O<sub>2</sub> removal material can be regenerated. The regeneration process can be program controlled.

**Pressure Control in the Glove Box** – The pressure in the glove box is controlled automatically by the Programmable Logic Controller (PLC). Working pressure can be set between +10mbar and -10mbar. If the pressure goes over +/- 12mbar, the system will be protected automatically.

**Automatic Vacuum Pump Control** – The vacuum pump will be activated automatically when necessary, and will turn off after a period of idle time.



**ECO Mode** - The vacuum pump will be activated automatically when necessary, and will turn off after a period of idle time. Blower frequency will be switched to 25Hz when moisture and oxygen level reaches to less than 1 ppm

## 2. Basic Configuration (For Super)

- One - Housing made from 3mm - 304 Stainless Steel (acid resistant),  
1220mm (48") wide x 750mm (29.5") deep x 900mm (35.4") high  
900mm (35.4") Stand high
- One - Main Antechamber, made from Stainless Steel,  
360mm (14.2") diameter x 600mm (23.6") long, right or left side
- One - Mini Antechamber, made from Stainless Steel,  
150mm (5.9") diameter x 300mm (11.8") long, right or left side
- One - Sight Glass with 2 glove ports
- One - Pair of Butyl Glove
- One - Lighting System
- Two - Dust Filters: 0.3  $\mu\text{m}$  - [One Gas Inlet Filter and One Gas Outlet Filter]
- One - Stainless Steel Shelf with Two Shelves attaches to the back wall
- One - High Performance Ventilator [90 cubic meters/hour]
- One - Vacuum Pump [8 cubic meters/hour]
- One - Power Cord Feedthrough and three KF40 Blind Flanges
- One - Foot Switch
- One - Set of Rollers for Stand

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## 3. Specifications

### Glove Box Chamber

- Dimensions: 1220mm (48") wide x 750mm (29.5") deep x 900mm (35.4") high, Stand 900mm (35.4") high
- Single sided box with two gloves on one side
- Material for Box: 3mm thick. 304 stainless steel, acid resistant
- Windows – Safety Glass
- Glove Ports – POM (Polyoxymethylene Plastic) 220mm (8.7") diameter – Double O-ring sealed on each glove
- Gloves – Butyl – 8" cuff diameter - .015" Thick – 32" Length
- Dust Filter – 0.3  $\mu$ m – 1 gas inlet and 1 gas outlet filter
- Shelving: Stainless Steel, two adjustable shelves
- External Fluorescent Lights – 2 sets
- Feedthroughs: One power feedthrough, 3 blind- flanges

### Main Antechamber

- Large Antechamber – 304 Stainless Steel – 360mm (14.2") Diam. – 600mm (23.6") Long (Right or left sided)
- Sliding Tray on Stainless drawer slides
- Spindle Lock Door with Vertical Operation
- Automatic operation via solenoid valves

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### Mini Antechamber

- One – Mini Antechamber – 304 Stainless Steel – 150mm (5.9") Diam. – 300mm (11.8") Long (Right or left sided)
- Hinge Door
- Manual Operation via Hand Valve

### Gas Purification

- Removal of H<sub>2</sub>O and O<sub>2</sub>
- Gas Container – 304 Stainless Steel
- Absorber Unit: Copper Catalyst: 5Kg – Molecular Sieve: 5Kg  
Capacity to remove oxygen, 60L. Capacity to remove moisture, 2000g
- Attainable Purity: H<sub>2</sub>O - Less than 1ppm; O<sub>2</sub> - Less than 1ppm
- Capsulated Blower – 90 cubic meters/hour with frequency converter
- Regeneration – PLC controls all processes including heating, filling mixed gas (working gas / 5-10% H<sub>2</sub> mixture), etc.

### System Control

- SIEMENS PLC (Programmable Logic Controller)
- Features include: Circulation Control, Purging Control, Regeneration Control, Pressure Control, as well as self-diagnosis, power failure re-start and password protection
- Siemens 7-inch color touch screen with operation interface, indication of status, box pressure, moisture and oxygen value and system records
- The pressure in the glove box can be controlled with either the foot pedals or the PLC. The pressure can be set between +/- 10mbar. If the pressure goes over +/- 12mbar the system will protect itself automatically
- Various valves to be integrated into a valve-seat made of stainless steel, less pipe connectors to reduce leakage

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## Vacuum Pump

- EDWARDS Rotary Vane Vacuum Pump with oil mist and gas ballast control. Capacity is 8 cubic meters/hour. Dual stage portion with ultimate vacuum at  $3 \times 10^{-2}$  mbar

## 4. Accessories

### Moisture Analyser

- Measuring range: 0~500ppm
- P2O5 Sensor: Corrosion resistant, widely used in field of Lithium battery and organometallic, the sensor can be renewed by acid-cleaning while contaminated by HF or other corrosive atmosphere.

### Oxygen Analyser

- Measuring range: 0~1000ppm
- ZrO2 Sensor: Solid sensor, long life, to be exposed in the air without consumption.

## 5. Option Accessories

### Internal Solvent Absorber

- To be built inside glove box to absorb solvent vapor
- Absorbent: Activated carbon 1.25kg

### External Solvent Absorber/HF Absorber

- Rapid removal of Hydrofluoric Acid and other solvent vapors
- Absorbent: 50% Activated Carbon & 50% Aluminum Oxide
- Manual purging and evacuation control

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- Bypass system allows user to easily replace material for simple maintenance
- Installed in line with purification system allowing removal of harmful solvents from the glove box atmosphere

#### Heated Antechamber

- Temperature range: From ambient temperature to 200°C
- Temperature controller
- Insulation layer
- Water cooling system

#### Refrigerator

- Left-mounted, door inside of Box
- Inside dimension: L\*W\*H=250\*200\*400-Volume:20 liter; Compressor power 1/2 HP; Lowest temperature: -35°C
- To be flange-connected with glove box, compressor to be installed on the ground
- With temperature controller to Protect compressor from being initiated frequently; Temperature dropping amplitude can be controlled by temperature controller or time relay

#### Cold Well

- Stainless steel well to be built on the bottom of glove box
- Size: Dia. 150mm, Deep 190mm, (customized size on request)
- DEWAR is filled with liquid Nitrogen coolant for low temperature work

#### Microscope Unit

- Type: TV Microscope, 1/3" CCD colourful
- Magnification: Max. 300 times, continuously adjustable
- Monitor: PHILIP 17", with flexible support

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- Up and Down lighting source: LED Ring Light
- Platform: Movable, easy to align the objective and lens centre

#### Ionizer without fan

- Effectively remove localized static charges
- Effective ionization range: 12"
- Pulse rate and ionic balance controls allow for effective calibration and adjustment of the Counter SPI
- To reach optimum ion balance and output

#### Feedthroughs

- Power Cord feedthrough
- Gas/Fluid feedthrough
- BNC feedthrough
- USB feedthrough
- Binding Posts feedthrough

## 6. Other Options

Customized box sizes

Integrating customer's instruments into glovebox (like evaporator, ALD system and Spin Coater etc.)

Polycarbonate Window(s)

Quick Release Window(s)

Antechamber with interlocking door

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Small chamber with sliding tray

Antechamber purging with no vacuum

Antechamber refilling from Gas cylinder instead of box

Rectangular Antechamber

Flexible shelves - adjustable up & down - adjustable back & forth

12m<sup>3</sup>/h Rotary pump

Dry scroll pump

Prompt service

\*\*All models can be made to custom specifications

\*\*Contact us for more information

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