



Upure 2 Glove Box Specification

Upure2 Glovebox is the latest R&D model with Remote Operation and Monitoring (based on the Internet of Things concept) and an HMI-Controlled Automatic door system
Attainable purity of this system is H₂O < 1ppm, O₂ < 1ppm

1. Features

Remote Monitoring Scenarios - Users can remotely monitor the environment within their glove boxes and remotely view the history of the environment within their glove boxes. Users can remotely control multiple glove boxes from a central location. VTI service personnel can remotely diagnose and adjust your glove boxes.

Mode of Antechamber Door Control System - Manual (Step-by-step) Mode: Menu driven question and answer-style operation. Automatic Mode: One touch operation executes all processes with hints and safety prompts.

Closed Loop Gas Circulation – Inert gas in a closed loop. The gas is circulated by the blower and purifier, H₂O, O₂ 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 – H₂O and O₂ 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 +10mba and -10mba. 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 Upure2 1220/750)

- 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 µm - [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



3. Specifications

Glove Box Chamber

- Modular length: 1220mm/1500mm/1800mm/2440mm/3660mm/4800mm (48.0"/59.1"/70.9"/ 96.0"/144.1"/189.0")
- Modular depth: 750mm/1000mm/1200mm (29.5"/39.4"/47.2")
- Modular height: 900mm (35.4")
- Material: Stainless steel type 304, thickness 3mm (1/8")
- Sight Windows: Inclined, Safety Glass, thickness 8mm (1/3")
- Gloves Ports: POM (Polyoxymethylene), 220mm (8.7") Diameter
- Gloves – Butyl – 8" cuff diameter - .015" Thick – 32" Length
- Dust Filter: HEPA 0.3 μ , one gas inlet, one gas outlet
- Shelving: Stainless Steel, two adjustable shelves for each work station
- Lighting: External fluorescent lamp, front mounted above sight glass
- Feedthroughs: One power feedthrough, 3 blind-flanges for each work station

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 door system, both inside door and outside door are inter-locked

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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 H₂O and O₂
- 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: H₂O - Less than 1ppm; O₂ - 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% H₂ mixture), etc.

System Control

- SIEMENS PLC (Programmable Logic Controller)
- Based on the Internet of Things concept to realize remote Operation and Diagnose
- 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

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- Various valves to be integrated into a valve-seat made of stainless steel, less pipe connectors to reduce leakage

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 3×10^{-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
- 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

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- Monitor: PHLIP 17", with flexible support
- 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)

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Antechamber with interlocking door;

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

12m³/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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