Large Glove Box with Gas Purification System and Digital Control OPT-2GBS-BA

HOW GLOVE BOX WORK

- Box forms a sealed environment, filled with Inert gas or nitrogen to the cabinets, and circulation to remove internal active substances, allowing the system always maintain high cleanliness and high purity inert gas environment

GLOVE BOX APPLICATIONS

- Anhydrous, anaerobic and clean, ultra-clean work environment
- The R&D and production of batteries and battery materials (lithium-ion battery, battery, solar cell, the lithium iron phosphate, etc.)
- The R&D and manufacturing of special lamps: HID lamps, metal halide, ceramic metal halide.
- Welding: resistance welding, TIG welding, laser welding, plasma welding, brazing.
- OLED R&D and production.
- The development and production of medical supplies.
- Development and production of the super capacitor.
- Fine chemicals, nuclear industry.
- The new energy and new materials development and production.

I. Technical Parameters

Basic equipment

Part 1: The body of the glove box

Configuration and Quantity	Technical parameters	Remark
1 Main Chamber	L1250 x W780 x H900	Stainless steel SUS304 with 3 mm thickness. RAL9003 outside surface
1 Transparent visualization panel	thickness: 8mm	Inclined panel of tempered glass with thickness of 10mm; Sapphire coated polycarbonate The chamber will be sealed by silicone compressible gasket. The front glass can be removed to facilitate the small device.
1 leg support	H = 900mm	Carbon steel,with casters (with support feet), convenient mobile glovebox, fine-tune the level
2 Shelves	Stainless steel SUS304	Adjustable type shelves L x D = 500 x 220 mm Installed on the back panel of glove box
2 Glove Port	220mm diameter	Aluminum alloy material *Option material: stainless steel / Polyoxymethylene polymer*
2 Gloves	Cuff diameter 7'', Length 800mm	Material: butyl rubber; O-ring sealed Brand: USA North brand *Option material: Neoprene / Rubber*
1 Power Board	220 VAC	220 VAC, 50 Hz, single phase
1 Electrical Lighting system	Lamp, ballast	Built-in fluorescent lamp Brand: Philips (Netherlands)
5 KF40 Spare connectors	DN40	Configuration quick connector, located in the box right side, so that the liquid or gas can be easily and safely in and out of the cabinet. Material: SUS304 stainless steel
1 Gas/liquid Feedthrough	Connect use	Installed on the one of KF40 spare connector.
1 Electricity Feedthrough	Connect use	Installed on the one of KF40 spare connector.

Part 2: Gas purification system

Configuration and Quantity	Technical parameters	Remark
1 Gas purification system	Single purification column (GP-1); A Closed Loop Gas Re-circulation System;	With water scavenging, and oxygen scavenging function; German BASF copper catalyst materials, USA UOP efficient absorbent molecular sieve materials, The purification system of regeneration process automatically control, Long-term, continuing to maintain gas purity: H2O & O2 < 1ppm. Oxygen removal: 60L Moisture removal: 1.8kg
1 Foot controller	Waterproof Double pedal	Control purification system to increase the pressure and decrease the pressure in the cabinet.
1 Purge valve	Electro-pneumatic valve	Automatic electro-pneumatic valve Brand: BURKERT
1 Circulating Blower	High-speed frequency blower	High degree of vacuum of the circulation pump with various speed; Blower Speed: 25L/S. Brand: Taiwan DARGANG
2 Pipe line	Stainless steel SUS304	Stainless pipe lines
1 Cooling System	Include 1 heat exchanger	Used for high temperature operation of users in the main chamber, which cause temperature >45° C
Pressure Control unit	+15 mbar to -15mbar (relative pressure)	Box pressure with Automatic control; Manual pressure control is allowed with foot pedal switch (from +15 mbar to -15 mbar) Pressure Sensor: USA SETRA
Controller	A Programmed Logical Controlled with Siemens 7” HMI Color Touch Screen Monitor	Auto Display of moisture and oxygen level during working conditions Brand: SIEMENS.
Moisture & Oxygen control system	New Upgraded Color touch screen: 7 inch	PLC control system, touch-screen operation, Brand: SIEMENS; * Moisture concentration: 0～1000ppm, with an accuracy of 0.1ppm * Oxygen concentration: 0～1000ppm, with an accuracy of 0.1ppm * Automatic system data logging

Part 3: Main and Mini Antechambers

Configuration and Quantity	Technical parameters	Remark
1 Large Vacuum Antechamber	ID400 × 600mm	Cylindrical type antechamber, right side. One slidable tray inside the large antechamber, Automatically controlled by the touch screen.
	Stainless steel 304	Antechamber material: stainless steel 304, Doors material: AlMg3, anodized, thickness ~ 10 mm and easy to operate.
	Leak rate	$<10^{-5}$ mbar l/s
1 Small Vacuum Antechamber (for tools)	DN150 x 400 mm	Cylindrical type antechamber, right side. Length wise $1/3_{rd}$ inside and $2/3_{rd}$ outside. One slidable tray inside the mini antechamber. Manually operated by 3-way gas valve.
	stainless steel 304	Antechamber material: stainless steel 304, Doors material: stainless steel 304. Hinged cover inside and outside for easy handling.
	Leak rate	$<10^{-5}$ mbar l/s
2 Vacuum gauges	Mechanical dial display	Used to measure the vacuum value of the large vacuum antechamber and tool vacuum antechamber. Brand: Wika (Germany)

Part 4: Accessories

Configuration and Quantity	Technical parameters	Remark
1 Vacuum pump	16 m3/h	heavy duty double stage rotary vane pump for faster gas exhaust, oil-sealed, with oil mist filter;
1 Oxygen Analyzer	0～1000ppm, with an accuracy of 0.1ppm	Touch-screen display; Accuracy: %0.001 Oxygen sensor could detect less than 1ppm. Brand: USA AII
1 Moisture Analyzer	0～1000ppm, with an accuracy of 0.1ppm	Touch-screen display;Accuracy: %0.001 Moisture sensor could detect less than 1ppm. Brand: UK MICHELL
1 Solvent Absorber System	21L active carbon	Filled up with 21L active carbon

II. Performance Description

Part 1: Functional Description

Automatic control system pressure;
Automatic control system purge state;
Automatic control system Automatic switching & circulation mode on and off;
Automatic control of the regeneration process of the gas purification system;
Automatically prompts alarm function;
System control parameter settings;
Record system parameters;
System password protection.
Eco mode for energy consumption.

Part 2: Working conditions and performance indicators

Working Voltage	220 VAC, 50Hz, single phase
Max. Power	≈3.0KW
Working Gas	Operating gas: Inert gas such as N2, Ar, He
	Regenerating gas: For regenerating both oxygen and H2O remover, use mixture of H2 (5-10%) and operating gas
Water concentration	<1 ppm (20 °C, 1 atm)
Oxygen concentration	<1 ppm (20 °C, 1 atm)
Airlock withstand a minimum vacuum value	≥100pa
The ultra low leak rate technology	<0.001 vol% / hr (depending on oxygen concentration inside the glove box)

Working Voltage：220 VAC, 50 Hz, single phase, Max. Power：3.0KW

OPTOSENSE LLC
Heritage Park 941 West Morse Blvd Suite 100
32789 FL -USA
www.optosenselab.com