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Product Brochure

GLOVE BOX WITH GAS PURIFICATION SYSTEM

Twelve-Station Double-Sided Split-Type Glove Box with Gas Purification System

GBP7200-1000D-24

Twelve-station double-sided split-type glove box with gas purification provides a controlled inert atmosphere for battery, materials and chemical research.

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https://www.gloveboxs.com/products/gas-purification-glove-box/twelve-station-double-sided-split-purification-glove-box.html

Product Overview

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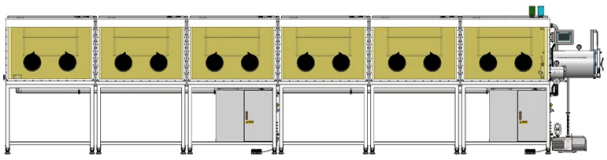
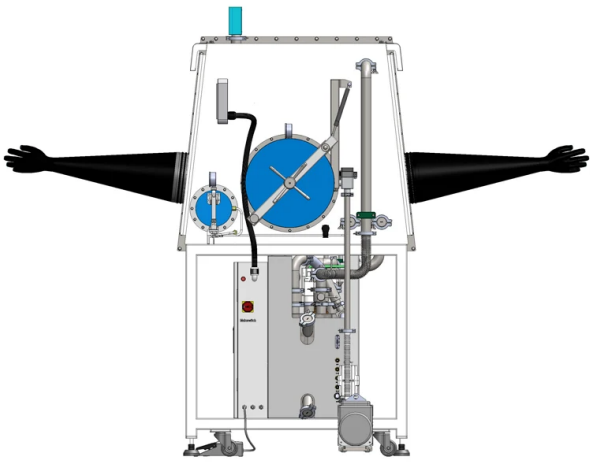
Technical Parameters

Parameter	GBP7200-1000D-24
Parameter 1	
Parameter 2	





Product Introduction

Dimensions: 8800mm×1200mm×1950mm
Cabinet size: 7200mm×1000mm×900mm
Packaging size: 9000mm×1350mm×2100mm
Water content: <0.1ppm, can reach 0.01ppm
Oxygen content: <0.1ppm, can reach 0.01ppm
Box leakage rate: ≤0.001vol%/h, can reach 0.0008vol%/h
Voltage and power: 220V / 1.5kw
Purification column: 2 pieces
Transition cabin: 2 large and 2 small
Volume: 6.6m³
Equipment weight: 1960kg

Detailed parameters

cabinet		
describe		Material: Stainless steel 1.4301 (SUS type 304), thickness 3 mm Dimensions: 7200mm(L) x 1000mm(W) x 900mm(H)
volume		6.6 m³
front window		Panel: 8 mm thick safety tempered glass or 10 mm thick polycarbonate (optional) Size: 1123mm(L) x 839mm(H)×12
glove mouth		Duraluminum alloy material or polyacetal material (optional) Diameter 220 mm, double O-ring seal
Gloves		Material: Butyl rubber Thickness: 0.4 mm or 0.8mm (optional)
filter		Outlet and inlet filters, filtration <0.3μm
illumination		LED lighting is located on the top of the front window
Leak rate		Leak detection basis: The oxygen method and pressure change method in ISO 10648-2:1994 / EJ/T 1096-1999 "Sealed Box Chambers - Part 2: Sealing Classification and Related Inspection Methods" are used to detect the box, and the final acceptance test is carried out according to the standard of first-level sealing < 0.0005 vol%/h.
GP20 gas purification system		
describe		Automatic removal of H2O and O2 Single purification column system, automatic regeneration (GP200 double purification column optional) Closed gas circulation pipeline
Use voltage		AC 230 V / 50-60 Hz, 10 A or AC 115 V / 50-60 Hz, 20 A (optional)
working gas		Working gas: N2, Ar, He (purity ≥99.999%) Regeneration gas: H2 accounts for 5%-10%, and the rest is working gas (purity ≥99.999%)
Vacuum pump		Specifications: Rotary vane vacuum pump, equipped with oil mist filter, with gas ballast control Flow: 12 m³/h (7 cfm), dual-chip, vacuum < 2 x 10-3 mbar or dry pump (optional)
cycle unit		Oil-free high-speed blower Air volume: 80 m³/h
valve		KF40 high vacuum valve
Leak rate		Leak detection basis: The oxygen method and pressure change method in ISO 10648-2:1994 / EJ/T 1096-1999 "Sealed Box Chambers - Part 2: Sealing Classification and Related Inspection Methods" are used to detect the box, and the final acceptance test is carried out according to the standard of level 1 sealing < 0.001 vol%/h.
Transition cabin×2		
large transition cabin	**Material**	Stainless steel type 304 (1.4301), thickness 3 mm
	size	φ360mmx600mm(L) or φ390mmx600mm(L) (optional)
	Vacuum degree	< 1 x 10-2 mbar
small transition cabin	**Material**	Stainless steel type 304 (1.4301), thickness 2 mm
	size	φ150mm x 330mm(L)
	Vacuum degree	< 1 x 10-2 mbar
Cleaning system		
describe		After setting the corresponding time and pressure, the system can automatically replace the gas in the box.
analyzer		
oxygen analyzer	model	AF-360Z
	size	205 mm（L） x 80 mm（W） x 60 mm（H）
	Measuring range	0-1000 ppm
	Other oxygen analyzers	GE oxy.IQ™ Oxygen Transmitter
moisture analyzer	model	AD-160P Phosphorus pentoxide water analyzer (acid-proof)
	size	205 mm（L） x 80 mm（W） x 60 mm（H）
	Measuring range	0-500 ppm
	Other water analyzers	GE VeriDri™ Dew-Point Transmitter
Solvent purification system		
describe		Material: Stainless steel 1.4301 (SUS type 304), thickness 3 mm Internal dimensions: 220mm(Φ) x 450mm(H) High quality activated carbon
Optional equipment		
refrigerator		Independent control system, integrated on the side panel of the box, temperature -35°C, volume 18L or 32L optional Main body 304 stainless steel pipe, 5 layers of variable partitions R404 environmentally friendly refrigerant, imported with original packaging
heating cabin		The large transition cabin is equipped with a heating system, the temperature is 200℃, and the temperature control is ±1℃
Other instructions		
Product certification		ISO9001 certification, CE certification, UL certification
Warranty period		One-year warranty, lifetime maintenance
Application Notes		For details, please refer to the danger, warning, caution and other clauses in the manual.
Packaging size (W×D×H)		3400mm×1350mm×2100mm×5
weight		1960kg

Product Features

Create a stable, controlled work environment for sensitive materials

From lithium battery materials to semiconductor devices, from air-sensitive chemicals to advanced functional materials, moisture, oxygen and environmental fluctuations may directly affect the experimental process and material performance. The purified glove box establishes a stable low-water, low-oxygen controlled environment in the operating area through a closed box, gas circulation purification and intelligent atmosphere control, allowing material

processing, experimental operations, device assembly and sample transfer to be completed under more reliable conditions.

Application scenarios

Purified glove boxes continuously reduce moisture and oxygen in the environment by establishing a closed, controllable inert atmosphere working space, and provide stable and reliable operating conditions for materials, devices and processes that are sensitive to air, humidity and oxygen content. The equipment can be widely used in material preparation, sample transfer, assembly and packaging, chemical reactions, powder processing and scientific research experiments. It is especially suitable for R&D and production processes that require long-term maintenance of low-water and low-oxygen environments.

Handling air sensitive materials

Suitable for materials that are prone to oxidation, hydrolysis, decomposition or performance degradation when exposed to air, moisture or oxygen. The glove box provides a stable inert atmosphere environment, which can reduce contact with external air during material weighing, transfer, mixing, packaging, sampling and storage, and provide more reliable environmental conditions for the operation of sensitive materials.

Material synthesis and chemical reactions

Provides a controlled atmosphere operation platform for organic synthesis, inorganic synthesis, metal-organic chemistry, coordination chemistry and catalysis research. Experimenters can complete reagent processing, reaction system setup, sample transfer and post-processing in a low-water, low-oxygen environment, reducing the impact of environmental factors on the reaction process and experimental results.

Lithium battery and solid-state battery research and development

It can be used in the research and development processes of lithium-ion batteries, lithium metal batteries, sodium-ion batteries and solid-state batteries to meet the needs for low-water and low-oxygen environments in processes such as electrode material processing, electrolyte operation, separator assembly, button cell assembly, soft-pack battery research and development, and solid-state electrolyte sample preparation.

Semiconductor and optoelectronic material preparation

Suitable for experiments and device preparation of semiconductor materials, OLEDs, perovskites, quantum dots and other air-sensitive optoelectronic materials. It can provide a stable and controlled atmosphere during material solution preparation, film preparation, device assembly, packaging and sample storage, reducing the impact of water and oxygen on material and device performance.

Catalysts and Metal-Organic Materials Processing

Some catalysts, organometallic compounds and active intermediates are highly sensitive to water and oxygen. Weighing, preparation, storage, reaction system setup and sample transfer can be completed in a glove box. A stable inert environment helps reduce material deactivation, oxidation and unintended side reactions.

Powder and Advanced Materials Handling

Suitable for weighing, screening, mixing, transferring and storing metal powders, ceramic materials, nanomaterials, functional powders and other easily oxidized materials. By controlling the atmosphere in the box, the chance of material contact with air and moisture during operation can be reduced, providing stable conditions for subsequent processing, characterization and experiments.

Device assembly and hermetic packaging

For precision devices that need to be protected from the effects of water vapor and oxygen, processes such as assembly, dispensing, connection, packaging and sample transfer can be completed inside the glove box. It is suitable for the R&D and trial production of experimental-grade devices, sensors, optoelectronic devices, electrochemical devices and other air-sensitive components.

Sample preservation and anaerobic transfer

For samples that still need to avoid air exposure after preparation, glove boxes and transition chambers can be used to establish a relatively continuous controlled atmosphere operation process to complete sample placement, temporary storage, packaging and transfer, thereby reducing the impact of environmental changes from sample preparation to testing.

Application industry

With stable atmosphere purification, circulation control, pressure regulation and environmental monitoring capabilities, purification glove boxes have become important controlled environment equipment in the fields of new energy, new materials, semiconductors, chemical synthesis and scientific research experiments. According to different material characteristics and process requirements, it can also be combined with water and oxygen analysis, solvent treatment, cold trap, heating, vacuum and other process equipment for systematic configuration.

Lithium batteries and new energy

Serving the research and development of lithium-ion batteries, lithium metal batteries, sodium-ion batteries, solid-state batteries and new energy storage technologies. It can be used in electrode material processing, electrolyte preparation, battery assembly, solid electrolyte research, new battery system development, and electrochemical sample preparation.

For battery materials that are easily affected by moisture and oxygen, a stable low-water and low-oxygen environment can provide important environmental protection for material research, battery assembly, and sample preparation before performance testing.

Semiconductors, OLEDs and Perovskites

It is oriented to the research and development of semiconductor materials, OLED organic light-emitting materials, perovskite solar cells, quantum dots and new optoelectronic devices. It can be used in processes such as air-sensitive material processing, thin film preparation, device assembly, sample transfer and packaging.

By reducing the impact of moisture and oxygen on materials and devices, it provides a stable controlled atmosphere experimental platform for research on new display, photovoltaic, optoelectronics and semiconductor materials.

Chemically and Air Sensitive Materials

It is widely used in the research of organic synthesis, inorganic synthesis, metal-organic chemistry, catalytic chemistry and air-sensitive reagents. For reagents, intermediates and catalysts that easily react with water or oxygen, weighing, preparation, reaction, packaging and storage can be completed in an inert environment.

According to the usage of solvent vapor and other process media in actual experiments, the system can also be configured with corresponding solvent adsorption, purification or waste gas treatment solutions.

Powder metallurgy and advanced materials

It can be used for the research and processing of metal powders, alloy materials, ceramic powders, nanomaterials, magnetic materials and other advanced functional materials to meet the need for controlled atmosphere during the weighing, mixing, screening, transfer and storage of easily oxidized powders.

For samples that require further sintering, heat treatment, additive manufacturing or material characterization, the glove box can also serve as an important environmental control platform for pre-processing and intermediate transfer.

Welding and additive manufacturing

In the field of processing special alloys, active metals and high-performance materials, it can be used for pre-welding sample processing, metal powder preparation, parts transfer and special atmosphere auxiliary processes. For titanium, magnesium and some easily oxidized metal materials, a suitable inert atmosphere system can be configured according to the actual process.

For additive manufacturing applications, glove boxes can be combined with powder handling, material preparation and related processing equipment to create a more complete controlled atmosphere operation.

Universities and research laboratories

It is suitable for universities, scientific research institutes, national laboratories and corporate R&D centers to meet the needs of inert atmosphere and low water and low oxygen experimental conditions in materials science, chemistry, physics, new energy, semiconductor and interdisciplinary research.

The modular system design facilitates the configuration of water and oxygen analyzers, vacuum equipment, spin coating machines, evaporation equipment, testing instruments and other experimental devices in conjunction with the actual research direction of the laboratory, and builds a comprehensive experimental platform for specific research topics.

Medicine, Biotechnology and Anaerobic Research

Depending on the specific equipment configuration and research needs, it can be used for some biotechnology, pharmaceutical research and anaerobic experiments that require low oxygen, anaerobic or controlled atmosphere conditions. By controlling the internal atmosphere composition, a relatively independent environmental space is provided for specific sample processing, experimental operations and research processes.

For applications involving biological safety, cleanliness levels or special gas proportion control, corresponding filtration, gas control and safety protection systems should be configured according to specific experimental specifications.

Corporate R&D and special processes

In addition to standard scientific research applications, it can also be customized for new material research and development, precision manufacturing, special devices, sensitive components, and small batch trial production of enterprises. According to the equipment size, operating station, atmosphere requirements and external process equipment, a glove box system suitable for different experiments and production processes can be constructed.

For special space dimensions, multi-station operations, equipment connection and automation requirements, targeted design can be achieved through the combination of structure, purification, control and functional modules.

Accessories & Customization

System functions (differences exist in some models)

name	Introduction
automatic control	The program control unit realizes automatic control and detection of equipment operation.
Box manual/automatic gas replacement	Before using the cabinet for the first time, the air in the cabinet must be "replaced" with inert gas or nitrogen. This can be easily achieved using the automatic gas replacement function of the box provided by the system, or gas replacement can be performed manually.
Transition cabin box manual/automatic gas replacement	When materials enter the box, the gas in the transition cabin needs to be replaced. This can be easily achieved using the automatic gas replacement function of the transition cabin provided by the system, or gas replacement can be performed manually.
Gas purification control	After setting the working status and results, the system purification can be set to automatic. The system will automatically maintain the atmosphere conditions in the box, so that the system can complete the work for us without anyone, or you can choose manual control.
Foot operated air pressure control	Use the foot controller - to control the gas pressure of the cabinet by inflating or pumping the system.
Restore purification system	The restoration of purification materials is automatically completed by the system. We only need to give the system restoration conditions. After turning on the restoration, the system can automatically complete the restoration work for us. The process does not require human supervision.
Online working condition detection	The control system provides users with a function to detect the working status of equipment components. This function can be used to observe the working status of components and detect the source of faults for each function and component.
System parameter settings	There is a system setting function, and users can achieve the desired working conditions and function settings by setting system parameters.
Data logging function	The system provides a record of the operating parameters of the equipment, through which we can trace or monitor production or experiments.
Control air circuit backup function	When the control air source is temporarily cut off or the control air source is insufficient for a period of time, the equipped control gas will ensure that the equipment continues to work.
Multi-level security system	The control system is set up with multi-level safety prompts, alarms and prohibition functions. Safety of packaging operators and equipment.
Purification cycle obstruction protection function	When the circulation system is blocked, the control system prompts an alarm and actively adjusts the circulation wind speed to protect the motor. This function can also detect problems such as blocked system circulation, blocked pipes, blocked filters, etc.
Glove box optional features	Data recording and printing, remote service function, system temperature control function.

System configuration (some models have differences)

Configuration and quantity	Technical parameters	Remark
Standard transition cabin 1 item	DN385×588mm	Located on the right side of the box, material: SUS304 stainless steel Aluminum alloy door cover with movable drawer inside Equipped with door opening assist device
Tool transition cabin 1 item	DN150×350mm	Located on the right side of the box, material: SUS304 stainless steel (can be made according to customer requirements)
Shelves 1 item	Double layer	Back-mounted
Box rack 1 item	Height 900mm	There are swivel casters for easy moving of the glove box Integrated purification system inside the right rack
Transparent visual panel	Thickness: 12mm	Made of double-layer laminated tempered glass
4 gloves	Thickness: 0.4mm	Butyl synthetic rubber, brand: American PIERCAN
1 power socket	220V, 10A, 8 holes	Located inside the glove box, it provides power to the electrical appliances in the box.
lighting system	Brand: Philips	Equipped with fluorescent tubes to provide lighting inside the box.
3 sets of spare interfaces	KF40	Device for gas or liquid to enter the box, material: SUS304 stainless steel Configure quick connectors.
1 vacuum pump	Model: D16C	Air extraction volume: 4L/S, brand: German LEYBOLD, equipped with oil mist filter
2 HEPA filters	Filtration precision: 0.3μm	Installed in the box, it is mainly used to filter dust in the box and protect the ventilation pipe from being unobstructed.
2 vacuum gauges	Mechanical dial display	Measuring excessive and excessive tool vacuum
1 pressure gauge	Mechanical dial display	Measure box air pressure
Foot controller 1 item	Double pedal type	Control box gas replenishment and emptying
control system	Color touch screen: 6 inches	Touch screen, PLC Brand: SIEMENS The touch screen is hung on the box and can rotate freely The Chinese, English and Russian operating interfaces can be switched freely.
1 pressure sensor	-2500~2500Pa (relative pressure)	Touch screen display
Moisture analyzer 1 piece	0~1000ppm	Touch screen display, accuracy: 0.1ppm, brand: American MICHELL
1 oxygen transmitter	0~1000ppm	Touch screen display, accuracy: 0.1ppm, brand: American AII
Gas purification system	Single purification column	Has the function of removing water and oxygen Integrated into cabinet rack Water removal material: UOP from the United States, oxygen removal material: BASF from Germany.
Organic solvent adsorption system	21L	Installed on the glove box pipeline, it is a purification material used to absorb solvent gas generated during use and protect the system.

Accessories & Customization

Accessories

Grinding jars, heating elements, sample holders, control modules and other matching accessories can be selected according to the product configuration.

Customization

For voltage, capacity, chamber size, process temperature or application requirements, please contact TENCAN for a suitable configuration.