



KINTEK SOLUTION

Glove Box Catalog

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KINTEK SOLUTION

COMPANY PROFILE

>>> About Us

KINTEK Solution is a technology-driven innovator specializing in comprehensive laboratory equipment for battery R&D and advanced materials research. Our portfolio spans the entire cell fabrication workflow—from mixing, coating, and precision pressing (automatic, heated, isostatic) to cell assembly and testing. Also essential in ceramics and powder metallurgy, our systems prioritize precision, safety, and repeatability, empowering researchers and industrial labs to achieve groundbreaking results.



Single Station Single Sided Glove Box Inert Gas Purification Workstation

Item Number: ST04



Introduction

Engineered for advanced battery and chemical research, this single station single sided glove box maintains an inert atmosphere with moisture and oxygen below 1 ppm, featuring automated Siemens PLC controls, dual transition antechambers, and integrated solvent purification systems.

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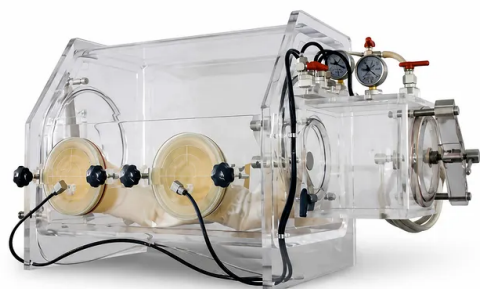
Application	Description	Key Benefit
Lithium & Sodium Battery Assembly	Assembly of coin cells, pouch cells, and split test cells involving metallic lithium, sodium foils, and reactive liquid electrolytes.	Prevents rapid oxidation and moisture degradation, ensuring accurate electrochemical impedance and cycling performance data.
Solid-State Electrolyte Research	Synthesis, cold pressing, and hermetic encapsulation of sulfide-, oxide-, and polymer-based solid electrolyte powders.	Eliminates hydrolysis reactions that generate toxic H ₂ S gas and compromise ionic conductivity.
Perovskite Solar Cell Fabrication	Spin-coating, thermal annealing, and encapsulation of organic-inorganic hybrid metal halide perovskite precursor films.	Protects moisture-sensitive perovskite crystallites during formation, boosting photovoltaic conversion efficiency and film uniformity.
Organometallic & Catalytic Synthesis	Manipulation, purification, and storage of pyrophoric reagents, Grignard reagents, and sensitive transition-metal catalysts.	Guarantees an inert nitrogen or argon environment, preventing spontaneous combustion and loss of catalytic activity.
Supercapacitor & Energy Storage R&D	Electrolyte filling, electrode wetting, and final sealing of ultra-capacitor cores with sensitive non-aqueous solvents.	Maintains low volatile organic background and strict dryness to achieve maximum working voltage and extended cycle life.
Specialized Metallurgy & Laser Sealing	Inert handling of fine reactive metal powders (titanium, zirconium) and micro-welding of hermetic electronic packages.	Minimizes gas entrapment, porosity, and oxide inclusions in finished welds and sintered components.

System Category	Parameter Specification	Value / Detail (ST04)
Model Identification	Product Item Number	ST04
Core Performance	Moisture Level (H ₂ O)	< 1 ppm (Standard condition: 20°C, 1 atm, 99.999% inert gas)
	Oxygen Level (O ₂)	< 1 ppm (Standard condition: 20°C, 1 atm, 99.999% inert gas)
	Overall Leak Rate	≤ 0.05 vol%/h
Main Enclosure	Internal Dimensions (L × D × H)	1220 mm × 750 mm × 900 mm
	Box Material	304 Stainless Steel, 3.0 mm thickness, acid-resistant
	Exterior / Interior Finish	White powder-coated exterior / Natural stainless steel interior
	Viewing Window	8 mm inclined tempered safety glass with protective film
	Glove Ports	Machined aluminum alloy, O-ring sealed, 2 ports
	Glove Specifications	Ansell Butyl Rubber, 0.4 mm thickness, 8" diameter, 32" length
	Internal Shelving	Multi-tier height-adjustable 304 stainless steel rack
	Internal Lighting	High-intensity glare-free LED strip mounted above front window
	Feedthrough Ports	3 × DN40 KF spare blind flanges (customizable); 1 × 220V power port (1.2 kW)

System Category	Parameter Specification	Value / Detail (ST04)
Large Antechamber	Dimensions	Diameter 360 mm, Length 600 mm (Right-side mounted)
	Material & Finish	304 Stainless Steel, polished interior / white painted exterior
	Door & Tray Mechanism	Dual 10 mm anodized aluminum vertical sliding doors; 304 SS sliding tray
	Control & Pressure Display	PLC touchscreen automated solenoid valve control; analog pressure gauge
Small Antechamber	Dimensions	Diameter 150 mm, Length 300 mm (100 mm extension into main chamber)
	Material & Finish	304 Stainless Steel, brushed interior / white painted exterior
	Door & Mechanism	Dual quick-clamp compression doors; integrated sliding tray
	Control & Pressure Display	Manual 3-way ball valve; analog pressure gauge
Gas Purification System	Purification Column	Single-column 304 stainless steel vessel
	Catalytic Filling	5 kg BASF Copper Catalyst (Deoxygenation) + 5 kg UOP Molecular Sieve (Desiccation)
	Purification Capacity	Oxygen removal: 60 L; Water absorption: 2.0 kg
	Compatible Working Gases	Nitrogen (N ₂), Argon (Ar), Helium (He)
	Blower Circulation Flow	Integrated Dargang blower, 90 m ³ /h flow capacity
	Particulate Filtration	Dual 0.3 µm HEPA filters (1 gas inlet, 1 gas outlet)
	Regeneration Process	Automated PLC programmed cycle using working gas with 5-10% H ₂ mixture
Vacuum System	Vacuum Pump Type	Edwards rotary vane pump with oil mist filter and gas ballast
	Displacement Speed	12 m ³ /h rated displacement (8 m ³ /h effective working throughput)
	Ultimate Vacuum Level	≤ 2.0 × 10 ⁻¹ Pa
Control & Instrumentation	Automation Hardware	Siemens PLC controller with color touch HMI screen
	Pressure Regulation Range	Operating pressure configurable within ±10 mbar; safety trip at ±12 mbar
	Hands-Free Control	Bidirectional pneumatic foot pedal for pressure increase/decrease
	Differential Pressure Sensor	Halstrup high-precision pressure sensor (Germany)
	Primary Dial Gauges	WIKA mechanical pressure gauges (Germany)
	Moisture Sensor (H ₂ O)	VTI P205 platinum electrode analyzer, range 0-500 ppm (cleanable/renewable)
	Oxygen Sensor (O ₂)	VTI Zirconia (ZrO ₂) solid electrolyte analyzer, range 0-1000 ppm
	Process Valves & Fittings	Burket electromagnetic solenoid valves; Legris pneumatic fittings
Auxiliary Traps	Solvent Adsorption Unit	Ø237 mm × 407 mm (304 SS), 9 kg activated carbon with manual isolation valves
	Hydrofluoric Acid (HF) Trap	Ø237 mm × 407 mm (304 SS), 9 kg activated alumina with manual isolation valves

Acrylic Glove Box For Laboratory Use And Inert Atmosphere Material Processing

Item Number: ST03



Introduction

Engineered for advanced laboratory research, this high-transparency acrylic glove box provides reliable inert gas isolation, low-energy radiation shielding, and vacuum-sealed material handling. Built with premium PMMA, dual gas ports, and modular power pass-throughs, it optimizes chemical, battery, and biological workflows.

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Application	Description	Key Benefit
Battery Material Synthesis	Encapsulation and handling of moisture-reactive lithium, sodium, and solid-state electrolyte chemistries under dry inert gas.	Prevents rapid oxidation and moisture degradation, ensuring optimal electrochemical testing performance.
Radiological Research	Containment and manipulation of low-energy alpha- and beta-emitting radioactive compounds and tagged tracers.	PMMA walls shield ionizing radiation, providing direct operator safety without requiring heavy leaded glass.
Anaerobic Microbiology	Aseptic inoculation, culture incubation, and biological sample preservation under zero-oxygen conditions.	Prevents airborne contamination and oxygen toxicity, ensuring repeatable microbiological assay growth.
Electronic & Magnetic Materials	Assembly and packaging of sensitive semiconductor components, magnetic powders, and moisture-critical thin films.	Eliminates electrostatic dust adhesion and atmospheric degradation during critical assembly steps.
Quantitative Chemical Analysis	Weighing, titrating, and synthesizing volatile, hygroscopic, or air-sensitive organic and inorganic reagents.	Built-in electrical connections allow in-situ micro-balance measurement in an undisturbed environment.
Food & Pharmaceutical Packaging R&D	Controlled modified atmosphere packaging (MAP) testing, hermetic seal validation, and stability evaluations.	Allows real-time visual inspection through crystal-clear walls while maintaining strict gas ratios.

Parameter	ST03-012C	ST03-011C	ST03-008C
Main Chamber Dimensions (W x D x H)	700 x 450 x 500 mm	800 x 550 x 600 mm	900 x 600 x 700 mm
Antechamber Dimensions (W x D x H)	240 x 240 x 240 mm	240 x 240 x 240 mm	240 x 240 x 240 mm
PMMA Wall Thickness	20 mm	25 mm	30 mm
Left Main Chamber Access Door	Round Door, Ø 300 mm	Round Door, Ø 350 mm	Round Door, Ø 300 mm
Right Antechamber Access Door	Round Door, Ø 160 mm	Round Door, Ø 160 mm	Round Door, Ø 160 mm
Glove Specifications (Diameter x Length x Thickness)	145 x 600 x 1.1 mm or 145 x 800 x 0.3 mm	145 x 600 x 1.1 mm or 145 x 800 x 0.3 mm	145 x 600 x 1.1 mm or 145 x 800 x 0.3 mm
Operating Chamber Ultimate Vacuum	0 to -0.1 MPa (Grade 2.5 Gauge)	0 to -0.1 MPa (Grade 2.5 Gauge)	0 to -0.1 MPa (Grade 2.5 Gauge)
Antechamber Ultimate Vacuum	0 to -0.1 MPa (Grade 2.5 Gauge)	0 to -0.1 MPa (Grade 2.5 Gauge)	0 to -0.1 MPa (Grade 2.5 Gauge)
Pressure Retention Duration	≥ 12 Hours	≥ 12 Hours	≥ 12 Hours

Parameter	ST03-012C	ST03-011C	ST03-008C
Applicable Inert Gases	Argon, Helium, Nitrogen (Purity $\geq$ 99.95%)	Argon, Helium, Nitrogen (Purity $\geq$ 99.95%)	Argon, Helium, Nitrogen (Purity $\geq$ 99.95%)
Standard Hardware Included	2x Vacuum Gauges, 6x Vacuum Valves, 1x Power Socket, 1x Gas Hose Set	2x Vacuum Gauges, 6x Vacuum Valves, 1x Power Socket, 1x Gas Hose Set	2x Vacuum Gauges, 6x Vacuum Valves, 1x Power Socket, 1x Gas Hose Set
Approximate System Weight	~110 kg	~110 kg	~110 kg
Optional Integrated Equipment	Vacuum Pump (2L/4L), Dew Point Meter, Oxygen Analyzer, Balance, Electric Furnace	Vacuum Pump (2L/4L), Dew Point Meter, Oxygen Analyzer, Balance, Electric Furnace	Vacuum Pump (2L/4L/6L/8L), Dew Point Meter, Oxygen Analyzer, Balance, Electric Furnace

Model Identifier	Main Chamber Dimensions (mm)	Type A PMMA Thickness	Type B PMMA Thickness	Type C PMMA Thickness	Antechamber Dimensions (mm)	Vacuum Evacuation Capability	Material	Left Door Diameter
ST03-012	700 x 450 x 500	10 mm	10 mm	20 mm	Type A: None / Type B & C: 240 x 240 x 240	Type A & B: No / Type C: Yes	Imported PMMA	350 mm
ST03-011	800 x 550 x 600	10 mm	10 mm	25 mm	Type A: None / Type B & C: 240 x 240 x 240	Type A & B: No / Type C: Yes	Imported PMMA	300 mm
ST03-010	1000 x 500 x 500	10 mm	10 mm	25 mm	Type A: None / Type B & C: 240 x 240 x 240	Type A & B: No / Type C: Yes	Imported PMMA	300 mm
ST03-009	1000 x 700 x 500	10 mm	10 mm	30 mm	Type A: None / Type B & C: 240 x 240 x 240	Type A & B: No / Type C: Yes	Imported PMMA	300 mm
ST03-008	900 x 600 x 700	10 mm	10 mm	30 mm	Type A: None / Type B & C: 240 x 240 x 240	Type A & B: No / Type C: Yes	Imported PMMA	300 mm
ST03-007	1000 x 600 x 700	10 mm	10 mm	30 mm	Type A: None / Type B & C: 240 x 240 x 240	Type A & B: No / Type C: Yes	Imported PMMA	300 mm
ST03-006	1000 x 750 x 700	10 mm	10 mm	30 mm	Type A: None / Type B & C: 240 x 240 x 240	Type A & B: No / Type C: Yes	Imported PMMA	300 mm
ST03-005	1200 x 600 x 600	10 mm	10 mm	40 mm	Type A: None / Type B & C: 240 x 240 x 240	Type A & B: No / Type C: Yes	Imported PMMA	300 mm
ST03-004	1200 x 600 x 700	10 mm	10 mm	40 mm	Type A: None / Type B & C: 240 x 240 x 240	Type A & B: No / Type C: Yes	Imported PMMA	300 mm
ST03-003	1200 x 800 x 600	10 mm	10 mm	40 mm	Type A: None / Type B & C: 240 x 240 x 240	Type A & B: No / Type C: Yes	Imported PMMA	300 mm
ST03-002	1200 x 800 x 700	10 mm	10 mm	40 mm	Type A: None / Type B & C: 240 x 240 x 240	Type A & B: No / Type C: Yes	Imported PMMA	300 mm
ST03-001	1094 x 640 x 645	10 mm	10 mm	30 mm	Type A: None / Type B & C: 240 x 240 x 240	Type A & B: No / Type C: Yes	Imported PMMA	300 mm

Three Port Single Sided Glove Box Workstation With Inert Gas Purification System

Item Number: ST11



Introduction

This high-precision three-port single-sided glove box delivers an ultra-pure inert environment maintaining moisture and oxygen levels below 0.1 ppm. Featuring automated PLC touch control, continuous gas purification, and robust stainless construction, it ensures total protection for sensitive research.

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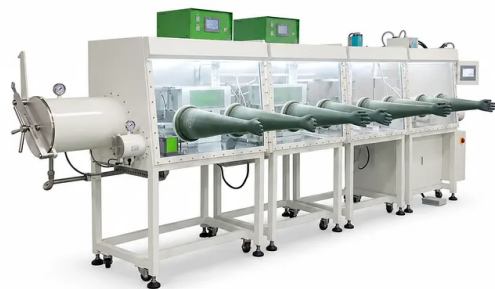
Application	Description	Key Benefit
Lithium-Ion & Solid-State Battery Assembly	Stacking, electrolyte filling, sealing, and testing of moisture-sensitive lithium metal anodes, sulfide-based solid electrolytes, and pouch cells.	Prevents hydrolytic degradation and dangerous passivation layer buildup by holding ambient moisture strictly below 0.1 ppm.
Organometallic & Coordination Chemistry	Synthesis, handling, and recrystallization of pyrophoric metal catalysts, Grignard reagents, and sensitive metal-organic frameworks (MOFs).	Eliminates oxidation risks and side reactions through continuous closed-loop inert gas scrubbing under argon or nitrogen.
Perovskite Solar Cell Fabrication	Spin coating, annealing, and vapor deposition prep of hybrid organic-inorganic halide perovskite precursors.	Safeguards volatile halide films from ambient humidity, significantly enhancing photovoltaic conversion efficiency and device repeatability.
Specialty Powder Metallurgy & 3D Printing	Sieving, packaging, and handling of fine titanium, aluminum, and refractory metal powders vulnerable to oxidation.	Prevents explosive surface reactions and oxide inclusions, preserving powder sphericity and metallurgical purity.
Organic Semiconductor & OLED Research	Deposition material prep, device encapsulation, and clean-environment testing of conjugated polymers and small molecules.	Protects reactive cathode interfaces and organic transport layers from trace oxygen quenching and moisture-induced dark spots.
Nuclear & Halogenated Chemical Processing	Handling reactive halide compounds with dedicated HF traps and activated alumina vapor capture systems.	Traps corrosive acid vapors before they degrade internal seals or catalyst beds, ensuring operator safety and unit longevity.

System Subassembly	Parameter / Specification	Value / Design Standard (ST11)
Main Chamber Body	Item Model Identifier	ST11
	Overall Internal Dimensions (L × D × H)	1500 mm × 750 mm × 900 mm
	Chamber Wall Material & Thickness	304 Stainless Steel, 3.0 mm thick
	Internal / External Surface Finish	Brushed Interior Finish / White Powder-Coated Exterior
	Sight Window	8 mm thick tempered safety glass, inclined ergonomic viewing angle
	Glove Ports	3 ports, solid aluminum alloy with double O-ring seals
	Gloves	8" diameter cuff, 32" length, heavy-duty butyl rubber
	Internal Shelving	3-tier integrated 304 stainless steel adjustable shelving
	Illumination	High-intensity external LED lighting mounted above view glass
	Chamber Feedthrough Interfaces	3 × DN40 KF blind flange feedthroughs, 1 × 220V electrical power feedthrough
	Gas Filtration	Dual 0.3 μm HEPA particulate filters (1 × gas inlet, 1 × gas outlet)
Atmospheric Purity	Water Vapor Content (H2O)	< 0.1 ppm (under 20°C, 1 atm, 99.999% inert gas supply)

System Subassembly	Parameter / Specification	Value / Design Standard (ST11)
	Oxygen Content (O2)	< 0.1 ppm (under 20°C, 1 atm, 99.999% inert gas supply)
	Enclosure Leak Rate	< 0.001 vol%/h
Large Antechamber	Cylinder Dimensions	360 mm Diameter × 600 mm Length
	Material & Construction	304 Stainless Steel body, 10 mm anodized aluminum dual vertical-lift doors
	Sliding Tray	304 Stainless Steel with smooth guide tracks
	Vacuum & Refill Operation	Touchscreen-driven electro-pneumatic solenoid automation; analog pressure gauge
Heated Large Antechamber	Cylinder Dimensions	360 mm Diameter × 600 mm Length, 304 Stainless Steel
	Heating Architecture & Power	Wrap-around surface heating jacket, < 2000 W total power
	Temperature Range & Control	Ambient to 200°C; programmable digital PID controller with timer functions
Mini Antechamber	Cylinder Dimensions	150 mm Diameter × 300 mm Length (100 mm extending into main chamber)
	Material & Door Mechanism	304 Stainless Steel body, dual clamp-lock manual sealing doors
	Sliding Tray & Controls	304 Stainless Steel tray; manual 3-way ball valve; analog pressure gauge
Gas Purification System	Purification Column	Single-column closed-loop system, 304 Stainless Steel container
	Catalyst Fill & Chemistry	5 kg Copper Catalyst (Deoxygenation) + 5 kg Molecular Sieve (Moisture Adsorption)
	Total Absorption Capacity	60 L Oxygen (O2) / 2000 g Water Vapor (H2O)
	Circulation Blower	90 m³/h integrated variable-frequency drive (VFD) blower
	Compatible Working Gases	High-purity Nitrogen (N2), Argon (Ar), or Helium (He)
	Column Regeneration Sequence	Fully automated PLC cycle using 5-10% H2 balance inert gas mix
	System Valve Architecture	DN40 KF electro-pneumatic angle main valve; 6-valve integrated SS manifold block
Vacuum System	Vacuum Pump Specification	Heavy-duty oil-sealed rotary vane pump, 12 m³/h displacement
	Ultimate Vacuum Rating	≤ 2 × 10 ⁻¹ Pa
	Accessories & Controls	Integrated oil mist exhaust filter, gas ballast control, automatic PLC on-demand startup
Sensors & Analyzers	Moisture Analyzer	P2O5 sensor probe, range 0-500 ppm, accuracy 0.1 ppm (regenerable/cleanable)
	Oxygen Analyzer	ZrO2 solid electrolyte sensor probe, range 0-1000 ppm, accuracy 0.1 ppm
Trap Accessories	Organic Solvent Trap	238 mm Dia. × 407 mm H, 304 SS, 10 kg activated carbon with bypass & purge ports
	Acid Vapor (HF) Trap	238 mm Dia. × 407 mm H, 304 SS, 10 kg activated alumina with bypass & purge ports
Control & Power	Control Architecture	Siemens PLC system with color touchscreen HMI and dual foot-pedal switches
	Dynamic Pressure Range	User-adjustable within ±10 mbar; automated alarm and shutoff at ±12 mbar
	Power Supply	220V AC / 50-60 Hz

Four Station Side By Side Single Sided Operation Inert Gas Glove Box Workstation

Item Number: ST08



Introduction

Engineered for battery R&D and air-sensitive synthesis, this four-station single-sided inert gas glove box maintains sub-1 ppm moisture and oxygen purity, featuring automated PLC controls, dual-sided pass-through antechambers, and regenerable gas purification.

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Application	Description	Key Benefit
Solid-State & Lithium Battery Assembly	Continuous electrode stacking, electrolyte filling, pouch/cylindrical cell sealing, and material formulation under inert argon or nitrogen.	Eliminates moisture-induced electrolyte degradation (HF formation) and lithium oxidation with continuous < 1 ppm H ₂ O and O ₂ protection.
Organometallic & Catalyst Synthesis	Handling pyrophoric reagents, Grignard reagents, metal alkyls, and transition-metal catalysts across multiple synthesis steps.	Prevents spontaneous ignition and unwanted reagent quenching while capturing corrosive solvent vapors in the oversized trap.
Perovskite & OLED Photovoltaic Fabrication	Spin-coating, thermal annealing, precision pressing, and encapsulation of organic and hybrid halide semiconductor materials.	Delivers pristine film morphologies and prevents phase degradation caused by trace ambient humidity and oxygen.
Nuclear & Radioactive Isotope Processing	Isolation, containment, and hermetic packaging of specialized isotopes and actinide compounds requiring certified leak-tight boundaries.	Minimizes contamination risks via a certified ultra-low leak rate (≤ 0.05 vol%/h) and 0.3 µm dual HEPA particulate filtration.
Additive Manufacturing Powder Handling	Sieving, mixing, loading, and recovery of reactive spherical titanium, aluminum, and nickel superalloy powders for 3D printing.	Prevents surface oxide layer growth and hazardous dust deflagration during multi-operator bulk powder handling.
Specialty Metallurgy & Laser Welding	Joining reactive and refractory metals (titanium, zirconium, tantalum) requiring an active gas-purged workspace.	Provides broad working space for welding fixtures and motion stages with continuous high-flow gas recirculating purification.

Specification Category	Parameter	Engineering Metric / Configuration (ST08)
System Model	Item Reference	ST08
Purification Performance	Moisture Concentration (H ₂ O)	< 1 ppm (at 20°C, 1 atm, 99.999% inert gas feed)
	Oxygen Concentration (O ₂)	< 1 ppm (at 20°C, 1 atm, 99.999% inert gas feed)
	Overall Leak Rate	≤ 0.05 vol%/h
Main Chamber Body	Internal Dimensions (L × D × H)	4880 mm × 750 mm × 900 mm
	Construction Material	304 Stainless Steel, 3.0 mm sheet thickness, acid-resistant
	Internal & External Finish	Internal: Brushed Stainless Steel; External: White Polyurethane Powder-Coated
	Operator Configuration	4 Workstations, Single-Sided In-Line Operation
	Viewing Windows	4 × Inclined 8.0 mm Tempered Safety Glass with Scratch-Resistant Protective Film
	Glove Ports	Machined High-Strength Hard Aluminum Alloy, Dual O-Ring Hermetic Seal
	Glove Specifications	North Safety Butyl Rubber (USA), 0.4 mm Thickness, 8" Port Diameter, 32" Length
	Gas Filtration	Dual 0.3 µm Particulate Filters (1 Gas Inlet, 1 Gas Outlet)
	Shelving & Illumination	Adjustable 304 Stainless Steel Shelving; 4 × High-Intensity LED Light Bars

Specification Category	Parameter	Engineering Metric / Configuration (ST08)
Dual Large Antechambers	Feedthrough Ports	16 × DN40 KF Spare Feedthroughs; 2 × Internal Power Supply Cords (220V)
	Quantity & Location	2 Units (One Mounted on Left Side, One Mounted on Right Side)
	Dimensions	Diameter: 360 mm, Length: 600 mm
	Construction Material	304 Stainless Steel (Internal: Polished Finish; External: White Painted)
Dual Small Antechambers	Door Design & Tray	10 mm Anodized Aluminum Vertical-Lift Doors with Counterbalanced Lift; 304 SS Sliding Tray
	Evacuation & Control	Touchscreen-Controlled Solenoid Valves with Analog Pressure Gauge Display
	Quantity & Location	2 Units (One Mounted on Left Side, One Mounted on Right Side)
	Dimensions	Diameter: 150 mm, Length: 300 mm (100 mm Chamber Ingress)
Gas Purification System	Construction Material	304 Stainless Steel (Internal: Brushed Finish; External: White Painted)
	Door Design & Operation	Dual Compression Clamping Doors with Internal Sliding Tray; Manual Ball Valve Control
	Purification Column Design	Single-Column Fully Enclosed Stainless Steel Housing
	Purification Reactants	Copper Catalyst: 9.0 kg (BASF/Bayer); Molecular Sieve: 9.0 kg (BASF/Bayer)
Solvent Trap System	Capacity Metrics	Oxygen Removal: 100 Liters; Moisture Adsorption: 4.0 kg
	Gas Circulation Blower	Integrated DARGANG Blower (Taiwan), Flow Rate: 145 m³/h
	Working Compatible Gases	Nitrogen (N₂), Argon (Ar), Helium (He)
	Column Regeneration	Automated PLC-Programmed Cycle; Mix Gas: Working Gas + 5%–10% H₂
Vacuum System	Solvent Absorber Dimensions	Diameter: 238 mm, Height: 407 mm
	Trap Construction	3.0 mm 304 Stainless Steel, Mounted Directly In-Line on Circulation Loop
Sensing & Instrumentation	Vacuum Pump Model	Edwards RV12 Rotary Vane Vacuum Pump (UK)
	Pumping Speed & Limit Vacuum	12 m³/h Displacement; Ultimate Vacuum: ≤ 2.0 × 10 ⁻¹ Pa
	Accessories & Integration	Integral Oil Mist Filter, Gas Ballast Control, Automated PLC Start/Stop Integration
Control & Hardware	Oxygen Analyzer	VTI (USA), Zirconia (ZrO₂) Sensor, Range: 0–1000 ppm (Immune to Air-Shock)
	Moisture Analyzer	VTI (USA), P₂O₅ Platinum Electrode Sensor, Range: 0–500 ppm (Cleanable/Regenerable)
	Pressure Sensor	Halstrup (Germany) Sensor; Programmable Control: ±10 mbar; Fail-Safe Trip: ±12 mbar
	Vacuum & Pressure Gauges	WIKA (Germany) Precision Mechanical Analog Gauges
Control & Hardware	Main Controller	Siemens PLC with Smart 700 Full-Color Touchscreen Interface
	Pneumatic & Angle Valves	Bürkert (Germany) Solenoid Valves; Legris (France) Push-to-Connect Fittings
	Main Angle Valves	DN40 KF Electro-Pneumatic Angle Valves; Custom MIKROUNA Integrated Valve Manifold
	Ergonomic Foot Switch	Heavy-Duty Dual-Pedal Switch for Chamber Pressure Ramp-Up / Evacuation Adjustment
Control & Hardware	System Stand & Mobility	Structural Steel Base Stand with Heavy-Duty Leveling Footpads and Swivel Casters

Solar Cell Single And Double Station Operation Glovebox With Purification And Laminar Flow System

Item Number: ST09



Introduction

Engineered for advanced solar cell fabrication, this combined single and double station operation glovebox provides ultra-pure inert processing with moisture and oxygen levels under 0.1 ppm, seamless T-chamber interconnectivity, Class 10 laminar air filtration, and automated PLC atmosphere control.

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Application	Description	Key Benefit
Perovskite & Organic Solar Cells	Synthesis of moisture- and oxygen-sensitive halide perovskite precursor solutions, substrate spin-coating, and cell packaging.	Prevents rapid degradation of organic-inorganic perovskite layers by holding H ₂ O and O ₂ below 0.1 ppm under ISO 4 dust-free laminar conditions.
Integrated Vacuum Thermal Evaporation	Seamless transfer of patterned substrates directly from the preparation station into an attached thermal coater via the recessed chamber port.	Eliminates air exposure during critical metal electrode (Ag/Al/Au) and charge-transport layer deposition steps.
Solid-State Battery Assembly	Handling of lithium metal anodes, sulfide-based solid electrolytes, and hermetic cell crimping.	Mitigates hydrolysis of reactive solid electrolyte powders and prevents toxic gas generation while maintaining low ambient moisture.
Organic Light Emitting Diodes (OLED)	Formulation of luminescent polymers, small-molecule ink preparation, and encapsulation processes.	Extends device operational lifespan by maintaining an ultra-clean environment free from particulate defects and trace atmospheric oxidizers.
Advanced Semiconductor & Thin Film R&D	Processing of 2D transition metal dichalcogenides (TMDs), quantum dots, and reactive organometallic compounds.	Provides vibration-damped thermal stabilization (15–36°C) and rapid material transfer across segregated workstations.
Air-Sensitive Chemical Synthesis	Handling, weighing, and storage of pyrophoric catalysts, metal alkyls, and moisture-curable resins.	Ensures operator safety and product integrity through automated chamber pressure control, quick-change solvent traps, and fail-safe interlocks.

System Category	Parameter	Specification (ST09)
Model Identifier	System Designation	ST09
Atmospheric Purity	Moisture (H ₂ O) Baseline	< 0.1 ppm (at 20°C, 1 atm, 99.999% inert gas supply)
	Oxygen (O ₂) Baseline	< 0.1 ppm (at 20°C, 1 atm, 99.999% inert gas supply)
	Overall Leakage Rate	≤ 0.001 vol%/h
Main Chamber Dimensions	Station 1 (Double-Station) Nominal Size	1800 mm (L) × 750 mm (D) × 900 mm (H)
	Station 2 (Single-Station) Nominal Size	1220 mm (L) × 750 mm (D) × 900 mm (H)
	Chamber Wall Material & Thickness	SUS304 Stainless Steel, 3.0 mm thickness
	Chamber Surface Finish	Interior: Brushed finish; Exterior: Spray-painted white
	Vacuum Coater Integration	Recessed left-side chamber geometry with dedicated evaporator mounting interface
Viewing Windows & Gloves	Front Window Construction	Flanged one-piece frame, O-ring vacuum seal, 8 mm tempered safety glass, inclined angle
	Glove Ports	High-integrity Aluminum Alloy with dual O-ring sealing grooves

System Category	Parameter	Specification (ST09)
	Gloves Specification	Heavy-duty Butyl Rubber, Diameter: 8" (203 mm), Length: 32" (812 mm)
	Internal Workspace Storage	Integrated 3-tier adjustable SUS304 stainless steel shelving unit
	Illumination & Feedthroughs	Top-mounted LED lighting arrays; multiple blank DN 40 KF ports; 1× internal 220V power feed
Gas Purification System	Purification Column Configuration	Single-column purification unit, hermetically sealed SUS304 stainless steel casing
	Working Gas Compatibility	High-purity Nitrogen (N ₂) / Argon (Ar)
	Purification Material Load	5 kg Copper Catalyst (Deoxygenation) + 5 kg Molecular Sieve (Moisture Adsorption)
	Total Purification Capacity	Oxygen Removal: 60 L; Moisture Removal: 2000 g (2 kg)
	Circulation Blower Flow Rate	90 m ³ /h integrated blower with variable frequency drive (VFD)
	Column Regeneration Control	Fully automated PLC routine; Regeneration Gas: Working gas + 5–10% H ₂ mixture
	Solvent Vapor Purification	High-efficiency quick-change organic solvent vapor adsorption trap
Particulate & Cleanliness Control	Cleanroom Cleanliness Rating	Class 10 (US FED STD 209E) / ISO 4 (ISO 14644-1)
	Filtration Media Grade	HEPA H13 to ULPA U15 high-efficiency downflow filtration system
	Laminar Flow Velocity	Controlled between 0.2 m/s and 0.45 m/s via adjustable blower control
	Differential Pressure Monitoring	Analog differential pressure gauge across filter elements for timely replacement
Temperature Control System	Cooling Mechanism	Integrated ultra-clean heat exchanger with split floor-standing rotary compressor
	Temperature Setting Range	15°C to 36°C (Continuous closed-loop PID control)
	Temperature Display Accuracy	1°C
	Rated Cooling Capacity & Power	Cooling Capacity: 1050 W; Power Consumption: 640 W
Large T-Type Antechamber	Chamber Dimensions	Diameter: 360 mm, Length: 700 mm (SUS304 Stainless Steel)
	Door Configuration	3× Anodized Aluminum doors (10 mm thickness) with vertical mechanical lift mechanism
	Operation & Trays	Touchscreen-driven automated solenoid valves; sliding SUS304 stainless steel tray
	Functionality	Interlinks both chambers; supports left-to-right and center-to-side batch transfer
Small T-Type Antechamber	Chamber Dimensions	Diameter: 150 mm, Length: 300 mm (100 mm extension into glovebox)
	Door Configuration	3× SUS304 doors with quick-acting compression clamps
	Operation & Trays	Manual ball valves; fixed SUS304 stainless steel tray; analog vacuum gauge
	Functionality	Bi-directional inter-chamber transfer for small tools, crucibles, and substrate carriers
Standard Mini Antechamber	Chamber Dimensions	Diameter: 150 mm, Length: 300 mm (100 mm extension into glovebox)
	Door Configuration & Control	Dual blue clamp-lock doors; manual valve operation; analog vacuum gauge
Vacuum System & Valves	Rotary Vane Vacuum Pump	12 m ³ /h displacement, ultimate vacuum ≤ 2×10 ⁻¹ Pa, oil mist filter & gas ballast
	Angle Valves & Manifolds	DN 40 KF electro-pneumatic main angle valves; 6-valve integrated SUS solenoid manifold
PLC & Instrumentation	Controller & Interface	Siemens PLC with color touchscreen, password protection, and power-failure auto-restart
	Pressure Regulation	Operating setpoint freely adjustable within ±15 mbar; automatic safety trip at ±16 mbar
	Operator Foot Switch	Bi-directional foot pedal for hands-free chamber pressure adjustment
	Moisture Sensor Specification	Alumina ceramic thin-film probe; Range: 0–1000 ppm; Accuracy: 0.1 ppm
	Oxygen Sensor Specification	Electrochemical fuel cell probe; Range: 0–1000 ppm; Accuracy: 0.1 ppm

Side By Side Dual Station Vacuum Glove Box Inert Gas Purification System For Battery R And D And Materials Science

Item Number: ST06



Introduction

This side by side dual station vacuum glove box provides an ultra clean inert gas environment with moisture and oxygen levels below 1 ppm, featuring automated Siemens PLC control, dual antechambers, and robust 304 stainless steel construction for battery research.

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Application	Description	Key Benefit
Solid-State Battery R&D	Assembly, encapsulation, and electrolyte filling of air-sensitive lithium/sodium metal cells and sulfide-based solid electrolytes.	Eliminates hydrolysis and oxidation risks by maintaining sub-1 ppm moisture and oxygen baseline environments.
Organometallic & Catalysis Synthesis	Synthesis, purification, and storage of reactive catalysts, Grignard reagents, and pyrophoric transition metal complexes.	Prevents spontaneous decomposition and catalyst deactivation with continuous closed-loop inert gas scrubbing.
Perovskite Photovoltaics Processing	Spin-coating, thermal annealing, and encapsulation of high-efficiency perovskite solar cells and quantum dots.	Guarantees batch-to-batch film morphology consistency in a solvent-managed, dust-free enclosure (0.3 µm HEPA filtration).
Supercapacitor & Battery Slurry Prep	Handling ionic liquids, volatile organic electrolytes, and conductive carbon additives in experimental supercapacitor fabrication.	Heavy-duty solvent vapor trap captures hazardous electrolyte outgassing, preserving catalyst longevity.
Powder Metallurgy & Additive Manufacturing	Handling reactive spherical powders (Titanium, Aluminum, Magnesium alloys) for selective laser melting (SLM) preparation.	Prevents powder oxidation, ignition risks, and moisture pick-up to maintain optimal powder flowability and purity.
Semiconductor & OLED Device Packaging	Deposition handling, wafer transfer, and hermetic encapsulation of organic light-emitting diodes and microelectronics.	Ultra-low leakage rate (<0.05 vol%/h) and precision vacuum antechamber transfers eliminate particle and gas contamination.

Subsystem / Metric	Specification Parameter	Value / Detail
Product Identifier	System Model / Item Number	ST06
Overall Configuration	Operation Mode / Layout	Side-by-side dual-station, single-side operation with integrated single-column purification unit
Atmosphere Performance	Moisture & Oxygen Purity Level	< 1 ppm (at 20°C, 1 atm, 99.999% inert gas supply)
	Chamber Leakage Rate	≤ 0.05 vol%/h
Main Enclosure	Internal Dimensions (L × D × H)	2440 mm × 750 mm × 900 mm
	Structural Material & Thickness	304 Stainless Steel, 3 mm wall thickness
	Interior / Exterior Finish	Brushed stainless steel interior / White electrostatic powder-coated exterior
	Viewing Windows	2× Inclined transparent tempered safety glass panels, 8 mm thickness, laminated with protective film
	Glove Ports & Gloves	4× Polyoxymethylene (POM) ports with O-ring seals; 2 pairs 0.4 mm thick, 8" diameter, 32" length North butyl rubber gloves
	Gas Filtration	Dual 0.3 µm HEPA filters (1× gas inlet, 1× gas outlet)
	Shelving & Illumination	Built-in 2-tier 304 stainless steel adjustable shelving; 2× upper front-mounted LED light strips

Subsystem / Metric	Specification Parameter	Value / Detail
Large Antechamber	Interface Ports & Power	7× DN 40 KF blind flange spare feedthrough ports; 1× internal 220V electrical power socket
	Dimensions	Cylindrical, Ø 360 mm × Length 600 mm
	Material & Finish	304 Stainless Steel; polished interior / white powder-coated exterior
	Doors & Mechanism	Dual vertical-lift doors, 10 mm thick anodized aluminum with balance lift mechanism
	Internal Tray	Sliding 304 stainless steel loading tray on guided rails
	Pressure Indication & Control	Analog dial vacuum gauge; automated touch-screen solenoid valve operation
Small Antechamber	Dimensions	Cylindrical, Ø 150 mm × Length 300 mm (100 mm chamber intrusion)
	Material & Finish	304 Stainless Steel; brushed interior / white powder-coated exterior
	Doors & Control	Dual quick-clamp opening doors; manual 3-way ball valve control with analog gauge
Gas Purification System	Column Capacity & Chemistry	Single 304 stainless steel column; 5 kg copper catalyst (60 L O ₂ capacity) & 5 kg molecular sieve (2 kg H ₂ O capacity)
	Recirculation Blower	DARGANG high-performance blower; flow rate capacity: 90 m ³ /h
	Compatible Working Gases	Nitrogen (N ₂), Argon (Ar), Helium (He)
	Automated Regeneration	PLC-controlled automated cycle using 5–10% Hydrogen (H ₂) balanced in inert gas
	Main & Control Valves	DN 40 KF electro-pneumatic angle valves; integrated modular solenoid valve manifold
Vacuum System	Vacuum Pump Type	Edwards 12 m ³ /h rotary vane pump with oil mist filter and automatic gas ballast control
	Ultimate Vacuum Level	≤ 2.0 × 10 ⁻¹ Pa
Analytical Sensors	Oxygen Analyzer (VTI)	Zirconia (ZrO ₂) sensor, Range: 0–1000 ppm, Resolution: 0.1 ppm (non-depleting, air-tolerant)
	Moisture Analyzer (VTI)	Phosphorus Pentoxide (P ₂ O ₅) sensor, Range: 0–500 ppm, Resolution: 0.1 ppm (field-cleanable & regenerable)
Solvent Trap System	Solvent Adsorber Unit	Ø 238 mm × Height 407 mm, 3 mm 304 SS, filled with 10 kg active adsorbent for HF and organic solvent capture
	Bypass & Isolation System	Manual bypass switching valves with vacuum evacuation port for contamination-free media replacement
Control & Instrumentation	PLC & Display	Siemens PLC architecture paired with Siemens Smart 700 7-inch color touchscreen interface
	Pressure Regulation	Setpoint range: ±10 mbar; Automatic system interlock trip protection at ±12 mbar
	Pressure Transducer & Gauges	Halstrup-Walcher pressure sensor; WIKA precision pressure gauges
	Foot Pedal Control	Dual-pedal switch for hands-free chamber pressure increase and reduction

Dual Purification Series Laboratory Vacuum Glove Box System

Item Number: ST12



Introduction

Engineered for continuous inert atmosphere research and mass production, this dual purification laboratory vacuum glove box maintains moisture and oxygen levels below 1 ppm with intelligent PLC control, automated regeneration, and modular industrial grade stainless steel construction.

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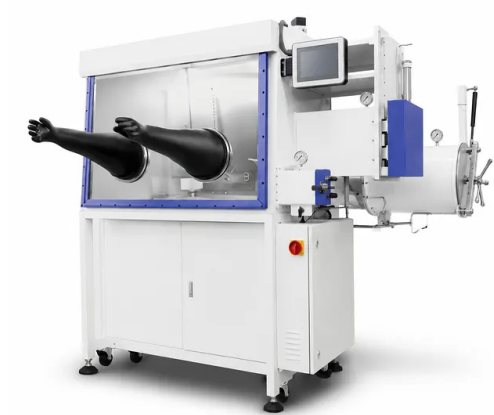
Application	Description	Key Benefit
Lithium & Solid-State Battery Assembly	Processing lithium metal foils, sulfide/oxide solid electrolytes, and moisture-sensitive pouch cell chemistries.	Prevents electrolyte degradation and lithium passivation by maintaining ultra-dry H2O < 1 ppm and O2 < 1 ppm conditions.
Organometallic & Air-Sensitive Synthesis	Handling pyrophoric reagents, Grignard compounds, transition metal catalysts, and moisture-reactive precursors.	Eliminates oxidation risks and hazardous atmospheric exposure during multi-step chemical reactions and transfers.
Perovskite Solar Cell Fabrication	Spin-coating, thermal annealing, and encapsulation of halide perovskite absorber layers.	Ensures uniform crystallization and prevents rapid degradation caused by ambient relative humidity.
Advanced Powder Metallurgy & 3D Printing	Sifting, handling, and blending reactive titanium, aluminum, or spherical alloy powders.	Prevents surface oxidation and explosive hazards during powder handling and laser sintering preparation.
Specialty Welding & Laser Processing	Inert gas sealing, micro-welding, and hermetic encapsulation of electronic and aerospace components under pure argon.	Delivers pristine, void-free weld joints without oxide inclusions or atmospheric contamination.
Semiconductor & Optoelectronic Packaging	Precision assembly, wire bonding, and sealing of moisture-sensitive microelectronics and OLED displays.	Maximizes device operational lifespans by mitigating moisture ingress and interfacial degradation.

Subsystem	Parameter	Specification (ST12 Series)
Model Identification	Standard Series Identifier	ST12
Atmospheric Purity	Moisture Concentration (H2O)	< 1 ppm
	Oxygen Concentration (O2)	< 1 ppm
Main Enclosure	Box Material	304 Stainless Steel (Thickness: 3 mm)
	Exterior Surface Finish	304 Stainless Steel
	Interior Surface Finish	Oil-film brushed surface
	Modular Length Options	1500 mm, 1800 mm, 2440 mm, 3660 mm, 4880 mm, 7320 mm
	Chamber Depth Options	750 mm, 1000 mm, 1200 mm
	Chamber Height	900 mm
	Viewing Window	Tilted transparent tempered safety glass, 8 mm thickness
	Glove Port Material	POM or Aluminum Alloy with O-ring seal
	Gloves	Butyl rubber, 0.4 mm thickness, 7" or 8" diameter
	Shelving Unit	304 Stainless steel, 2-tier built-in, height adjustable
	Internal Lighting	Integrated LED lighting enclosed within protective fixture

Subsystem	Parameter	Specification (ST12 Series)
Purification Unit	Feedthrough Ports	Standard DN40KF blank flanges, auxiliary ports, 1x 220V power interface
	Dust Filtration	Dual 0.3 µm particulate filters (1x gas inlet, 1x gas outlet)
	Purification Column Configuration	Dual-column (continuous non-stop purification and alternating regeneration)
	Column Vessel Construction	304 Stainless Steel
	Purification Media per System	5 kg Copper Catalyst (O2 removal), 5 kg Molecular Sieve (H2O removal)
	Total Purification Capacity	Oxygen removal: 60 L, Water absorption: 2 kg
	Compatible Working Gases	Nitrogen (N2), Argon (Ar), Helium (He)
	Circulation Blower Flow Rate	Standard: 90 m3/h (Optional: 145 m3/h, 180 m3/h)
	Regeneration Mode	Fully automatic PLC-controlled heating and purge sequence
	Regeneration Gas Requirement	Working gas blended with 5% to 10% Hydrogen (H2)
Large Antechamber	Main Angle Valves	DN40KF electro-pneumatic angle valves
	Directional Control Valves	Integrated solenoid manifold valves
	Chamber Dimensions	Diameter: 360 mm, Length: 600 mm (Optional Diameter: 400 mm)
	Chamber Material & Finish	304 Stainless steel; brushed interior, painted or mirror exterior
	Antechamber Door	Vertical lifting mechanism, 10 mm anodized aluminum dual doors
	Internal Tray	Smooth-sliding 304 stainless steel loading tray
Small Antechamber	Pressure Indication	Analog dial pressure gauge
	Evacuation & Refill Control	Automatic PLC control
	Chamber Dimensions	Diameter: 150 mm, Length: 300 mm (Optional Diameter: 100 mm)
	Chamber Material & Finish	304 Stainless steel; brushed interior, painted or mirror exterior
	Antechamber Door	Dual manual swinging doors with positive latching
	Pressure Indication	Analog dial pressure gauge
Control & Instrumentation	Evacuation & Refill Control	Manual valve control
	System Controller	Siemens PLC with high-resolution color touchscreen
	Operating Functions	Self-diagnostics, auto-restart on power loss, password security, auto-cycling
	Pressure Regulation Range	User-configurable within +/- 10 mbar; auto-cutoff protection at +/- 12 mbar
	Foot Switch	Standard dual-action pedal for manual pressure adjustment
	Data Management	Automated system parameter logging and historical trend recording
	Oxygen Analyzer	Electrochemical sensor, measurement range: 0 to 1000 ppm
	Moisture Analyzer	Dew point transmitter, measurement range: 0 to 500 ppm
	Vacuum Pump Options	Rotary vane pump with oil mist filter and gas ballast: 8 m3/h, 12 m3/h, 16 m3/h
	IoT Connectivity (Optional)	Mobile app control, cloud reporting, remote debugging, proactive alerts

Single Station Touchscreen Glovebox Inert Atmosphere Purification System

Item Number: ST14



Introduction

This single station touchscreen glovebox delivers ultra pure inert atmosphere conditions below one ppm moisture and oxygen. Engineered with integrated hydrogen sulfide removal automated regeneration and precision PLC control for advanced solid state battery and chemical synthesis research workflows.

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Application	Description	Key Benefit
Solid-State Battery Assembly	Enclosing sulfide- and halide-based solid electrolyte synthesis, pellet pressing, and solid-state cell stacking.	Prevents moisture-triggered hydrolysis and toxic gas release while maintaining high ionic conductivity in assembled cells.
Sulfide Electrolyte Synthesis	Formulating, milling, and annealing volatile sulfide precursor materials (\$Li_2S\$, \$P_{2S_5}\$) with inline H ₂ S absorption.	Traps corrosive sulfurous volatiles to protect internal hardware, catalyst beds, and laboratory operators.
Lithium & Sodium Metal Processing	Handling, cutting, laminating, and encapsulating highly reactive alkali metal anodes and thin foils.	Eliminates oxidation and passivation layers, ensuring uniform interfacial contact and prolonged cycle life.
Organometallic & Catalyst Chemistry	Synthesizing air-sensitive coordination compounds, Grignard reagents, and radical polymerization catalysts.	Delivers a consistent sub-ppm inert environment that eliminates moisture-induced catalyst degradation.
Perovskite & Optoelectronic R&D	Spin-coating, thermal annealing, and packaging organic-inorganic hybrid perovskite precursor films.	Protects moisture-labile halides from degradation, ensuring high film uniformity and reproducible device efficiency.
Hazardous Powder Containment	Controlled dispensing, weighing, and mechanical transfer of reactive, toxic, or hygroscopic nanomaterials.	Interlocked dual antechambers and sealed HEPA filtration prevent environmental release and external contamination.

System Component	Parameter / Specification	Engineering Detail (Item Number: ST14)
Model Identifier	Model Item Number	ST14
Workstation Geometry	Workstation Configuration	Single station, single-sided operation (2 glove ports)
	Internal Dimensions (\$L \times D \times H\$)	\$1220\text{ mm} \times 750\text{ mm} \times 900\text{ mm}\$
	Enclosure Material	304 Stainless Steel, 3.0 mm wall thickness, acid-resistant
	Surface Treatment	Internal: Brushed stainless finish; External: Powder-coated white
Atmosphere Performance	Working Gas Compatibility	High-purity Nitrogen (\$N_2\$), Argon (\$Ar\$), or Helium (\$He\$)
	Baseline Gas Purity	\$H_{2O} < 1\text{ ppm}\$, \$O_2 < 1\text{ ppm}\$ (at \$20^\circ\text{C}\$, 1 atm, 99.999% inert supply)
	Leakage Rate	\$\le 0.05\text{ vol}\%/\text{h}\$
	Operating Pressure Range	User-configurable within \$\pm 15\text{ mbar}\$; auto-safety trip at \$\pm 16\text{ mbar}\$
Front Window & Optics	Pressure Adjustment	Automated PLC control via solenoid manifold and auxiliary foot pedal
	Window Construction	Inclined ergonomic design, 8.0 mm tempered safety glass
	Window Sealing Mechanism	Solid continuous O-ring flange structure (vacuum-rated hermetic seal)

System Component	Parameter / Specification	Engineering Detail (Item Number: ST14)
	Glove Ports	High-strength aluminum alloy, dual O-ring seal, 8-inch diameter
	Gloves	Heavy-duty Butyl rubber, 8-inch (203 mm) cuff diameter, 32-inch (812 mm) length
	Illumination	High-efficiency external LED lighting fixture mounted above front viewing pane
Gas Purification Unit	Column Design	Single-column 304 stainless steel regenerative containment vessel
	Purification Charge	5.0 kg High-Activity Copper Catalyst; 5.0 kg Molecular Sieve
	Removal Capacity	Oxygen capacity: 60 L; Moisture capacity: 2.0 kg
	Gas Circulation Blower	Integrated high-flow blower, $90\text{ m}^3/\text{h}$ throughput with Variable Frequency Drive (VFD)
	Regeneration Cycle	Fully automated PLC sequence using N_2/H_2 or Ar/H_2 (5–10% H_2) forming gas
	Valve Architecture	DN40 KF electro-pneumatic main angle valve; 6-valve integrated stainless manifold block
Antechamber Systems	Large Antechamber Dimensions	Cylindrical, $\text{Diameter } 360\text{ mm} \times \text{Length } 600\text{ mm}$ (Right-hand mount)
	Large Chamber Construction	304 Stainless steel body; interior brushed finish, exterior powder-coated white
	Large Chamber Doors & Tray	Dual 10 mm anodized aluminum doors with vertical-lift mechanism; 304 SS sliding tray
	Small Antechamber Dimensions	Cylindrical, $\text{Diameter } 150\text{ mm} \times \text{Length } 300\text{ mm}$ (enters box 100 mm)
	Small Chamber Construction	304 Stainless steel with dual clamp-action compression doors; 304 SS sliding tray
	Antechamber Evacuation/Refill	Automated touchscreen solenoid valve control with digital vacuum/pressure readouts
Specialized Scrubber Units	Hydrogen Sulfide (H_2S) Trap	Dimensions: $\varnothing 238\text{ mm} \times 407\text{ mm}$; 3.0 mm 304 SS shell with active adsorbent
	H_2S Circuit Integration	Direct inline connection to main recirculation loop; includes vacuum-purge capability
	Hydrofluoric Acid (HF) Trap	Dedicated inline chemical neutralization trap for fluoride-containing electrolytes
Analytical Sensors	Moisture Analyzer (H_2O)	Range: $0\text{--}500\text{ ppm}$; Resolution: 0.1 ppm ; Regenerable/cleanable P_{20_5} sensor
	Oxygen Analyzer (O_2)	Range: $0\text{--}1000\text{ ppm}$; Resolution: 0.1 ppm ; High-selectivity electrochemical cell
Vacuum System	Rotary Vacuum Pump	Heavy-duty oil-sealed rotary vane pump, $12\text{ m}^3/\text{h}$ displacement rate
	Ultimate Vacuum Rating	$2 \times 10^{-1}\text{ Pa}$ ($2 \times 10^{-3}\text{ mbar}$)
	Vacuum Control Integration	Automated PLC pump demand control and manual override mode
Fittings & Internal Utility	Gas Filtration	Dual $0.3\text{ }\mu\text{m}$ HEPA particulate filters (1 gas inlet / 1 gas outlet)
	Spare Utility Interfaces	4 blind feedthrough flanges (DN40 KF) on side/rear panels
	Internal Electrical Feedthrough	1 integrated 220V power supply interface
	Storage Shelving	Integrated 3-tier adjustable stainless steel shelving system
	Base Structure	Rigid structural steel support stand equipped with heavy-duty leveling casters

Glove Box Integrated Vacuum Coating System For Advanced Thin Film Deposition

Item Number: ST16

Introduction

Discover the integrated glove box vacuum coating system designed for perovskite solar cells, OLEDs, and advanced semiconductor fabrication. Achieve contamination-free thin film deposition, sample preparation, encapsulation, and characterization within a continuous, ultra-pure inert atmosphere with zero atmospheric exposure.

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Application	Description	Key Benefit
Perovskite Solar Cell Fabrication	Deposition of top metal contacts (Au, Ag, Al), electron/hole transport layers, and halide precursors directly inside an inert glove box environment.	Eliminates moisture-induced phase degradation and pinhole formation, ensuring high power conversion efficiency and extended operational stability.
OLED & PLED Display Development	Evaporation of small-molecule organic emissive layers, charge injection layers, and low-work-function cathode metals without air exposure.	Prevents organic layer oxidation and quenching centers, resulting in superior luminance, uniform pixel output, and prolonged device lifespan.
Semiconductor & Microelectronics R&D	Synthesis of high-purity metal contacts, interconnects, barrier layers, and semiconductor thin films on silicon, quartz, and flexible substrates.	Delivers atomically smooth interfaces, minimal defect densities, and precise film stoichiometry under ultra-clean vacuum conditions.
Functional Dielectric & Optical Coatings	Sputtering and thermal deposition of optical interference filters, anti-reflective coatings, passivation oxides, and high-k dielectric thin films.	Ensures uniform refractive index, tight thickness tolerance, and low scattering losses across large-area substrates.
Advanced Sensor & Transducer Fabrication	Growth of gas-sensing functional films, piezoelectric thin layers, magnetic sensor stacks, and bio-compatible transducer coatings.	Enhances signal-to-noise ratios and transducer sensitivity through ultra-clean layer interfaces and repeatable microstructural morphology.
Superconducting & Magnetic Thin Films	Precise sputtering of transition metals, rare-earth alloys, and superconducting layered compounds under controlled process atmospheres.	Maintains sharp magnetic domain boundaries and high critical transition temperatures without atmospheric impurity contamination.
Device Encapsulation & Packaging	Application of barrier coatings, UV-curable epoxy seals, and cover glass attachment directly within the glove box following thin film growth.	Completes end-to-end device fabrication in a unified envelope, preventing moisture ingress prior to final exterior testing.

System Parameter	ST16 Base Specification	ST16 Advanced Sputtering / Co-Evaporation Configuration
Base Vacuum Level	$\leq 5.0 \times 10^{-4}$ Pa (Chamber pre-evacuated)	$\leq 8.0 \times 10^{-5}$ Pa (Bakeout enabled)
Glove Box Atmosphere Purity	H ₂ O < 1 ppm, O ₂ < 1 ppm	H ₂ O < 0.1 ppm, O ₂ < 0.1 ppm
Glove Box Gas Working Medium	High-purity Nitrogen (N ₂) / Argon (Ar)	High-purity Argon (Ar) / Nitrogen (N ₂) / Helium (He)
Glove Box Leak Rate	< 0.001 vol%/h	< 0.001 vol%/h
Chamber Structure Material	SUS304 Austenitic Stainless Steel, Electropolished	SUS304 / SUS316L Stainless Steel, High-Vacuum Mirror Finish
Deposition Source Configuration	4 × Thermal Resistance Evaporation Boats / Crucibles	4-6 × Thermal Sources + 2-3 × Magnetron Sputtering Guns (DC/RF)
Substrate Holder Size	Up to 100 mm diameter (or customized multi-wafer)	Up to 200 mm diameter (or customized matrix carrier)
Substrate Motion & Rotation	0 to 30 RPM continuously adjustable	0 to 50 RPM reversible with motorized height adjustment
Substrate Heating Range	Ambient to 300°C (±1°C PID control)	Ambient to 500°C / 800°C (Radiant / Ceramic heater, ±0.5°C)

System Parameter	ST16 Base Specification	ST16 Advanced Sputtering / Co-Evaporation Configuration
Film Thickness Monitoring	Single/Dual Quartz Crystal Monitor (Resolution 0.1 Å)	Multi-channel QCM with automated rate control & tooling factor calibration
Vacuum Pumping Architecture	Molecular Turbopump + Rotary Vane / Dry Scroll Pump	High-speed Magnetic Levitation Turbopump + Oil-Free Scroll Roughing Pump
Glove Box Antechamber Dimensions	Main: Φ360 mm × L600 mm; Mini: Φ150 mm × L300 mm	Main: Φ400 mm × L600 mm; Mini: Φ150 mm × L330 mm with auto-vacuum
Power Supply Compatibility	220V AC / 380V AC, 3-Phase, 50/60 Hz	380V AC, 3-Phase, 50/60 Hz, 15~25 kW
Control Architecture	Central PLC + Industrial Color Touchscreen HMI	Integrated PC / PLC System with Data Logging & Recipe Management

Automatic Large Antechamber Door Super Purification Glove Box With Iot System

Item Number: ST18



Introduction

Engineered for advanced battery research and materials processing, this super purification glove box features an automated large antechamber door and intelligent IoT monitoring, maintaining ultra-pure inert environments below one part per million moisture and oxygen for high-precision laboratory workflows.

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Application	Description	Key Benefit
Solid-State Battery Assembly	Handling reactive metallic lithium anodes, solid electrolytes (sulfides/oxides), and moisture-sensitive pouch cell stackings.	Prevents passivation and side reactions by maintaining <1 ppm moisture and oxygen during cell assembly.
Perovskite Photovoltaic Research	Spin-coating, thermal evaporation, and encapsulation of halide perovskite precursors and active layers.	Eliminates rapid environmental degradation, ensuring maximum power conversion efficiency and film reproducibility.
Air-Sensitive Organometallic Chemistry	Manipulation, storage, and catalysis of pyrophoric ligands, Grignard reagents, and low-valent transition metal complexes.	Eliminates flammable hazard risks while preventing premature catalyst poisoning and compound degradation.
OLED & Microelectronics Encapsulation	Deposition and packaging of organic semiconductor materials, conductive inks, and hygroscopic transport layers.	Extends device operational lifespan by guaranteeing an ultra-pure, moisture-free sealing environment.
3D Printing Powder Processing	Handling, sieving, and recovery of reactive spherical titanium, aluminum, and nickel superalloy powders.	Prevents powder oxidation, batch contamination, and dangerous dust ignition during powder handling.
Supercapacitor & Energy Storage R&D	Synthesis of high-surface-area porous carbon matrices and moisture-sensitive non-aqueous electrolytes.	Guarantees exact electrochemical window stability without trace water contamination causing parasitic gas evolution.

Subsystem / Assembly	Parameter	Specification (ST18)
Model Configuration	Base Identification	ST18
Chamber Body	Internal Dimensions (L × D × H)	1200 mm × 750 mm × 900 mm
	Structural Material	304 Stainless Steel, 3.0 mm Thickness
	Internal Surface Treatment	Oil-film brushed hygienic finish
	External Surface Treatment	Mirror-polished finish
	Viewing Window	Slanted 8.0 mm tempered safety glass
	Glove Ports	POM / Aluminum Alloy with O-ring hermetic seal
	Gloves	Butyl rubber, 0.4 mm thickness, 7" or 8" port diameter
	Internal Shelving	2-tier height-adjustable stainless steel shelf
	Chamber Illumination	Internal hood-mounted LED lighting system
	Utility Feedthroughs	Standard DN40KF blank ports + 1 × 220V internal power interface
	Particulate Filtration	Dual 0.3 μm gas inlet and outlet HEPA-grade filters

Subsystem / Assembly	Parameter	Specification (ST18)
Purification Unit	Purification Column Configuration	Single-column regenerative purifier
	Target Gas Removal Purity	H2O < 1 ppm, O2 < 1 ppm
	Purification Reactants	5 kg Copper Catalyst + 5 kg Molecular Sieve
	Chemical Adsorption Capacity	Deoxygenation: 60 L O2; Dehydration: 2.0 kg H2O
	Compatible Working Gases	Nitrogen (N2), Argon (Ar), Helium (He)
	Circulation Blower Flow Rate	90 m³/h integrated blower (Optional: 145 m³/h, 180 m³/h)
	Regeneration Cycle Control	Fully automated PLC sequence
	Regeneration Gas Requirement	Working gas blended with 5% to 10% Hydrogen (H2)
	Main Angle Valves	DN40KF electro-pneumatic angle valves
Main Large Antechamber	Process Control Valves	Integrated solenoid manifold assembly
	Chamber Dimensions	Diameter 360 mm × Length 600 mm (Optional: Diameter 400 mm)
	Material & Finish	304 Stainless Steel (Internal brushed, external mirror polish)
	Door Construction	10 mm anodized aluminum vertical-lift automated door mechanism
	Material Handling	Stainless steel sliding material tray
	Operational Control	Automatic PLC-managed evacuation and refill cycle
Secondary Mini Antechamber	Pressure Display	Integrated analog differential pressure gauge
	Chamber Dimensions	Diameter 150 mm × Length 300 mm (Optional: Diameter 100 mm)
	Material & Finish	304 Stainless Steel (Internal brushed, external mirror polish)
	Door Operation	Dual manual hinged doors with tight-seal clamping
Control & IoT System	Pressure Display	Integrated analog vacuum gauge
	Central Controller	Siemens PLC with high-resolution touchscreen HMI
	Pressure Regulation Range	User-configurable within ±15 mbar
	Overpressure Protection	Automatic active protection triggered at ±16 mbar
	Hands-Free Control	Bi-directional foot pedal for chamber pressure adjustment
	IoT Network Functions	Mobile remote control, multi-device management, real-time data sync
Analytical Sensors & Pump	Data & Diagnostics	Automated data report logging, historical query, remote diagnostic repair
	System Redundancy	Auto-diagnostic self-checks with power-failure auto-restart
	Oxygen Sensor Measurement Range	0 to 1000 ppm
	Dew Point / Moisture Sensor Range	0 to 500 ppm
	Vacuum Pump Specifications	Rotary vane pump (8 m³/h, 12 m³/h, or 16 m³/h options)
	Pump Protection Features	Integrated exhaust oil-mist filter and gas ballast control

Dual Station Face To Face Operation Glove Box Inert Gas Purification System

Item Number: ST05



Introduction

Engineered for demanding research and pilot manufacturing this dual station face to face operation glove box delivers an ultra pure inert gas environment with moisture and oxygen levels below 1 ppm for advanced battery assembly and sensitive chemical workflows

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Application	Description	Key Benefit
Lithium & Solid-State Battery R&D	Assembly of coin, pouch, and cylindrical cells using reactive lithium metal, sulfide electrolytes, and moisture-sensitive cathode active materials.	Eliminates electrolyte degradation and moisture-induced lithium oxidation, ensuring repeatable electrochemical cycling data.
Organometallic & Catalysis Synthesis	Synthesis and handling of pyrophoric catalysts, Grignard reagents, metal hydrides, and moisture-labile precursors.	Guarantees sub-1 ppm ambient safety, preventing explosive decomposition and batch contamination.
Perovskite & Photovoltaic Fabrication	Spin-coating, thermal annealing, and encapsulation of halide perovskite thin-films and flexible optoelectronic devices.	Shields moisture-vulnerable perovskite precursor solutions from ambient humidity to maximize power conversion efficiency.
Supercapacitor & Energy Storage Assembly	Filling of organic electrolytes and vacuum sealing of advanced carbon/graphene supercapacitor electrodes.	Maintains low volatile organic solvent contamination while keeping residual moisture levels near zero.
Specialized Semiconductor & OLED Packaging	Handling of organic light-emitting polymers, quantum dots, and microelectronic passivation layers.	Low-particulate gas delivery and stable ultra-pure atmosphere prevent pinhole defects and premature device degradation.
Nuclear & Hazardous Materials Processing	Containment and manipulation of toxic or radioisotope powders requiring strict atmosphere isolation and zero external leakage.	Hermetic 3 mm 304 stainless steel construction with an ultra-low 0.05 vol%/h leak rate ensures total operator safety.

System Category	Parameter / Feature	Specification (Model: ST05)
Core Performance	Moisture Purity Level	< 1 ppm (Standard condition: 20°C, 1 atm, 99.999% inert gas)
	Oxygen Purity Level	< 1 ppm (Standard condition: 20°C, 1 atm, 99.999% inert gas)
	Leak Rate	≤ 0.05 vol%/h
	Working Gases	Nitrogen (N ₂), Argon (Ar), Helium (He)
Main Chamber	Internal Dimensions (L x D x H)	1220 mm x 750 mm x 900 mm
	Chamber Material	304 Stainless Steel (Acid-resistant), 3.0 mm thickness
	Surface Finish	Interior: Brushed stainless steel; Exterior: Powder-coated white
	Front Window	Sloped 8 mm tempered safety glass with protective film, removable
	Glove Ports	Solid aluminum rings with dual O-ring compression seals
	Gloves	Ansell Butyl rubber, 0.4 mm thickness, 8" port diameter, 32" length
	Filtration	0.3 µm particulate filters on gas inlet and gas outlet
	Shelving & Lighting	Multi-tier adjustable 304 stainless steel shelf; LED lighting strip
	Feedthrough Ports	3x DN 40 KF blind flange spare ports; 1x internal 220V power socket (1.2 kW)

System Category	Parameter / Feature	Specification (Model: ST05)
Large Antechamber	Dimensions & Location	Diameter 360 mm, Length 600 mm (Right-side mounted)
	Material & Finish	304 Stainless Steel; Polished interior, powder-coated white exterior
	Door Mechanism	Dual 10 mm anodized aluminum doors, vertical sliding lift mechanism
	Tray & Gauge	304 Stainless steel sliding tray; Analog pressure gauge
	Actuation & Control	Touchscreen-controlled electro-pneumatic solenoid valve operation
Small Antechamber	Dimensions & Location	Diameter 150 mm, Length 300 mm (100 mm chamber intrusion, Right-side)
	Material & Finish	304 Stainless Steel; Brushed interior, powder-coated white exterior
	Door Mechanism	Dual latch-clamp style doors with sliding tray; Analog pressure gauge
	Actuation & Control	Manual 3-way ball valve actuation
Purification System	Column Configuration	Single-column hermetic purification unit (304 Stainless Steel container)
	Catalyst Capacity	5 kg BASF Copper Catalyst (O ₂ capacity: 60 L)
	Adsorbent Capacity	5 kg UOP Molecular Sieve (H ₂ O capacity: 2 kg)
	Regeneration Mode	Fully automated PLC-controlled thermal cycle using working gas + H ₂ (5-10%)
	Circulation Blower	High-efficiency blower, 90 m ³ /h throughput (Dargang)
Vacuum System	Vacuum Pump Type	Rotary vane pump with integrated oil mist filter and gas ballast (Edwards)
	Pumping Speed & Vacuum	8 m ³ /h displacement rate; Ultimate vacuum ≤ 2x10 ⁻¹ Pa
	Valves & Piping	DN 40 KF electro-pneumatic angle main valve; Burket solenoid valves; Legris fittings
Control & Instrumentation	PLC & Interface	Siemens PLC controller with color touch screen graphic interface
	Pressure Regulation	Automatic box pressure control (±10 mbar setpoint); Safety cut-off at ±12 mbar
	Auxiliary Pressure Control	Foot pedal switch for hands-free chamber pressure adjustment
	Moisture Analyzer	VTI P205 sensor (0-500 ppm), cleanable and regenerable platinum electrode
	Oxygen Analyzer	VTI Zirconia (ZrO ₂) sensor (0-1000 ppm), non-depleting solid electrolyte
Specialized Traps	Solvent Adsorber Unit	Ø237 mm x 407 mm (304 SS), 9 kg activated carbon, manual bypass valves
	HF Acid Removal Unit	Ø237 mm x 407 mm (304 SS), 9 kg active alumina balls, manual bypass valves
Physical & Mobility	Support Stand	Heavy-duty structural steel frame with leveling feet and locking casters

High Performance Butyl Rubber Glovebox Gloves For Controlled Atmosphere Enclosures

Item Number: ST01



Introduction

Engineered for demanding controlled atmospheres, these high performance butyl rubber glovebox gloves deliver exceptional impermeability against gases, liquids, and polar hydrocarbons. Certified to rigorous EN standards, they ensure maximum operator dexterity, durability, and reliable environmental isolation for advanced industrial research.

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Application	Description	Key Benefit
Advanced Battery & Energy Storage R&D	Critical assembly and handling of metallic lithium foils, solid-state electrolytes, and reactive precursor chemistries inside argon-purged glovebox environments.	Sub-ppm moisture and oxygen containment prevents chemical degradation of pyrophoric lithium and highly reactive electrolyte formulations.
Synthetic Organic & Organometallic Chemistry	Synthesis and purification involving aggressive polar solvents, organic acids, ketones, esters, and amine-based catalysts under strictly inert atmospheres.	Exceptional chemical resistance stops breakthrough and swelling caused by polar organic solvents, maintaining absolute barrier integrity.
Nuclear Material Containment & Radiochemistry	Safe handling, processing, and transfer of radioactive isotopes, alpha-emitting substances, and nuclear fuel pellets inside shielded isolators.	Reliable physical barrier prevents radioactive particulate contamination while offering mechanical durability and gas tightness.
Sterile Pharmaceutical Compounding & Isolators	Aseptic formulation of cytotoxic oncology drugs, potent active pharmaceutical ingredients (APIs), and sterile injectable biologicals.	Validated chemical isolation and smooth surface finish allow continuous sterilization using 70% isopropanol without polymer degradation.
Semiconductor & Thin-Film Precursor Processing	Synthesis and chemical vapor deposition (CVD) precursor loading involving air-sensitive organometallics, metal halides, and quantum dots.	Near-zero gas permeability eliminates trace atmospheric contamination, ensuring optimal purity and yield in nano-scale fabrication.
Anaerobic Microbiology & Biomedical Research	Culture manipulation of strict anaerobic pathogens, obligate anaerobes, and sensitive microbiological cultures requiring absolute oxygen-free enclosures.	Airtight seal preserves exact atmospheric ratios over prolonged incubation and culture maintenance cycles.
Specialty Chemical & Corrosive Reagent Packaging	Safe repackaging, quality control sampling, and metering of concentrated organic reagents and hazardous polar volatile chemicals.	Heavy-duty physical resilience combined with ambidextrous versatility ensures maximum operator safety against chemical splashes.

Parameter	Specification
Material Composition	Premium-Grade Synthetic Butyl Rubber
Port Size Compatibility	8 Inches (203 mm) / 10 Inches (254 mm)
Available Thicknesses	15 mil (0.38 mm) / 30 mil (0.76 mm)
Total Nominal Length	32 Inches (813 mm)
Hand Specificity	Ambidextrous (Left / Right Interchangeable)
Surface Finish	Smooth Gloss Finish
Color	Industrial Black

Parameter	Specification
Cuff Style	Molded Beaded Cuff
Beaded Cuff Thickness	3.2 mm to 6.4 mm
Hand Size Options	8H / 9Q / 10H
Regulatory & Safety Standards	EN ISO 21420:2020, EN ISO 374-1:2016, EN ISO 374-5:2016, EN 388:2016
Packaging Configuration	1 piece per sealed polyethylene bag; 20 pieces per shipping carton
Maintenance & Decontamination	Surface wipe-down with 70% Isopropanol (IPA)
Recommended Storage Conditions	Original packaging stored between 5 °C and 25 °C (41 °F to 77 °F)
Shelf Life	3 Years (in original, unopened packaging under recommended conditions)
Environmental Disposal	Non-recyclable; classified as non-toxic solid waste if uncontaminated

Product Identifier	Port Size	Thickness	Length	Hand Geometry	Size Specification
ST01-8-15	8 Inches (203 mm)	15 mil (0.38 mm)	32 Inches (813 mm)	Ambidextrous	9Q (Compatible: 8H, 10H)
ST01-8-30	8 Inches (203 mm)	30 mil (0.76 mm)	32 Inches (813 mm)	Ambidextrous	9Q (Compatible: 8H, 10H)
ST01-10-15	10 Inches (254 mm)	15 mil (0.38 mm)	32 Inches (813 mm)	Ambidextrous	9Q (Compatible: 8H, 10H)
ST01-10-30	10 Inches (254 mm)	30 mil (0.76 mm)	32 Inches (813 mm)	Ambidextrous	9Q (Compatible: 8H, 10H)

Benchtop Stainless Steel Vacuum Glove Box For Laboratory Use

Item Number: ST02



Introduction

Engineered for advanced research, this benchtop stainless steel vacuum glove box provides an anaerobic and anhydrous environment for battery R&D, chemical synthesis, and sensitive material handling with dual antechamber options, superior sealing, and integrated laboratory electrical power access.

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Application	Description	Key Benefit
Lithium-Ion and Solid-State Battery Assembly	Encapsulation, coin/pouch cell stacking, electrolyte filling, and lithium metal handling in pure inert conditions.	Eliminates electrolyte hydrolysis and passivation of alkali metal anodes for reliable cell performance.
Organometallic and Pyrophoric Synthesis	Handling of air-sensitive catalysts, Grignard reagents, metal hydrides, and moisture-reactive coordination complexes.	Prevents spontaneous ignition and reagent degradation, ensuring reaction reproducibility and user safety.
Perovskite and Optoelectronic Fabrication	Deposition, spin-coating, and annealing of halide perovskite precursors and organic semiconductor materials.	Halts moisture-induced crystal phase degradation, delivering high-efficiency optoelectronic thin films.
Powder Metallurgy and Sintering Preparation	Handling, weighing, and compacting of ultrafine metallic powders and titanium or zirconium alloys prior to sintering.	Avoids interstitial oxygen pickup, ensuring superior mechanical toughness and purity in finished sintered parts.
Semiconductor and Nanomaterial Packaging	Hermetic sealing, quantum dot handling, and microelectronic substrate preparation under controlled inert gas atmospheres.	Minimizes defect states caused by surface oxidation, preserving electrical conductivity and optical purity.
Nuclear and Specialized Isotope Handling	Isolated physical manipulation and containment of radioisotopes, stable tracers, and hazardous analytical samples.	Provides robust physical containment and clean sample management to prevent atmospheric environmental release.

Specification Parameter	ST02-1	ST02-2	ST02-3
Main Chamber Dimensions (W × D × H)	600 × 450 × 500 mm	800 × 600 × 700 mm	1200 × 700 × 900 mm
Main Antechamber Dimensions	Φ200 × 270 mm	Φ280 × 350 mm	Φ340 × 400 mm
Secondary Small Antechamber Dimensions	Not Applicable	Not Applicable	Φ120 × 160 mm
Internal Shelving / Rack	None	1 Tier with Sliding Tray	1 Tier with Sliding Tray
Glove Port Diameter	Φ145 mm	Φ200 mm	Φ200 mm
Observation Window Dimensions	520 × 250 mm	700 × 320 mm	1100 × 380 mm
Side Square Maintenance Door	Not Applicable	400 × 400 mm	400 × 400 mm
Equipment Net Weight	120 kg	230 kg	330 kg
Internal Utility Interface	Multi-Port Electrical Socket	Multi-Port Electrical Socket	Multi-Port Electrical Socket
Chamber Construction Material	Corrosion-Resistant Stainless Steel	Corrosion-Resistant Stainless Steel	Corrosion-Resistant Stainless Steel
Glove Material	Sealed Latex Glove Set	Sealed Latex Glove Set	Sealed Latex Glove Set

Vacuum Pump Model	ST02-VP2	ST02-VP4
Pumping Speed	2 L/s	4 L/s

Vacuum Pump Model	ST02-VP2	ST02-VP4
Inlet Port Diameter	Φ30 mm	Φ30 mm
Oil Capacity	0.8 L	1.0 L
Pump Dimensions (L × W × H)	480 × 120 × 250 mm	520 × 140 × 250 mm
Motor Power	0.37 kW	0.55 kW
Electrical Supply	220 V / 380 V	220 V / 380 V
Gross / Net Weight	22 kg / 20 kg	21 kg / 20 kg
Operating Mechanism	Rotary Vane with Spring-Loaded Sliding Blades	Rotary Vane with Spring-Loaded Sliding Blades

Single Station Laboratory Glovebox With Standalone Gas Purification Cabinet For Inert Atmosphere Research

Item Number: ST07



Introduction

This single station laboratory glovebox features a standalone gas purification cabinet maintaining sub-1 ppm moisture and oxygen levels. Engineered with automated PLC controls, premium components, and dual antechambers for demanding battery R&D and chemical synthesis.

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Application	Description	Key Benefit
Lithium-Ion Battery Assembly	Prototyping coin, pouch, and cylindrical cells with moisture-reactive electrolytes and lithium metal anodes.	Prevents violent electrolyte hydrolysis and surface passivation, ensuring reproducible electrochemical performance.
Solid-State Electrolyte Synthesis	Processing sensitive sulfide, halide, and oxide ceramic solid electrolyte powders under pure argon.	Eliminates hazardous H ₂ S gas evolution and preserves ionic conductivity across reactive solid-state interfaces.
Organometallic & Catalysis Chemistry	Handling pyrophoric reagents, Grignard reagents, metal hydrides, and moisture-sensitive transition metal catalysts.	Guarantees worker safety while preserving catalytic activity and preventing premature reaction quenching.
Perovskite Optoelectronics	Spin-coating and thermal annealing of lead halide perovskite precursor films for photovoltaic cells.	Halts moisture-induced degradation during crystallization, directly improving device power conversion efficiency.
Inert Powder Metallurgy & 3D Printing	Post-processing, sieving, and packaging fine titanium, aluminum, and nickel superalloy powders.	Eliminates oxide film formation, ensuring optimal powder flowability, density, and sinterability in additive manufacturing.
Specialty OLED & Semiconductor Packaging	Encapsulating organic light-emitting diodes, quantum dots, and delicate microelectronic junctions.	Shields active organic layers from ambient moisture and oxygen ingress to prevent non-radiative dark spot formation.
Nuclear & Hazardous Isotope Handling	Containing radioactive or toxic samples under strictly regulated negative/positive pressure cascades.	Provides hermetic containment with certified HEPA/dust particulate filtration down to 0.3 microns.

Specification Category	Parameter	Specification Value (Item No. ST07)
Model Identification	Product Item Number	ST07
System Architecture	Glove Station Configuration	Single Station, 2 Glove Ports, Ergonomically Tilted Window
	Purification Unit Location	Standalone purification cabinet beneath main chamber
	Control Architecture	Siemens PLC with high-resolution color touchscreen interface
Atmospheric Purity	Target Moisture Level (H ₂ O)	< 1 ppm (Standard Conditions: 20°C, 1 atm, 99.999% inert gas)
	Target Oxygen Level (O ₂)	< 1 ppm (Standard Conditions: 20°C, 1 atm, 99.999% inert gas)
Main Chamber Body	Chamber Construction Material	304 Stainless Steel, Acid-Resistant, 3 mm Wall Thickness
	Internal Dimensions (L x D x H)	1220 mm x 750 mm x 900 mm
	Internal Surface Treatment	Oil-film brushed stainless steel finish
	External Surface Treatment	High-durability powder-coated industrial finish (Signal White)
	Viewing Window Panel	Transparent Tempered Safety Glass, 8 mm Thickness, Angled

Specification Category	Parameter	Specification Value (Item No. ST07)
	Glove Ports	High-strength Aluminum, O-ring sealed, self-lubricating seal
	Gloves Specification	Butyl Rubber, 8" Port Diameter, 32" Length, Thickness ≥ 0.4 mm
	Internal Dust Filtration	0.3 μm particulate filters on gas inlet and gas outlet ports
	Shelving Unit	Adjustable 2-tier 304 stainless steel interior shelving
	Internal Illumination	Integrated forward-mounted LED lighting above front window
Large Antechamber	Standard Feedthroughs	3 $\times$ DN 40 KF blind flanges, 1 $\times$ Internal 220V power socket
	Antechamber Dimensions	Diameter: 360 mm, Length: 600 mm (Right-side mounted)
	Material & Sliding Mechanism	304 Stainless Steel chamber with 304 Stainless Steel sliding tray
	Chamber Doors	Dual 10 mm thick anodized aluminum vertical lifting doors
Small Antechamber	Evacuation & Refill Control	Automated solenoid operation via touchscreen; analog pressure gauge
	Antechamber Dimensions	Diameter: 150 mm, Length: 300 mm (100 mm internal projection)
	Chamber Connection Type	Modular flanged connection (non-welded, expandable)
	Chamber Doors & Tray	Dual flip-latch doors, 304 stainless steel sliding tray
Gas Purification System	Evacuation & Refill Control	Automated solenoid operation via touchscreen; analog pressure gauge
	Purification Column Type	Single-column, 304 Stainless Steel containment vessel
	Purification Reactants	5 kg Copper Catalyst (Deoxygenation), 5 kg Molecular Sieve (Moisture)
	Purification Capacity	Deoxygenation: 60 L O ₂ capacity; Moisture removal: 2 kg H ₂ O capacity
	Working Inert Gases	High-purity Nitrogen (N ₂), Argon (Ar), or Helium (He)
	Circulation Blower	Variable frequency blower, max flow capacity 90 m ³ /h
	Catalyst Regeneration	Automated PLC cycle using 5-10% H ₂ in inert balance gas
Vacuum System	Integrated Valve Assembly	Custom 6-valve integrated 304 stainless steel manifold block
	Main Isolation Valves	DN 40 KF electro-pneumatic angle valves
	Rotary Vane Vacuum Pump	Dual-stage rotary vane pump, 12 m ³ /h displacement
	Ultimate Vacuum Rating	$\leq 2 \times 10^{-1}$ Pa (0.002 mbar)
Pressure Regulation	Pump Accessories	Oil mist exhaust filter and gas ballast control valve
	Working Chamber Setpoint	Programmable within +/- 10 mbar nominal working window
	Overpressure Protection	Automatic safety interlock triggered when exceeding +/- 12 mbar
Analytical Sensors	Auxiliary Pressure Control	Bi-directional foot pedal switch for hands-free box pressure tuning
	Moisture Analyzer	Range: 0-500 ppm; renewable/washable probe technology
	Oxygen Analyzer	Range: 0-1000 ppm; solid-state Zirconia (ZrO ₂) sensor cell
Solvent Trap Unit	Organic Solvent Adsorber	Internal canister ($\varnothing$ 136 mm $\times$ 256 mm H) loaded with 2 kg activated carbon

Three Glove Port Single Sided Operation Glovebox For Inert Gas Atmosphere Research

Item Number: ST10



Introduction

Engineered for demanding battery research, this three-glove single-sided glovebox maintains an ultra-pure inert atmosphere below 0.1 ppm moisture and oxygen. Features Siemens PLC automation, heated antechambers, integrated vacuum systems, and regenerative solvent purification.

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Application	Description	Key Benefit
Lithium Battery Assembly	Fabrication of coin, pouch, and cylindrical test cells involving metallic lithium, solid electrolytes, and hygroscopic liquid formulations.	Eliminates electrolyte decomposition and prevents surface passivation of high-reactivity lithium metal anodes.
Organometallic Synthesis	Handling, weighing, and catalyst preparation involving pyrophoric reagents, metal alkyls, and Grignard compounds.	Complete atmospheric oxygen elimination suppresses oxidation side reactions and ensures operator process safety.
Halide Perovskite Solar Cells	Spin-coating, thermal annealing, and encapsulation of high-efficiency perovskite thin films vulnerable to ambient moisture.	Prevents water-induced phase degradation, resulting in uniform crystal morphology and higher photovoltaic conversion efficiency.
Specialty Welding and Additive Manufacturing	Powder handling, laser micro-welding, and additive sintering of titanium, zirconium, and refractory alloy components.	Sub-ppm inert gas protection prevents interstitial oxygen embrittlement and maintains pristine weld pool integrity.
Semiconductor and OLED Encapsulation	Deposition, layer transferring, and hermetic barrier packaging of organic light-emitting polymers and nano-electronic devices.	Delivers a particle-controlled, ultra-dry environment, significantly extending operational life expectancy of sensitive organic layers.
Supercapacitor and Solid-State R&D	Synthesis of high-surface-area carbon electrodes, ionic liquids, and sulfide-based solid-state ceramic electrolytes.	Isolates sulfide precursors from moisture, blocking toxic hydrogen sulfide (H ₂ S) off-gassing and preserving ionic conductivity.

System Category	Engineering Parameter	Technical Specification (ST10)
Model Reference	Equipment Identification	ST10
Core Performance	Moisture Concentration Limit	< 0.1 ppm (at standard 20°C, 1 atm, 99.999% inert supply)
	Oxygen Concentration Limit	< 0.1 ppm (at standard 20°C, 1 atm, 99.999% inert supply)
	Overall System Leak Rate	< 0.05 vol%/h
Main Enclosure	Internal Dimensions (L × D × H)	1500 mm × 750 mm × 900 mm
	Construction Material & Thickness	Heavy-gauge 304 Stainless Steel, 3 mm thickness
	Internal / External Finish	Brushed interior finish / Electrostatic white powder-coated exterior
	Viewing Window	8 mm thick sloped transparent tempered safety glass
	Glove Ports	3 ports, CNC-machined Aluminum Alloy, O-ring compression seal
	Gloves Specification	High-integrity Butyl Rubber, 8" port diameter, 32" length
	Internal Shelving & Lighting	3-tier adjustable 304 stainless steel shelving; upper front LED lighting
	Lifting & Handling Provisions	2 side-mounted structural handles (left plate), 4 top lifting eyebolts

System Category	Engineering Parameter	Technical Specification (ST10)
Large Antechamber	Utility & Feedthrough Ports	10 spare DN40KF feedthrough ports (4 left side, 6 rear wall); 1 electrical power feedthrough (220V)
	Internal Gas Filtration	0.3 μ m particulate HEPA filtration for supply and return ports
	Chamber Dimensions	Diameter: 360 mm, Length: 600 mm
	Construction & Mechanism	304 Stainless steel; sliding tray; 10 mm anodized aluminum dual doors with vertical hoist lift
Small Antechamber	Integrated Heating System	Internal heating tube with water-cooled flange; temperature $\leq 150^{\circ}\text{C}$; power $\leq 2000\text{W}$; PID intelligent control
	Operation & Pressure Readout	Automated touchscreen solenoid valve control and manual bypass; analog vacuum gauge display
	Chamber Dimensions	Diameter: 150 mm, Length: 300 mm (100 mm internal projection)
	Construction & Mechanism	304 Stainless steel with external insulation & protective shroud; threaded-lock dual doors; 304 SS tray
Gas Purification System	Operation & Pressure Readout	Manual quarter-turn vacuum valve control; analog pressure gauge display
	Purification Column Architecture	Single-column hermetic purification unit; 304 stainless steel vessel
	Active Purification Media	5 kg Copper Catalyst (Deoxygenation) + 5 kg Molecular Sieve (Moisture Adsorption)
	Total Purification Capacity	Deoxygenation: 60 L O ₂ ; Moisture Removal: 2 kg H ₂ O
Vacuum System	Circulation Blower & Working Gas	90 m ³ /h integrated blower with variable frequency drive (VFD); Nitrogen (N ₂) / Argon (Ar)
	Regeneration Cycle	PLC-automated sequence; Regeneration gas: N ₂ /Ar working gas blended with 5-10% H ₂
	Gas Valve Configuration	DN40KF electro-pneumatic main angle valves; 6-valve integrated stainless steel solenoid block
	Vacuum Pump Specification	12 m ³ /h rotary vane pump with integrated oil mist filter and gas ballast control
Process Control System	Ultimate Vacuum Level	$\leq 2 \times 10^{-1}$ Pa
	System Automation	Automated on-demand PLC start/stop and manual override modes
	Controller & Interface	Siemens PLC with high-resolution color touchscreen display
	Automatic Pressure Regulation	Programmable box working pressure within ± 15 mbar; automatic safety relief beyond ± 16 mbar
Analytical Sensors	Ergonomic Pressure Control	Integrated bi-directional foot pedal for real-time pressure increase/decrease adjustment
	Diagnostic & Safety Features	Self-diagnostics, power-loss auto-restart, automated gas purging, multi-level password protection
	Moisture Analyzer (H ₂ O)	Solid-state P2O ₅ sensor; 0-500 ppm range; 0.1 ppm resolution; fully regenerable and cleanable
	Oxygen Analyzer (O ₂)	Long-life ZrO ₂ zirconia sensor; 0-1000 ppm range; 0.1 ppm resolution; non-depleting in air
Solvent Management	Quick-Change VOC Trap	$\varnothing 238$ mm $\times$ 407 mm (H); 3 mm 304 stainless steel; loaded with high-efficiency activated carbon; pre-evacuation bypass

Single Station Super Purification Vacuum Glove Box System For Ultra Pure Inert Atmosphere Research

Item Number: ST13



Introduction

Designed for advanced laboratory research, this single station super purification vacuum glove box delivers ultra-pure inert environments with moisture and oxygen levels below 1 ppm, automated regeneration, intelligent Siemens PLC control, and robust stainless steel construction for demanding materials processing.

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Application	Description	Key Benefit
Lithium & Solid-State Battery Assembly	Encapsulation, coin-cell fabrication, pouch-cell sealing, and electrolyte filling under ultra-low moisture conditions.	Prevents violent oxidation of metallic lithium and eliminates parasitic side reactions caused by trace water vapor.
Perovskite & Organic Photovoltaic R&D	Spin-coating, thermal annealing, and encapsulation of moisture-sensitive perovskite precursor films.	Protects delicate halide perovskite crystalline structures from rapid environmental degradation during device processing.
Organometallic & Air-Sensitive Synthesis	Handling of pyrophoric catalysts, Grignard reagents, metal alkyls, and moisture-labile coordination complexes.	Eliminates fire hazards, preserves reagent reactivity, and ensures repeatable chemical synthesis outcomes.
Advanced Powder Metallurgy & Additive Manufacturing	Sifting, loading, and recovery of reactive metal powders (titanium, aluminum, magnesium, zirconium alloys).	Inhibits surface oxidation, prevents interstitial gas contamination, and preserves mechanical integrity of sintered parts.
Semiconductor & Quantum Dot Processing	Surface passivation, nanomaterial synthesis, and microelectronic substrate packaging under inert gas blanket.	Guarantees high interfacial purity and minimizes non-radiative recombination centers caused by oxide impurities.
Specialty Welding & Laser Processing	Hermetic sealing and micro-laser welding of titanium, zirconium, or tantalum precision medical and aerospace assemblies.	Eliminates atmospheric embrittlement and discoloration in heat-affected zones by maintaining an inert argon environment.

Parameter Category	Specification Details	Configuration & Values (ST13)
Model Item Identifier	System Model Code	ST13
Target Contaminant Levels	Moisture Concentration (H2O)	< 1 ppm (Standard Operating Range)
	Oxygen Concentration (O2)	< 1 ppm (Standard Operating Range)
Main Chamber Dimensions	External / Internal Envelope	Length: 1220 mm × Depth: 750 mm × Height: 900 mm
Chamber Construction	Shell Material	304 Stainless Steel, 3.0 mm Thickness
	Internal Wall Finish	High-Grade Oil-Film Brushed Finish
	External Wall Finish	304 Stainless Steel Surface
Viewing Window	Window Geometry & Material	Slanted Front Panel, 8.0 mm Laminated Tempered Safety Glass
Glove Ports & Gloves	Port Ring Material & Sealing	High-Strength POM or Anodized Aluminum Alloy, Dual O-Ring Sealing
	Glove Material & Dimensions	Premium Butyl Rubber, Thickness: 0.4 mm, Diameter: 7" or 8"
Internal Shelving & Lighting	Storage Shelving	304 Stainless Steel, 2-Tier Modular Structure, Height Adjustable
	Chamber Illumination	Energy-Efficient Glare-Free LED Lighting, Protective Enclosure

Parameter Category	Specification Details	Configuration & Values (ST13)
Filtration & Utility Ports	HEPA Gas Filters	0.3 µm Particle Retention (One Gas Inlet, One Gas Outlet)
	Standard Feedthroughs	DN40KF Feedthrough Ports, Multiple Blind Spares, 1× 220V Internal Power Socket
Purification Unit Structure	Column Architecture	Single-Column Purification Circuit, Hermetically Sealed 304 Stainless Steel
	Purification Reactants	5 kg High-Activity Copper Catalyst + 5 kg Regenerable Molecular Sieve
	Total Absorption Capacity	Oxygen Removal: 60 L Pure O ₂ ; Moisture Absorption: 2.0 kg H ₂ O
Gas Circulation System	Working Inert Gases	High-Purity Nitrogen (N ₂), Argon (Ar), or Helium (He)
	Internal Circulation Blower	Standard: 90 m ³ /h Integrated Blower (Optional: 145 m ³ /h or 180 m ³ /h)
Regeneration System	Regeneration Operation	Fully Automated PLC Thermal Regeneration Protocol
	Required Regeneration Gas	Inert Carrier Gas + Hydrogen Blend (5% - 10% H ₂ balance N ₂ /Ar)
Vacuum System	Rotary Vane Pump Rates	8 m ³ /h or 12 m ³ /h Standard (Optional: 16 m ³ /h Heavy-Duty Configuration)
	Pump Features & Protection	Integrated Exhaust Oil Mist Filter, Manual Gas Ballast Control
Process Valves	Main Angle Valves	DN40KF Electro-Pneumatic Angle Valves
	Gas Control Valves	Integrated Solenoid Multi-Valve Block
Large Antechamber	Geometry & Dimensions	Cylindrical, Diameter: 360 mm × Length: 600 mm (Optional: Ø400 mm)
	Material & Surface	304 Stainless Steel (Interior: Oil-Film Brushed; Exterior: Paint or Mirror Finish)
	Doors & Mechanism	10 mm Anodized Aluminum Vertical-Lift Doors with Counterbalanced Hinge
	Material Tray & Gauges	Sliding 304 Stainless Steel Tray; Analog Vacuum/Pressure Gauge
	Cycle Control	Automated Evacuation and Refill Sequencing via PLC
Small Antechamber	Geometry & Dimensions	Cylindrical, Diameter: 150 mm × Length: 300 mm (Optional: Ø100 mm)
	Material & Surface	304 Stainless Steel (Interior: Oil-Film Brushed; Exterior: Paint or Mirror Finish)
	Operation & Gauges	Dual Hinged Doors, Analog Vacuum Gauge, Manual Control Valves
Automation & Control	Controller & Interface	Siemens Industrial PLC with Integrated Full-Color Touchscreen HMI
	Pressure Control Envelope	Freely Programmable within ±15 mbar; Automatic Safety Cut-Off at ±16 mbar
	Operational Safety Features	Auto-Diagnostics, Power-Off Memory, Auto-Recovery, Password Access Control
	Foot Switch	Bi-Directional Foot Pedal for Dynamic Box Pressure Adjustment
	Data Management	Automated Process Data Logging, Event Memory, and Export Capability
Analytical Sensors	Oxygen Transmitter	Solid-State / Electrochemical Sensor, Range: 0 to 1000 ppm
	Dew Point Transmitter	Precision Ceramic / Capacitive Sensor, Range: 0 to 500 ppm
Smart IoT System	Connectivity (Optional)	Mobile App / Web Portal Remote Monitoring, Push Alerts, Remote Diagnostics

O Ring Vacuum Sealed Flange Window Glove Box

Item Number: ST19



Introduction

Engineered for high-purity inert atmosphere research, this O-ring vacuum sealed flange window glove box features monolithic gantry-machined sealing grooves, seamless elastomer seals, and an ultra-low leakage rate under 0.0006 vol%/h for advanced battery chemistry and material synthesis.

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Application	Description	Key Benefit
Solid-State Battery Assembly	Preparation, pressing, and encapsulation of moisture-sensitive sulfide and oxide solid electrolyte cells.	Prevents hydrolytic degradation and dangerous gas evolution through ultra-low leak-rate containment.
Lithium-Ion Battery R&D	Electrolyte filling, pouch cell stacking, and sealing under strict sub-ppm moisture and oxygen parameters.	Ensures consistent electrochemical cycling and eliminates ambient moisture contamination during critical cell closure.
Perovskite Photovoltaics	Spin-coating, thermal annealing, and packaging of organic-inorganic halide perovskite thin-film modules.	Eliminates phase degradation caused by atmospheric ambient humidity and oxygen exposure.
Organometallic Chemistry	Synthesis, purification, and storage of pyrophoric, hygroscopic, and air-sensitive catalytic reagents.	Total isolation from ambient air protects unstable transition-metal complexes and maximizes reaction yields.
Additive Manufacturing Powder Handling	Sieving, mixing, and loading of reactive titanium, aluminum, and nickel-based superalloy metal powders.	Eliminates oxidation risks and explosion hazards during reactive fine-powder processing.
Inert Gas Arc Welding	Specialized micro-TIG and laser hermetic welding of refractory metals and aerospace-grade alloys.	Guarantees pristine weld pools free from discoloration, embrittlement, or oxide inclusion defects.
Semiconductor Device Packaging	Cleanroom-grade assembly and hermetic sealing of advanced optoelectronic chips and MEMS sensors.	Delivers a stable, ultra-dry inert envelope to prevent junction contamination and moisture trapping.

Specification Parameter	ST19-Pro	ST19-Super-Pro	ST19-Super
Main Chamber Dimensions (L × W × H)	1220 mm × 750 mm × 900 mm	1220 mm × 750 mm × 900 mm	1220 mm × 750 mm × 900 mm
Flange Window Sealing Structure	Monolithic "O"-Ring Vacuum Flange	Monolithic "O"-Ring Vacuum Flange	Monolithic "O"-Ring Vacuum Flange
Window Flange Fabrication Method	Thick-plate CNC Gantry Machined	Thick-plate CNC Gantry Machined	Thick-plate CNC Gantry Machined
Flange & Groove Flatness	< 0.1 mm/m	< 0.1 mm/m	< 0.1 mm/m
Chamber Leakage Rate	< 0.0006 vol%/h	< 0.0006 vol%/h	< 0.0006 vol%/h
Chassis Weld Inspection	Non-Destructive Testing (NDT)	Non-Destructive Testing (NDT)	Non-Destructive Testing (NDT)
Seal Ring Design	Seamless Integrated Elastomeric Ring	Seamless Integrated Elastomeric Ring	Seamless Integrated Elastomeric Ring
Large & Small Antechamber Geometry	Rectangular (Dual Chamber)	Rectangular (Dual Chamber)	Circular (Dual Chamber)
Antechamber Door Actuation	Automatic Door Operation	Manual Door Operation	Manual Door Operation
Viewing Panel Interface	Quick-Release Serviceable Mounting	Quick-Release Serviceable Mounting	Quick-Release Serviceable Mounting
Application Compatibility	Vacuum Equipment Windows & Doors	Vacuum Equipment Windows & Doors	Vacuum Equipment Windows & Doors

Laboratory Single Station Vacuum Glove Box With Automated Rectangular Antechamber

Item Number: ST15



Introduction

This laboratory single station vacuum glove box provides ultra pure inert atmosphere purification with moisture and oxygen under one PPM featuring an automated gas saving rectangular antechamber and robust flange window sealing for advanced battery chemistry and material research.

[Learn More](#)

Application	Description	Key Benefit
Solid-State Battery Assembly	Preparation, stacking, and encapsulation of moisture-sensitive solid electrolytes, lithium metal foils, and sulfur-based cathodes.	Maintains sub-1 PPM atmosphere to prevent rapid hydrolysis and oxidation of sensitive electrolyte interfaces.
Perovskite & Photovoltaic R&D	Spin-coating, curing, and thermal deposition of organic-inorganic halide perovskite films sensitive to ambient humidity and air.	Eliminates environmental degradation vectors, ensuring superior film uniformity and reproducible device efficiency.
Organometallic & Catalysis Synthesis	Handling air-sensitive catalysts, pyrophoric Grignard reagents, and metal alkyl compounds under inert nitrogen or argon.	Provides secure, hermetic containment with automated interlocks to prevent accidental exposure and hazardous oxidation.
OLED & Semiconductor Packaging	Deposition, encapsulation, and hermetic sealing of organic light-emitting diodes, sensors, and microelectronic devices.	Low gas leakage rate and pristine vacuum transition preserve thin-film integrity and extend device operational lifespan.
Powder Metallurgy & Nanomaterials	Handling, weighing, and blending of ultra-fine reactive metallic powders, titanium alloys, and high-purity ceramic precursors.	Rectangular chamber geometry facilitates easy transfer of bulky containers and processing tooling without atmospheric contamination.
Nuclear & Radiochemical Processing	Controlled isolation, micro-weighing, and manipulation of radioactive tracers or sensitive non-volatile isotopes in inert media.	Reliable dual-door interlock and heavy-duty flange sealing prevent containment breach and protect operator safety.

Specification Parameter	Value / Description
Base Model Identifier	ST15
Workstation Configuration	Single Station, Single-Sided Operation
Atmosphere Purity (Moisture)	H2O < 1 PPM
Atmosphere Purity (Oxygen)	O2 < 1 PPM
Window Construction	Integral Flanged Viewing Window with Compression O-Ring Sealing
Leakage Rate	Ultra-low leakage rate engineered via unified flange architecture
Antechamber Mechanism	Fully Automated Door Actuation with Programmatic Safety Interlock
Operational Gas Efficiency	30% reduction in purge gas consumption via optimized rectangular cross-section

Model Variant	Nominal Section (mm)	Internal Width W (mm)	Internal Height H (mm)	Internal Depth D (mm)	Effective Height h (mm)	Tray & Rail Configuration
ST15-120	120 x 150	120	150	300	150	Equipped with sliding tray, rail-free design

Model Variant	Nominal Section (mm)	Internal Width W (mm)	Internal Height H (mm)	Internal Depth D (mm)	Effective Height h (mm)	Tray & Rail Configuration
ST15-260	260 x 300	254	304	500	264	Integrated sliding tray and precision guide rail
ST15-360	360 x 360	360	360	510	320	Integrated sliding tray and precision guide rail
ST15-450	450 x 450	450	450	610	410	Integrated sliding tray and heavy-duty guide rail

Model Variant	Nominal Dimensions (mm)	Internal Width W (mm)	Internal Height H (mm)	Internal Depth D (mm)	Thermal Processing Note
ST15-H360	360 x 360 x 500	360	360	510	Actual usable internal dimensions depend on heating element configuration and internal insulation format

Multi Station Glove Box Inert Gas Purification Glovebox

Item Number: ST17



Introduction

Engineered for advanced battery research and materials processing, this multi-station inert gas purification glovebox delivers ultraclean environments with water and oxygen levels below 1 ppm, automated Siemens PLC control, robust stainless steel construction, and integrated smart cloud monitoring.

[Learn More](#)

Application	Description	Key Benefit
Solid-State & Lithium Battery Assembly	Electrode stacking, electrolyte filling, lithium foil handling, and coin/pouch cell crimping under inert gas.	Prevents passivation and moisture degradation of highly reactive lithium, sodium, and sulfide-based solid electrolytes.
Perovskite & OLED Photovoltaic R&D	Spin coating, vapor deposition staging, and encapsulation of organic/hybrid semiconductor thin films.	Eliminates hydrolytic degradation and trap-state formation caused by trace moisture and ambient oxygen exposure.
Organometallic & Catalysis Chemistry	Handling pyrophoric reagents, metal alkyls, Grignard reagents, and synthesizing air-sensitive coordination compounds.	Ensures complete operator safety while preventing volatile reagent combustion and catalyst deactivation.
Advanced Powder Metallurgy & AM	Storing, sieving, and conditioning fine reactive titanium, aluminum, and spherical superalloy powders for 3D printing.	Inhibits surface oxidation, maintaining raw powder sphericity, flowability, and metallurgical integrity.
Hermetic Laser & TIG Welding	Enclosed micro-joining of titanium alloys, medical implants, nuclear fuel claddings, and aerospace sensor assemblies.	Delivers pristine, discoloration-free weld beads without porosity or embrittling oxide inclusions.
Semiconductor Packaging & Sensor Assembly	Microelectronic wire bonding, wafer die attach, and hermetic sealing of MEMS devices and optoelectronic packages.	Guarantees cleanroom-compatible particle filtration and prevents bond-pad oxidation during high-reliability packaging.

System Subsystem	Specification Parameter	Value / Range (ST17 Series)
Model Configuration	Base Product Identifier	ST17
Main Enclosure	Box Material	304 Stainless Steel (Thickness: 3.0 mm)
	Internal Surface Finish	Oil-film brushed surface
	External Surface Finish	304 Stainless steel brushed / industrial coat
	Chamber Length Options	1500 mm / 1800 mm / 2440 mm / 3660 mm / 4880 mm
	Chamber Depth Options	750 mm / 1000 mm / 1200 mm
	Chamber Height	900 mm
	Front Window	Tilted transparent tempered safety glass (Thickness: 8.0 mm)
	Glove Ports	POM / Machined Aluminum Alloy with dual O-ring sealing
	Gloves	High-integrity Butyl Rubber (Thickness: 0.4 mm, Diameter: 7" / 8")
	Dust Filtration	0.3 µm HEPA gas inlet and exhaust filters (1 inlet, 1 outlet)
	Internal Shelving	2-Tier stainless steel adjustable height shelving unit
	Illumination	Internal glare-free LED lighting enclosed in sealed housing
	Feedthrough Ports	DN40KF blank feedthroughs (multiple spare ports) + 1x 220V power port

System Subsystem	Specification Parameter	Value / Range (ST17 Series)
Purification Unit	Purification Column Type	Single-column hermetic purification train
	Column Construction	304 Stainless steel
	Purifier Charge	5 kg Copper Catalyst + 5 kg Molecular Sieve
	Purification Capacity	Deoxidation: 60 L O ₂ ; Moisture Removal: 2.0 kg H ₂ O
	Attainable Gas Purity	Moisture (H ₂ O) < 1 ppm; Oxygen (O ₂) < 1 ppm
	Compatible Working Gases	Nitrogen (N ₂), Argon (Ar), Helium (He)
	Circulation Blower Flow	90 m ³ /h standard (Optional upgrades: 145 m ³ /h, 180 m ³ /h)
	Column Regeneration	Automated PLC cycle using forming gas (Working gas + 5%~10% H ₂)
	Main Isolation Valves	DN40KF Electro-pneumatic angle valves
	Auxiliary Control Valves	Integrated solenoid manifold blocks
Antechambers	Large Antechamber Dimensions	Diameter: Ø360 mm (Optional: Ø400 mm), Length: 600 mm
	Large Chamber Construction	304 Stainless steel, sliding load tray, dual vertical 10 mm Al doors
	Large Chamber Control	Fully automated cycle evacuation and inert gas refill
	Small Antechamber Dimensions	Diameter: Ø150 mm (Optional: Ø100 mm), Length: 300 mm
	Small Chamber Construction	304 Stainless steel, dual hinged doors, manual ball valve operation
	Pressure Indication	High-precision analog dial vacuum gauges on both chambers
Vacuum System	Rotary Vane Vacuum Pump	Flow rate options: 8 m ³ /h, 12 m ³ /h, or 16 m ³ /h
	Pump Protection	Exhaust oil mist filter and gas ballast control valve
Control & Instrumentation	Automation Platform	Siemens PLC with color HMI touchscreen display
	Pressure Control Range	Freely adjustable within ±15 mbar; Auto-protection at ±16 mbar
	Operator Pressure Assist	Dual-pedal foot switch for direct gas fill and evacuation
	Oxygen Analyzer	Solid-state sensor, measuring range: 0 to 1000 ppm
	Dew Point Analyzer	Capacitive/impedance sensor, measuring range: 0 to 500 ppm
	Data Logging & Safety	Automated parameter memo, alarm history, and power-off auto-restart



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