

Super Purified Glovebox Gas Purification System



ABOUT US

Achieving Social Goals
through Advancing
Technology



Vacuum Technology Inc. (VTI) is a high-tech company specializing in R&D, manufacturing, sales, and services, delivering innovative products globally.

Based in Woburn, Massachusetts, USA, VTI provides Super Purified Glove Boxes, Gas Purification Systems, and a range of accessories. Alongside standard products, our technical team collaborates with clients to create custom solutions.

VTI's dedication to quality and service has built lasting client trust worldwide. Partnering with global leaders and sharing extensive expertise with Mikrouna, a pioneer with 25+ years in glove box technology, VTI stands as an industry leader.

APPLICATIONS

- Physical Chemistry R&D
- 3D Printing
- Welding
- Lithium Ion Battery/Super Capacitor
- Semi-Conductor
- Pharmaceutical
- Perovskite/Solar Cell
- OLED & PLED
- Others

SERVICES

Support That Powers Performance —Anytime! Anywhere!

With VTI's expert service and support, you're not just buying equipment—you're investing in reliability, efficiency, and peace of mind.

Value-Added Services

- Onsite Installation & Commissioning, and Training
- 24-Hour Response Support
- Remote Technical Guidance
- Comprehensive 3-Year Warranty
- Maintenance Reminder Subscription

On-Demand Services

- Repair Services
- Upgrade Services
- Relocation Services
- Preventive Maintenance
- Others

FEATURE HIGHLIGHTS



Flange Window with O-ring Sealing - *New*

- Ultra-low leak rate of 0.001 Vol%/h
- Easy-to-remove glass for large equipment loading

High-Capacity Purifier

- Efficient reduction of H_2O and O_2 levels to below 1 ppm
- Extended intervals between regenerations

Long life H_2O and O_2 Sensors

- P_2O_5 Moisture Sensor: Corrosion-resistant, renewable via acid deaning
- ZrO_2 Oxygen Sensor: Long-lasting, solid-state, air-exposure tolerant

Internet Remote Control

- Remote monitoring and control via PC or smartphone
- Real-time notifications for alarms and system failures



Automatic Doors

- Automatic operation of dual antechamber doors
- Interlock system prevents maloperation

SIEMENS PLC & HMI

- Intuitive, user-friendly
- Automated control of purge, circulation, regeneration, and pressure

ECO Mode

- Blower slows when H_2O and $\text{O}_2 < 1$ ppm
- Vacuum pump auto-shuts when idle and activates as needed

Custom Designs

- Cost-effective solutions
- All-in-one manufacturing with precise quality control

GLOVEBOX GALLERY



Super(1220/750/900)



Universal(1500/750/900)



Universal(1800/1000/900)



Universal(2440/750/900)



Pro Upgrades
Auto Dual Antechamber Doors



Advanced(2440/1000/900)
Face to Face Operated



Glovebox with Independent
Purification System



Glovebox with Freezer

GLOVEBOX GALLERY



Glovebox with Microscope Unit



Glovebox with Air Conditioner



Glovebox with Vacuum Oven



T-Antechamber Glovebox



Universal(3660/1000/900)
Face to Face Operated

GLOVEBOX GALLERY



For the Electrolyte Field



Vacuum Glovebox



Quick Released Window-Clamped & Hinged



Ultra Clean Unit &
Auto Dual Antechamber Doors

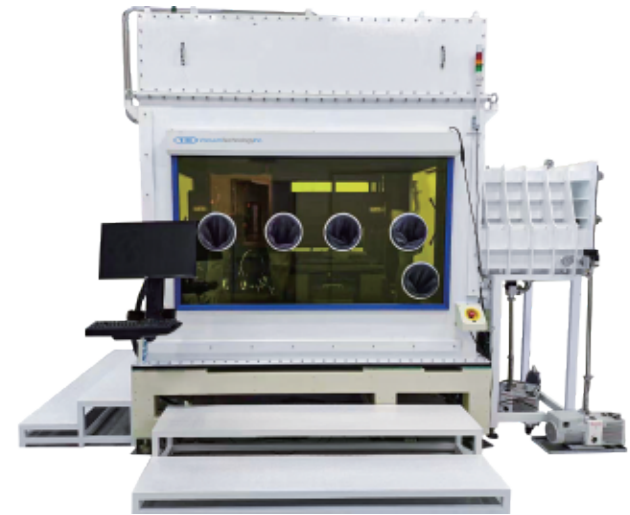


L-Shape Mini Antechamber
For 2-D Material

GLOVEBOX GALLERY



Super Capacitor Production Line



For 3D Printing



For OLED / Solar Cell



For Perovskite



For Rare Earth Metal Welding

GLOVEBOX GALLERY



For Lithium Ion Battery



For Melt Casting



For Welding



Lithium Metal Solid-State Battery Pilot Line



Lithium Metal Battery Automatic Cutting and Stacking
All-in-one Machine

LITHIUM BATTERY R&D

- Regenerable Solent Trap
- HF (Hydrofluoric Acid) Absorber
- Heated Antechamber
- Acid Proof Moisture Sensor



Blower Purifier Regenerable Solvent Trap HF Absorber

SUPER CAPACITOR R&D AND PRODUCTION

- Movable oven PLC controlled to 200°C
- Exclusive docking system prevents capacitor exposure to ambient air
- Fully automated transfer between oven, cooling antechamber, glovebox, and discharge chambers
- Cooled antechamber reduces energy consumption and enhances efficiency
- One glovebox system with multiple ovens saves costs
- Ideal for small batches of various samples



LITHIUM METAL SOLID-STATE BATTERY PILOT LINE



- Energy-Saving Atmosphere Protection System
- Material Weighing Proportion
- Vacuum Stirring
- Coating and Baking & 3D Printing Forming
- Rolling
- Electrode Cutting
- Lithium Metal Semi-Automatic Stacking
- Hot Press Testing
- Top-Side Sealing
- Vacuum Sealing
- Aluminum-Plastic Film Manual Forming
- Tab Ultrasonic Welding

LITHIUM METAL ANODE SHEET AUTOMATIC MAKING MACHINE

- Lithium Strip Low Tension Unwinding
- Fixed Length Traction and Cut into Sections
- CCD Positioning & Correction
- Copper Tab Cutting and Transferr
- Tab and Lithium Foil Pre-Pressing and Bonding
- Tab Final Flattening and Compounding
- CCD Detection and Sorting



OLED / SOLAR CELL / PEROVSKITE CELL



- Applicable for metal, semi-conductor, and organic Im, OLED, PLED, Solar, Perovskite Cell and other applications.
- Integrated with Evaporator and Spin Coater.
- With Ultra-clean Purification System on the top.
- Cleanliness level reached to 10.
- High efficiency filter H13 grade to ultra-high efficiency filter U15 grade.
- Filtration particle size: $0.12\mu\text{m}$.

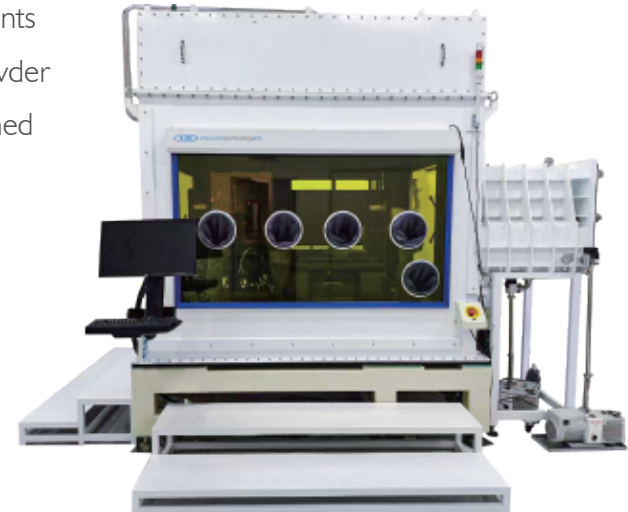


3D PRINTING SERIES

3D printing glovebox (rapid prototyping glovebox) is designed for manufacturing special components and parts used in aerospace engineering. 3D printing by Powder Feeding Molding and Laying Powder Molding are common configurations in a glovebox, Each molding technique uses a specially designed glovebox based on the requirements.

Features

- Large volume sealing, with high reliability.
- Signal wires and Power wires are highly integrated into the sealing box, avoiding interruptions.
- Automated robotic loading & unloading and transmission.
- Professionally designed antechamber whose surface is sprayed with plastic or mirror surface, the structure is ingenious and the opening is convenient and simple.



WELDING SERIES

- Avoid the effect of humidity and impurities in the air while laser welding.
- The glovebox has two rectangular Antechambers, one Heated Antechamber (Maximum 200°C and quick chilling) with water cooling unit and one regular antechamber.
- The outside door of the rectangular antechamber is manually operated and the inside door is automatically operated.
- The glovebox purge is controlled by the flow meter; the glovebox can also be connected with a purification system.
- The system has a dust removal unit.



SPECIFICATION

Glovebox

Main Chamber

Material:	Stainless Steel Type 304, Thickness 3mm (1/8")
External Surface:	White Paint (Brushed Stainless Steel Available)
Internal Surface:	Brushed Stainless Steel
Inside Dimension:	Modular Length: 1220mm/1500mm/1800mm 48.0"/59.1"/70.9" Modular Depth: 750mm/1000mm/1200mm 29.5"/39.4"/47.2" Modular Height: 900mm (35.4")

Sight Windows	Inclined, Safety Glass, Thickness 8mm (1/3")(Polycarbonate available)
Gloves Ports	Aluminum, double O-ring seal, 220mm (8.7") Diameter
Gloves	Butyl, 8" cuff dia., 0.015" thick, 32" long (many other materials and sizes available specific to your needs)

Dust Filter HEPA 0.3 μ m, one on gas inlet, one on gas outlet

Shelving Stainless Steel material, three adjustable shelves

Box Light LED, front and top mounted

Feedthroughs KF40, One Power cord feedthrough, backup ports for various feedthroughs (BNC, USB Post Connector, VGA, Liquid / Gas feedthroughs and custom feedthroughs available on request)



SPECIFICATION

Purging
lation
eration



Main Antechamber

Size:	Diameter: 360mm (14.2") or 400mm (15.7"), Length 600mm (23.6") (other sizes available)
Materials:	304 Stainless Steel
External Surface:	Polished Stainless Steel(White Paint available)
Internal Surface:	Brushed Stainless Steel
Sliding Tray:	304 Stainless Steel
Double Door:	Anodized Aluminum, 10mm thick (2/5"); Vertical operation with lifting mechanism (Interlocking door available)
Manometer:	Analog Display
Operation:	Touch Screen Automatic operation via solenoid valves

Mini Antechamber

Size:	Diameter: 150mm (5.9") or 100mm (3.9"), Length 300mm (11.8")
Materials:	304 Stainless Steel
External Surface:	Polished Stainless Steel(White Paint available)
Internal Surface:	Brushed Stainless Steel
Double Door:	Hinged (Interlocked double door available)
Manometer:	Analog Display
Operation:	Manual operation via hand valve

SPECIFICATION

Gas Purification Unit

Purifier

Function:	Airtight Seal, Removal of H_2O and O_2
Container Material:	304 Stainless Steel
Absorber Material:	5kg(8.5kg/12kg available) Copper Catalyst 5kg(8.5kg/12kg available) Molecular Sieve
Attainable Purity:	Less than 1 ppm moisture and oxygen

Gas Circulation

Working Gas:	Nitrogen, Argon or Helium
Encapsulated Blower:	90m ³ /h (145m ³ /h or 180m ³ /h available)

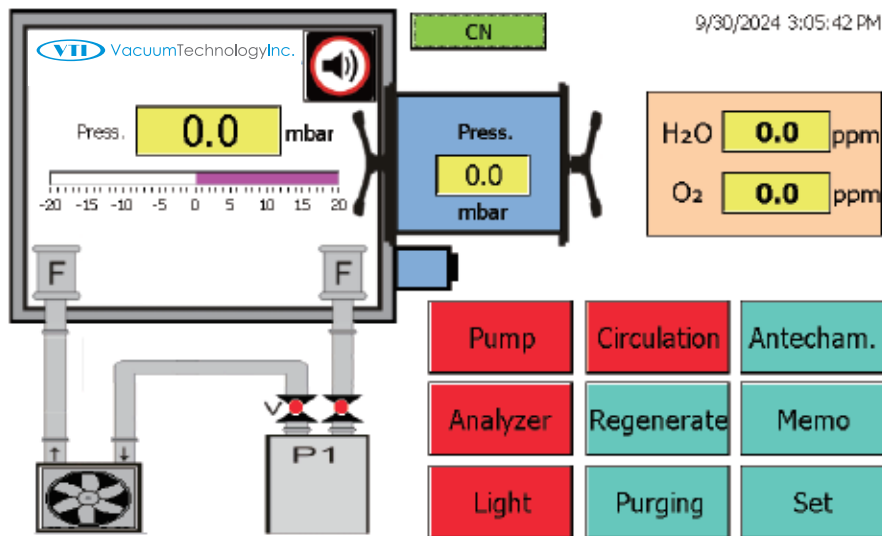
Regeneration

Operation:	PLC automatically controlled
Regeneration Gas:	Working gas mixed with Hydrogen (5-10%)



Purification system

SPECIFICATION



Manifold Style Solenoid Valve Seat

System Control

PLC and HMI:	Siemens S7
Touch Screen:	Siemens 7", color
Features:	Automatic control of Purging, Circulation Control, Regeneration, Pressure, as well as Self-Diagnosis, Power Failure Re-Start and Password Protection.
Box Pressure set:	Between ± 15 mbar

Vacuum Pump

12 m³/h or 17 m³/h

Rotary vane pump with oil mist and gas ballast control unit
(Dry pump is available)

Valves

Main Valves:	Electro-pneumatic angle valves KF 40
Control Valves:	Integrated Solenoid Valves

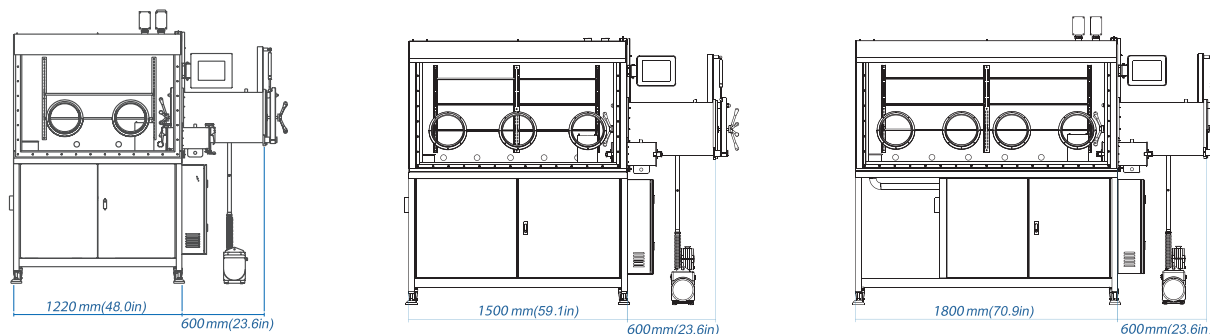
MODEL AND SIZE

Items		Model	Super	Universal	Advanced	Pro Upgrades
Dimension (mm) W*D*H Workstation	Single		1220x750x900	1220x750x900	1220x750x900	1220x750x900
	Double (Side by Side)	N/A	N/A	2440x750x900	2440x750x900	2440x750x900
	Double (Face to Face)			1800x750x900	1800x750x900	1800x750x900
	Tri-glove (Side by Side)	N/A	N/A	1220x1000x900	1220x1000x900	1220x1000x900
	Four (Side by Side)	N/A	N/A	1500x750x900	1500x750x900	1500x750x900
	Four (Face to Face)			1800x750x900	1800x750x900	1800x750x900
	Six (Side by Side)	N/A	N/A	4880x750x900	4880x750x900	4880x750x900
	Eight (Face to Face)	N/A	N/A	2440x1000x900	2440x1000x900	2440x1000x900
	Twelve (Face to Face)	N/A	N/A	3660x1000x900 3660x1200x900	3660x1000x900 3660x1200x900	3660x1000x900 3660x1200x900
Antechamber Dimension (mm) Dia*L/W*D*H	Small Antechamber (Manual Door)	Cylindrical Dia. 150xL300	Cylindrical Dia. 150xL300	Cylindrical Dia. 150xL300	Cylindrical Dia. 150xL300	Rectangular W300xD120xH150
	Large Antechamber (Manual/Auto Door)	Cylindrical Dia.360xL600 Manual	Cylindrical Dia.360xL600 Manual	Cylindrical Dia.360xL600 Manual	Cylindrical Dia.360xL600 Manual	Rectangular W500xD254xH262 Auto Dual Doors/Inner Door
Control Unit & Touch Screen		Siemens S7 7" Screen	Siemens S7 7" Screen	Siemens S7 7" Screen	Siemens S7 7" Screen	Siemens S7 7" Screen
Purifier		Single	Single	Double	Single or Double	Single or Double
Blower		90m³/h	90/145/180m³/h	90/145/180m³/h	90/145/180m³/h	90/145/180m³/h
RV12		17m³/h	17m³/h	17m³/h	17m³/h	17m³/h
Moisture & Oxygen		Both < 1ppm	Both < 1ppm	Both < 1ppm	Both < 1ppm	Both < 1ppm
Application		R & D	R&D and Pilot Production	Large-scale Production	R&D and Production	R&D and Production

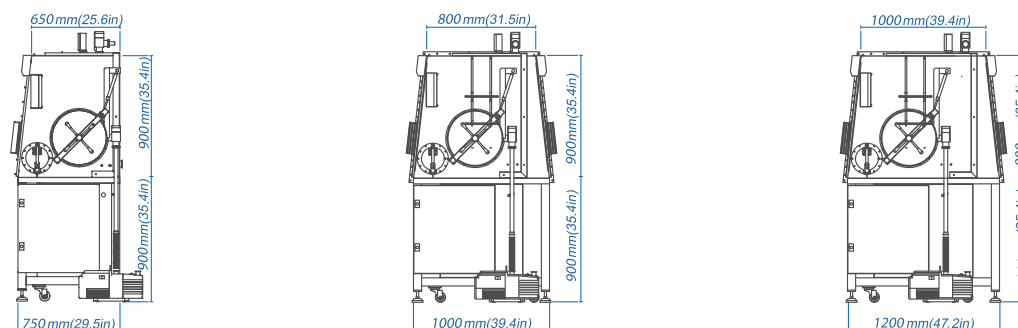
DIMENSIONS

Standard Modules

Length

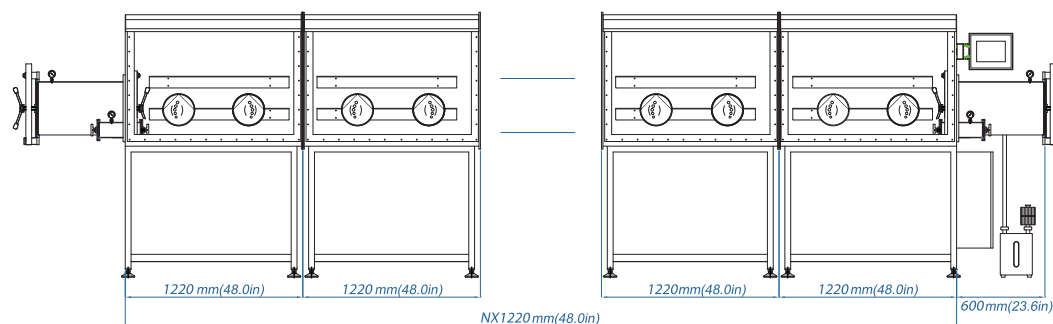


Depth and Height



ModuleCombination

*Modules can be combined to create a multi-workstation glovebox



SEPARATE GAS PURIFICATION SYSTEM



Features

- Operation: Easy access to the glovebox
- Control: Manual or PLC Controlled
- Power: 110V/50Hz or 220V/50Hz
- Working Gas: Nitrogen, Argon or Helium
- Regeneration gas: Working gas mixed with Hydrogen (5%-10%)



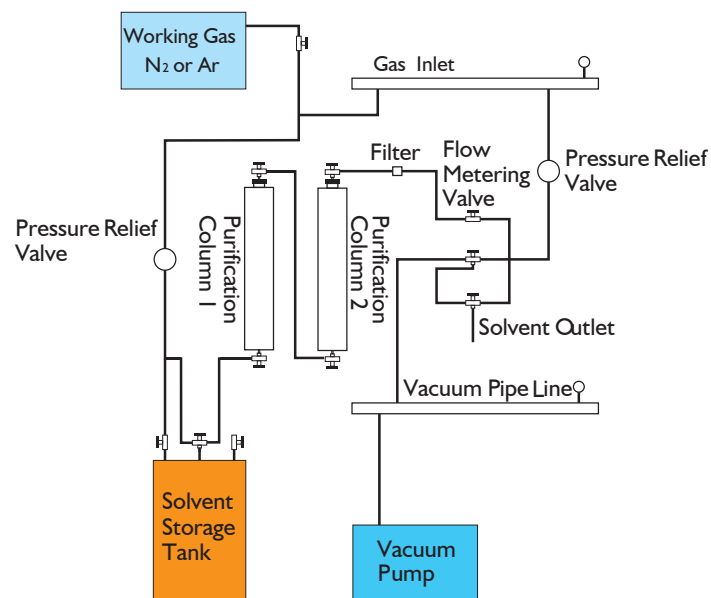
Type	MK100	MK200	MK300	MK400	MK500	MK600
Purifier	Single	Double	Single	Double	Single	Double
Main Pipe	DN40	DN40	DN50	DN50	DN63	DN63
Capacity	90m³/h	90m³/h	145m³/h	145m³/h	180m³/h	180m³/h
Copper Catalyst	5kg	2×5kg	8.5kg	2×8.5kg	12kg	2×12kg
Molecular Sieve	5kg	2×5kg	8.5kg	2×8.5kg	12kg	2×12kg

SOLVENT PURIFICATION SYSTEM

Applicable for solvent drying and purification by removing water, oxygen etc.

Low purity grade industrial solvents can be purified into high purity grade.

VTI provides materials replacement and regeneration services for purification columns.



Treatable Solvent

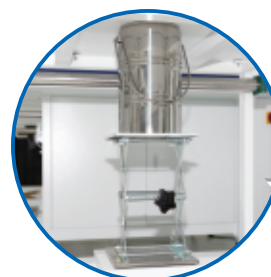
Aromatic and Lipid	Pentane, n-Hexane, Cyclohexane, n- Heptane, Toluene, Benzene
Ethers	Diethyl Ether, THF, Dimethyl Ether
Chlorinated Solvent	Dichloromethane, Chloroform, Chlorobenzene
Amine Solvent	Triethylamine, Pyridine, N-di(isopropyl)ethylamine
Alcohol	Methanol, Ethanol
Other General Solvent	Acetonitrile(MeCN), DMF, Dimethyl Sulfoxide, Acetone

OPTIONS



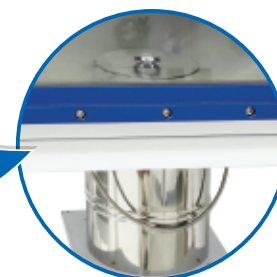
Freezer

- Internal volume: 30 liters
- Minimum temperature: -35°C



Cold Well

- SS well, Dia. 150mm, Depth 190mm (customizable)
- Includes DEWAR for LN filling and adjustable Platform



Heated Antechamber

- Max. 150°C, 200°C, or 250°C (Chiller is not needed for 150°C)
- PID temperature controller
- Insulation layer



Internet Solvent Trap

- Install inside GB
- 1.25kg Activated carbon



Regenerable Solvent Trap

- Install outside GB
- 9 Kg Molecular Sieves
- Auto Regeneration



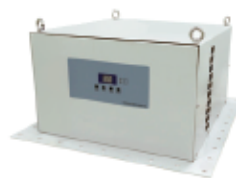
HF/H2S Absorber

- Auto Purge & Evacuation
- 4.5 kg Activated Carbon with 4.5 kg Alumina / NaOH-Carbon



Nitrogen Removal System

- Effectively removes nitrogen from the glovebox
- Uses argon as the working gas



Air conditioner

- Top-mounted on GB
- Cooling capacity: 1KW, 2KW, 3KW
- Temperature range: 23-35°C



Heat Exchanger

- Fan and radiator with heat-dissipating ducts
- Water inlets/outlets
- 1 KW or 2KW chiller required



Ionizer without fan

- Removes static charges
- 12" ionization range

SPARE PARTS



Activated Carbon



Molecular Sieve



Copper Catalyst



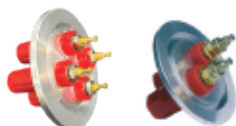
Dust Filter



Gloves



Power Cord Feedthrough



Binding Posts Feedthrough



Gas/Fluid Feedthrough



BNC Feedthrough



USB Feedthrough



Water Trap

- For water collection in regeneration



Oxygen Analyzer

- ZrO_2 sensor
- Long-lasting, solid-state, air-exposure tolerant long life



Moisture Analyzer

- P_2O_5 Sensor
- Corrosion resistant renewable via acid cleaning



Oil Mist Filter

- For Vacuum Pump



Glove Port Cover

- For gloves replacement



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