

# GLOVE BOX

Environmental solutions for  
pharmaceutical, chemical, laser  
welding, OLED, and nuclear  
industries



**KGC**

**EMPOWERING FUTURE**  
THROUGH RESEARCH & INNOVATION

# INTRODUCTION

Welcome to our 2020 - 2021 edition of Product Catalog. We would like to thank you for your continue support and encouragement. Throughout this challenging time, we have grown and transform our business to be more efficient and effective. This will enable us to offer better service and more competitive pricing to our customers.

Our new edition of catalog comes with a easy reference features where we categorized the products into different usage categories, i.e. Advanced Material, Renewable Energy, Bio-Process, Gauge Calibration, Membrane Technology, 3D scanner and others. This will facilitate the users to quickly access to the equipment specification required, and options available to them in term of measuring range or equipment complexity.

In our new catalog, we have also added the equipment to do research in renewable energy like solar cell, fuel cell, flow cell, lithium ion batteries, and membrane technologies. In synergy with our advanced material equipment, we have also added the equipment for material characterization especially in the area of rare earth research and magnetic properties. In line with the manufacturing industry footsteps, the equipment on 3D scanning and 3D printing also have been added in to expand the tools in the research and development for industry 4.0.

To our current customers, we believed our partnership will be strengthen for the years to come. The new catalog will also create new opportunities to build new relationship with new customers.

Lastly, I would like to thanks our staffs for their dedication and sacrifice in supporting the management for a brighter future.

**Patrick Tan**

*Director*

*KGC (Group of Companies)*

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# Vacuum Glove Box

Vacuum-able glove box made from Stainless Steel to withstand corrosion



VGB-1



VGB-3



VGB-4

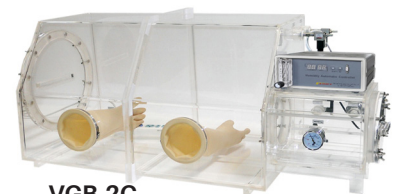
Glove Box Model	VGB-1	VGB-3	VGB-4
Case Material	SUS304 Stainless Steel		
Main Chamber Size	600 W x 450 D x 420 H mm	780 W x 650 D x 700 H mm	1120 W x 740 D x 900 H mm
Air-lock Size	210 D x 260 L mm	240 D x 260 L mm	385 D x 435 mm
Front Window Size	500 W x 165 H mm	710 W x 320 H mm	1040 W x 400 H mm
Gloves	Latex Gloves		
Electrical Feedthrough	220V 50 Hz/110V 60 Hz		
Lighting	LED light for energy saving		
Net Weight	60 kg	140 kg	200 kg
Main Chamber Vacuum Level	0.1 MPa		
Air-lock Vacuum Level	0.1 MPa		

# Acrylic Glove Box

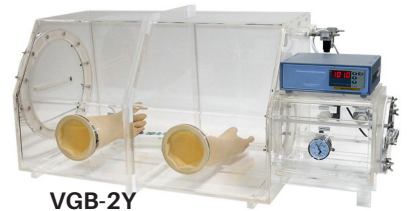
Transparent acrylic material glove box with parameter control



VGB-2



VGB-2C



VGB-2Y



VGB-2D

## VGB-2

- Basic design without sensors/controllers
- Case material: 6 mm acrylic with acrylic reinforcing rib
- Main chamber size: 900 L x 500 W x 500 H mm
- Air-lock chamber size: 240 L x 240 W x 240 H mm
- Gloves: Latex glove
- Glove ports size: 151 mm D
- Main chamber door external size: 400 mm D
- Main chamber door internal size: 340 mm D
- Electrical feedthrough: 220V 50 Hz/110V 60 Hz
- Net weight: 25 kg



VG-1

## VG-1

- Glove chamber size: 400 L x 300 W x 400 H mm
- Acrylic thickness: 6 mm
- Glove port size: 150 mm D
- Vacuum gauge: One unit
- Valves: 3 valves with 1/4" NPT installed in air-lock and glove chamber
- Extra port: one spare port pre-installed
- Max pressure: No vacuum pressure below 500 torrs is allowed in glove chamber and 100 torrs in air-lock due to limited acrylic strength
- Rubber gloves are included for immediate usage

## VGB-2C

- Consists of VGB-2 and automatic humidity controller
- Humidity value can be set according to customer's requirement
- Humidity controller's range: 1% RH - Ambient
- Gas Flowmeter: 1 unit
- Humidity Sensor: 1 unit
- Solenoid Valves: 2 units

## VGB-2Y

- Consists of VGB-2 and automatic pressure controller
- The pressure value range can be set according to customer's requirement
- Not to be used for vacuum purpose, only the differential pressure of gas purge in and out
- Pressure Sensor: 1 unit
- Solenoid Valves: 2 units

## VGB-2D

- Consists of VGB-2 and HEPA filter system
- Easily configurable closed or open-loop system to isolate product or containment for environmental protection
- Function: Ideal for removing fine pharmaceutical powders, aerosols, and microbial contaminants
- Intake & Exhaust HEPA Filter: 99.97%, 0.3 μm
- Brushless DC motor: To eliminate carbon contaminants, ultra-clean, high-static pressure operation
- Blower: 480 cfm impeller blower module mounted on the second HEPA filter

# Purification Modules

High quality powder/solvent handling and process containment/purity solutions for the pharmaceutical, chemical, laser welding, OLED/PLED, and nuclear industries

The purification modules are designed for connection to a glove box or sealed container (Class 1 leak-tight glove box according to ISO10648-2)

The oxygen and moisture will be removed through purification column within a closed loop.

Model	GP-1	GP-2	GP-3	GP-4
Purity Column	SUS304 Stainless Steel			
Pipe	DN40	DN40	DN50	DN50
Fan Speed	90 m <sup>3</sup> /h	90 m <sup>3</sup> /h	150 m <sup>3</sup> /h	150 m <sup>3</sup> /h
Copper Catalyst	6 kg	6 kg x 2	10 kg	20 kg
Molecular	8 kg	8 kg x 2	12 kg	12 kg x 2
Filtering	H <sub>2</sub> O < 1 ppm; O <sub>2</sub> < 1 ppm			



**GAS PURIFICATION SYSTEM**

## SOLVENT PURIFICATION SYSTEM

Solvent purification system operates by pushing the solvents through a series of drying columns resulting in moisture levels down to ppm range. Dried solvents can be dispensed into a collection vessel directly from the system.



### Types of solvents

- Aromatic and aliphatic hydrocarbons  
Pentane, n-hexane, cyclohexane, n-heptane, toluene, benzene
- Ether  
Tetrahydrofuran, dimethyl ether
- Chlorinated solvents  
Dichloromethane, chloroform, chlorobenzene
- Amine solvents  
Triethylamine, pyridine, diisopropyl ethylamine
- Alcohol  
Methanol, ethanol
- Other common solvents  
Acetonitrile, dimethyl formamide, dimethyl sulfoxide, acetone

# Glove Box Workstation with Purification System

High quality powder/solvent handling and process containment/ purity solutions for the pharmaceutical, chemical, laser welding, OLED/PLED, and nuclear industries

The purification cylinder is made of BASF R3-11 Copper Catalyst and Lindy Molecular Sieve in order to achieve a low water and oxygen concentration of lower than 1 ppm, such that experiments can be conducted in an ultra-clean and highly purified gas environment. It is integrated with a vapor pressure control system, purity control system, automatic gas purity regeneration control system, and system data log recording.

#### Additional Accessories

- Refrigerator:  
To be flange-connected with glove box  
With an inner door inside main chamber  
Adjustable temperature: min -35°C
- Vacuum oven:  
Adjustable temperature: Ambient to 250°C
- Reaction kettle:  
Volume can be requested between 5 L - 20 L  
Material from SS304



## 2GBS

#### Glove Box Body

- Main body: L1220 x W760 x H900 mm SUS304, acid resistant, 3 mm thickness
- Window: Sight tempered glass, 0 mm thickness
- Shelf: Adjustable shelves. 2 pc, L x D = 800 x 200 mm
- Glove ports material: aluminum or POM material
- Gloves material: Butyl / Neoprene / Rubber
- Lighting with power board
- HEPA filters: Inlet & outlet filter > 0.3 µm
- Connectors: KF40
- Feedthrough: 2 pc for electrical and 1 pc for gas/liquid
- Main antechamber: Dia 385 mm x L 600 mm, right side
- Small antechamber: Dia 150 mm x L 300 mm, right side

#### Gas Purification System; H<sub>2</sub>O & O<sub>2</sub> < 1 ppm

- System: PLC program with Siemens 7" HMI color touch screen monitor
- Purge valve: Automatic electro-pneumatic valve
- Circulating blower: Default setting circulation blower
- Pipeline material: 304 SS
- Pressure control: Box pressure with automatic control; manual pressure control is allowed through foot pedal switch (from +15 mbar to -15 mbar)
- Leak rate: < 0.001 vol%/hr

#### Common Accessories

- Heavy duty double stage vacuum pump with oil mist filter
- Oxygen analyzer with measurement range of 0 - 1,000 ppm, accuracy 0.1 ppm
- Moisture analyzer with measurement range of 0 - 1,000 ppm, accuracy 0.1 ppm



## 3GBS

#### Glove Box Body

- Main body: L1500 x W760 x H900 mm SUS304, acid resistant, 3 mm thickness
- Window: Sight tempered glass, 10 mm thickness
- Shelf: Adjustable shelves. 2 pc, L x D = 800 x 200 mm
- Glove ports material: aluminum or POM material
- Gloves material: Butyl / Neoprene / Rubber
- Lighting with power board
- HEPA filters: Inlet & outlet filter > 0.3 µm
- Connectors: KF40
- Feedthrough: 2 pc for electrical and 1 pc for gas/liquid
- Main antechamber: Dia 385 mm x L 600 mm, right side
- Small antechamber: Dia 150 mm x L 300 mm, right side

#### Gas Purification System; H<sub>2</sub>O & O<sub>2</sub> < 1 ppm

- System: PLC program with Siemens 7" HMI color touch screen monitor
- Purge valve: Automatic electro-pneumatic valve
- Circulating blower: Default setting circulation blower
- Pipeline material: 304 SS
- Pressure control: Box pressure with automatic control; manual pressure control is allowed through foot pedal switch (from +15 mbar to -15 mbar)
- Leak rate: < 0.001 vol%/hr

#### Common Accessories

- Heavy duty double stage vacuum pump with oil mist filter
- Oxygen analyzer with measurement range of 0 - 1,000 ppm, accuracy 0.1 ppm
- Moisture analyzer with measurement range of 0 - 1,000 ppm, accuracy 0.1 ppm



## 4GBS

#### Glove Box Body

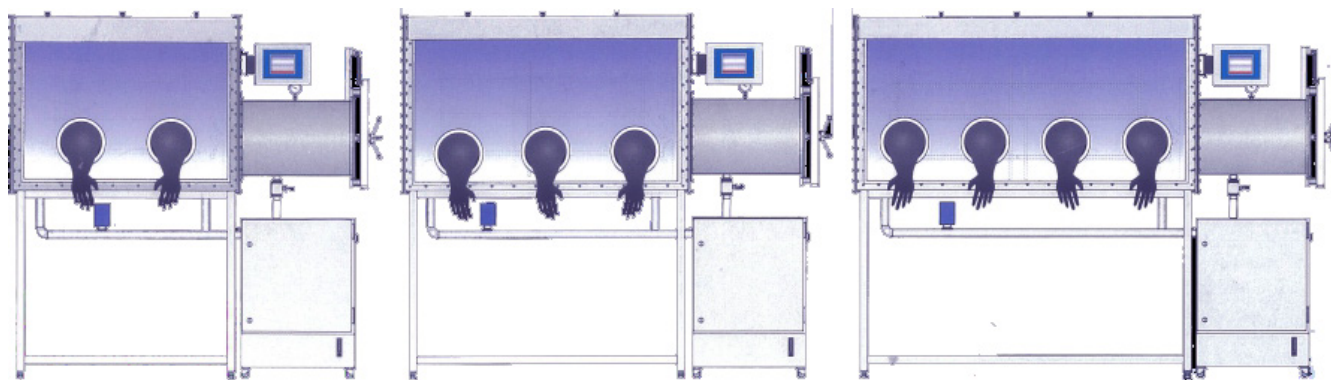
- Main body: L1900 x W760 x H900 mm SUS304, acid resistant, 3 mm thickness
- Window: Sight tempered glass
- Shelf: Adjustable shelves. 2 pc, L x D = 800 x 200 mm
- Glove ports material: aluminum or POM material
- Gloves material: Butyl / Neoprene / Rubber
- Lighting with power board
- HEPA filters: Inlet & outlet filter > 0.3 µm
- Connectors: KF40
- Feedthrough: 2 pc for electrical and 1 pc for gas/liquid
- Main antechamber: Dia 385 mm x L 600 mm, right side
- Small antechamber: Dia 150 mm x L 300 mm, right side

#### Gas Purification System; H<sub>2</sub>O & O<sub>2</sub> < 1 ppm

- System: PLC program with Siemens 7" HMI color touch screen monitor
- Purge valve: Automatic electro-pneumatic valve
- Circulating blower: Default setting circulation blower
- Pipeline material: 304 SS
- Pressure control: Box pressure with automatic control; manual pressure control is allowed through foot pedal switch (from +15 mbar to -15 mbar)
- Leak rate: < 0.001 vol%/hr

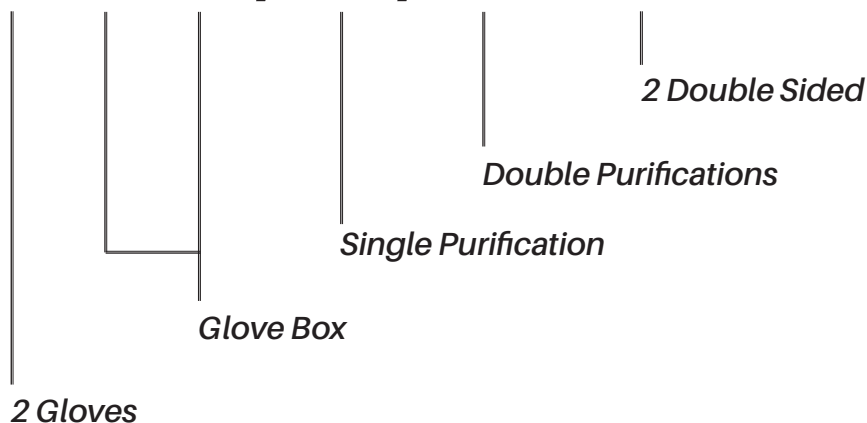
#### Common Accessories

- Heavy duty double stage vacuum pump with oil mist filter
- Oxygen analyzer with measurement range of 0 - 1,000 ppm, accuracy 0.1 ppm
- Moisture analyzer with measurement range of 0 - 1,000 ppm, accuracy 0.1 ppm



**Other Glove Box Models according to Dimension**

# 2GB/S/D-2



Model	Description	Body Size (mm)	Overall Size (mm)
2GBS/D	One side 2 gloves	1220 L x 760 D x 900 H	1960 L x 790 D x 1800 H
2GBS/D - 2	Both side 4 gloves	1220 L x 1000 D x 900 H	1960 L x 1030 D x 1800 H
3GBS/D	One side 3 gloves	1500 L x 760 D x 900 H	2240 L x 790 D x 1800 H
3GBS/D - 2	Both side 6 gloves	1500 L x 1000 D x 900 H	2240 L x 1030 D x 1800 H
4GBS/D	One side 4 gloves	1900 L x 760 D x 900 H	2640 L x 790 D x 1800 H
4GBS/D-2	Both side 8 gloves	1900 L x 1000 D x 900 H	2640 L x 1030 D x 1800 H
5GBS/D	One side 5 gloves	2720 L x 760 D x 900 H	3460 L x 790 D x 1800 H
5GBS/D-2	Both side 10 gloves	2720 L x 1000 D x 900 H	3460 x 1030 D x 1800 H
6GBS/D	One side 6 gloves	3120 L x 760 D x 900 H	3860 L x 790 D x 1800 H
6GBS/D-2	Both side 12 gloves	3800 L x 1000 D x 900 H	3860 L x 1030 D x 1800 H
8GBS/D	One side 8 gloves	3800 L x 760 D x 900 H	4550 L x 790 D x 1800 H
8GBS/D-2	Both side 12 gloves	3800 L x 1000 D x 900 H	4550 L x 1030 D x 1800 H

# Customized Glove Box System

Customized system to control highly sensitive environment

## Pharmaceutical Industry

- Isolator
- Feeding
- Bionanometer
- Packaging



Packaging



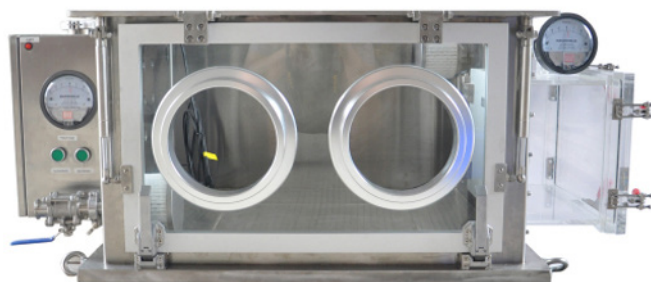
Isolator



Nanotechnology Research & Production

## 3D Printing Industry

- SLA: Light Curing Molding
- 3D P: 3D Powder Bonding





## Chemical Industry

- Organic Solvent
- Organic Materials
- Titanium Materials
- Electrochemistry

## Battery Industry

- Lithium Battery
- Supercapacitor
- Electrolyte
- Catalyzer



## Laser Welding

- Laser Cladding
- Steam Welding
- Resistance Welding
- Parellel Welding



# Customized Glove Box System

Customized system to control highly sensitive environment

## OLED/Solar Industry

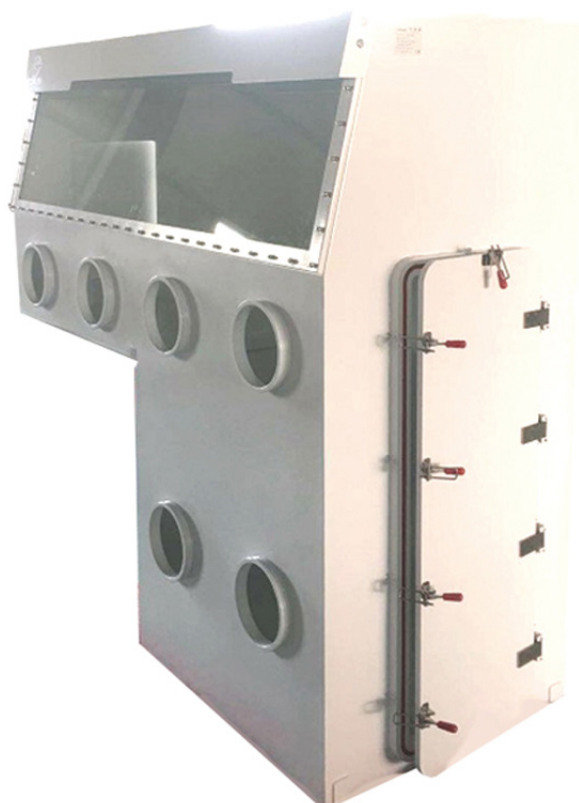
- Sublimator
- Evaporation
- Spin Coating



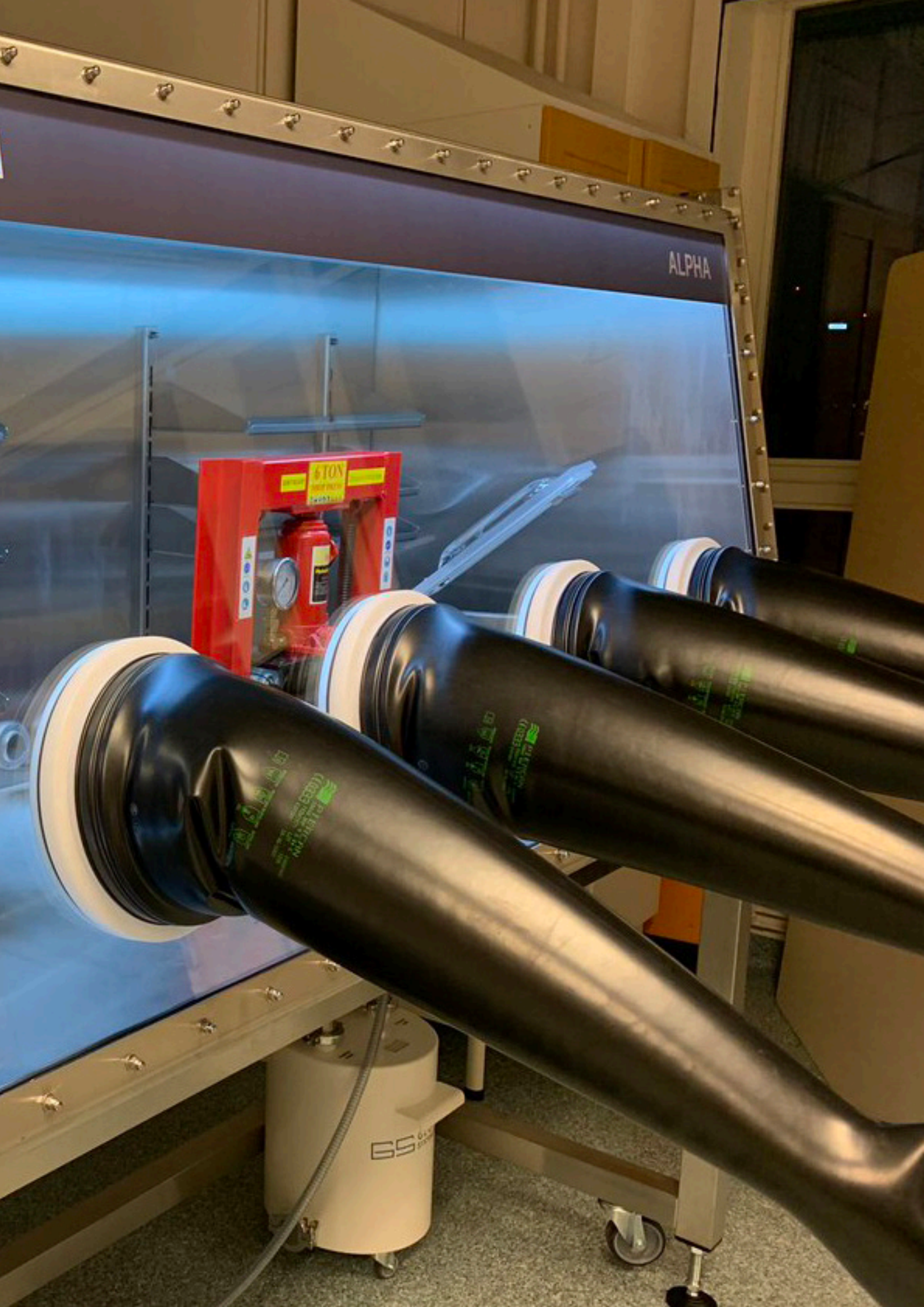
## Nuclear Industry

- Ignition Glove Box
- Nuclear Waste

Nuclear Waste Box



Ignition Glove Box



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## **PRODUCT CATALOG**

**For South East Asia Inquiries:**

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