



## Functional characteristics

- Standards comparable to our all-welded design
- Purifier regeneration frequency once per year
- Regeneration averages ~ once per year
- Automatic antechamber control
- Oxygen Analyzer / Moisture Analyzer
- Auto Vacuum
- Color LCD touch panel and PLC controller
- Energy Save mode, automatically reducing power consumption by up to 90% during idle periods
- Automatic regenerable H<sub>2</sub>O/O<sub>2</sub> purifier
- Attainable purity O<sub>2</sub><1 ppm , H<sub>2</sub>O<1 ppm (Dew point also available for moisture reading)
- Glovebox vacuum  $\leq$ -1 bar
- Industry leading low leak rate of <0.05 vol%/h at -10 mbar
- Circulation capacity more than 20 m<sup>3</sup>/h (12cfm) at  $\Delta$ P = 60 mbar (60 Hz)
- Compatible with world-wide voltage standards
- Integrated high vacuum feedthroughs
- Conform to CE

## SPECIFICATIONS

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**Material :** Stainless steel 1.4301 (SUS Type 304) , 5 mm in thickness

**Glovebox interior dimensions:** 70.9" x 23.6" x 25.6", 1800mm (L) x 600mm (W) x 650mm (H)

**Feedthrough :** DN 40 ISO-KF blank and 3/8" compression bulkhead

**Internal Power :** Electrical feedthrough

**Shelving :** 3 - height adjustable , 304 stainless steel

**gloves :** Butyl, 0.4 mm in thickness

**Filters :** 1 Inlet/ 1 Outlet HEPA

**Lighting :** Fluorescent lamp,Front mounted

**Electrical voltage :** 100-120V or 200-240 VAC 50/60 Hz 20 A

**Leak Rate :** <0.05 vol%/h (ISO 10648-2)

## LARGE ANTECHAMBER

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15.7" x 9.8" x 9.8"

Bolt on left or right side

Internal tray : Stainless steel 304

Automatic control : Evacuate/refill

Leak rate : < 10<sup>-5</sup> mbar • l/s

## GAS PURIFICATION SYSTEM

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Available as single purifier with solvent removal.

**Purity level :** <1ppm O<sub>2</sub> and <1ppm H<sub>2</sub>O

O<sub>2</sub> capacity = 23 L per purifier column

H<sub>2</sub>O capacity = 1000 g per purifier column

Variable speed circulation blower

PLC control system 7" color touch screen

**Automatic pressure control :** ± 12 mbar

**Blower :** Automated speed control , O<sub>2</sub> level adjusts blower speed

Circulation capacity more than 17 m<sup>3</sup>/h (10 cfm) at ΔP = 60 mbar

**Pressure control :** Automatic box pressure control with foot switch (-12mbar, +12mbar)

**Purge valve :** O<sub>2</sub> Level, Timer or manually controlled

**Vacuum pump :** 20 m<sup>3</sup>/h (12 cfm) rotary pump with oil misteliminator shuts pump off for energy reduction

**Oxygen Analyzer :** Range 0-1000 ppm

**Moisture Analyzer :** Range 0-500 ppm

# WAVENICHTWELL

## SYSTEM APPLICATIONS

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Additive (3D) Manufacturing  
Aerospace  
Automotive  
Chemistry  
Lamp Manufacturing  
Lithium Ion Battery  
Medical Device  
Nuclear  
OLED  
Pharmaceutical  
Semiconductor  
Solar  
Specialty Chemical  
Thin Film  
Many Other Applications



## OPTIONAL

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Double Sided Access

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Left Sided Antechambers

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Vacuum Oven

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Freezer Temperature -35°C

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Through Flow Antechambers

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Laminar Flow

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Cold Well With Cover

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Regenerable Solvent Adsorber

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Dual Purification Columns

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Circular Glove Ports

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Polycarbonate Window

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Dry Vacuum Pump

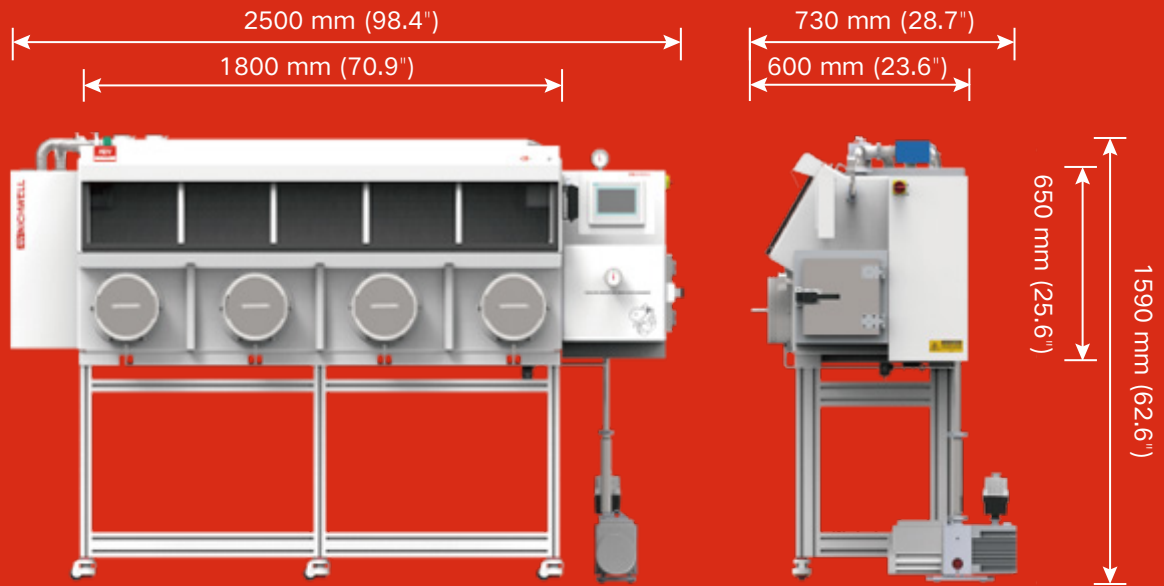
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Solvent Purification System

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Other Customizations

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### Package List


Part Description	Quantity	Part Image
Quick Clamp KF 25	3 pcs	
Bellows Metal KF 25	1 pcs	
Glovebox Glove	4 pcs	
Oxygen Analyzer	1 pcs	
Moisture Analyzer	1 pcs	
Oil Mist Filter	1 pcs	
RV-12 Vacuum Pump	1 pcs	

## Configuration Options



	Acrylic	Mini	Vacuum	Standard
25.6" 650 mm		Customizable	Customizable	Customizable
31.5" 800 mm	Customizable			Customizable
39.4" 1000 mm	Customizable			Customizable
47.3" 1200 mm	Customizable			
59.1" 1500 mm				
70.8" 1800 mm	Customizable			
94.5" 2400 mm	Customizable	Customizable	Customizable	

## α-1800V Vacuum Glove Box With Auto Purging System

External Structure			
Chamber Capacity	Approximately 24.7 cu. Ft (0.7 m <sup>3</sup> )		
Overall Dimensions	98.4" L x 28.7" W x 62.6" H, 2500 mm (L) x 730 mm (W) x 1590 mm (H)		
Overall Weight	1012 lbs (460 kg)		
Electrical Voltage	<ul style="list-style-type: none"> <li>230 VAC/50-60 Hz, 10 A</li> <li>115 VAC/50-60 Hz, 20 A</li> <li>100 VAC/50-60 Hz, 20 A</li> </ul>		
<b>Glovebox Chamber</b>			
Description	Material	Stainless steel 304, 5 mm in thickness, Glovebox vacuum ≤-1 bar	
	Internal Dimensions	70.9" L x 23.6" W x 25.6" H, 1800 mm (L) x 600 mm (W) x 650 mm (H)	
Inclined Front Window	Material	Tempered glass, 8.0 mm in thickness, Lexan (polycarbonate) 10 mm in thickness upon request	
	Dimensions	69.7" L x 15.0" W, 1770 mm (L) x 380 mm (W)	
Glove Ports 	Tekaform	8.6"(220 mm) in diameter, O-ring sealed	
	Dimensions	Hard aluminum alloy or polyaldehyde upon request	
Gloves 	Material	Butyl rubber	
	Thickness	0.4 mm (standard) 0.8 mm upon request	
HEPA Filters 	Inlet and outlet filters eliminate particles with the size >0.3 μm		
Lighting	Fluorescent lamp, front-ceiling mounted		

Leakage Rate		Typically <0.05 vol%/hr at -10 mbar, <ul style="list-style-type: none"> <li>By oxygen leak decay test method according to ISO 10648-2: 1994</li> <li>By pressure change test method according to ISO 25412</li> </ul>	
<b>Gas Purification System</b>			
Description		<ul style="list-style-type: none"> <li>Automated removal of H<sub>2</sub>O and O<sub>2</sub></li> <li>Single column, automated column regeneration; dual purification columns (optional)</li> <li>Closed stainless steel loop for gas recirculation and purification</li> </ul>	
Operating Gas		Working gas	Nitrogen, Argon, or Helium (purity >99.999%)
		Regeneration gas	Mixture of H <sub>2</sub> (5-10%) and working gas
Vacuum Pump 	Description	Rotary vane pump, installed with oil mist filter, oil circulator, and automatic gas ballast control; dual-stage. or dry pump upon request	
	Pumping rate	7.0 cfm (12 m <sup>3</sup> /h)	
	Ultimate vacuum	< 2 x 10 <sup>-3</sup> mbar	
Circulation Unit		Blower	Integrated blower, oil-free, highly efficient
		Flow Rate	47 cfm (80 m <sup>3</sup> /h)
Valves		Electro-pneumatic DN40	
Leakage Rate		Typically <0.05 vol%/hr at -10 mbar, <ul style="list-style-type: none"> <li>By oxygen leak decay test method according to ISO 10648-2: 1994</li> <li>By pressure change test method according to ISO 25412</li> </ul>	
<b>Antechamber</b>			
Main Antechamber		Material	Stainless steel 304; 6.0 mm in thickness
		Internal Dimensions	15.7" L x 9.8" W x 9.8" H, 400 mm (L) x 250 mm (W) x 250 mm (H)
		Vacuum	1 x 10 <sup>-2</sup> mbar



<b>Purging System</b>		
Function	By setting up the purging time and pressure, the system automatically purges the chamber O <sub>2</sub> level, timer or manually controlled	
<b>Analyzers</b>		
 O <sub>2</sub> -Analyzer	Dimensions	8" L x 3.1" W x 2.4" H, 205 mm (L) x 80 mm (W) x 60 mm (H)
	Measurement Range	0 to 1000 ppm
	Other Analyzer	GE oxy.IQ™ Oxygen Transmitter upon request
 H <sub>2</sub> O-Analyzer	Dimensions	8" L x 3.1" W x 2.4" H, 205 mm (L) x 80 mm (W) x 60 mm (H)
	Measurement Range	0 to 500 ppm
	Other Analyzer	GE VeriDri™ Dew-Point Transmitter
<b>Solvent Purification System</b>		
Description	Column Material	Stainless steel 304; 3.0 mm in thickness
	Inside Dimensions	8.6" (Φ) x 17.7"(L), 220 mm (Φ) x 450 mm (L)
	Packing Material	High-quality activated carbon
<b>Optional Components</b>		
Vacuum feedthrough with two valves	Special design to KF40 joint, you can lead the water or gas into the box	
Electrochemical signal feedthrough ( 4 or 8 pins)	Stainless steel 1.4301	
Freezer	Location	Integrated on the side panel of the glovebox
	Inside Dimensions	16.6" L x 10.5" W x 6.4" D, 420 mm L x 266 mm W x 162 mm D
	Capacity	18 L or 32 L, 5 shelves with adjustable height
	Minimum Temperature	-35 °C

Microscope with CCD Camera Systems	Equipment for microscopic analysis of glovebox contents, video-assisted motion can be customized upon request
Cold Well with Cover	Different capabilities of cold wells for low-temperature storage and low-temperature reaction manipulations
Dual Purification Columns	More efficient to remove oxygen and moisture
Organic Solvent Absorber	Regenerable, more efficient to purify organic solvent
Cooling Fan	Accelerate the gas flow in the glovebox chamber
Heating Element	Installed in main antechamber; Maximum 200 °C; Temperature control $\pm 1$ °C.
<b>Other Information</b>	
Compliance	UL . ISO9001. CE
Warranty	<ul style="list-style-type: none"> <li>• One year limited warranty with lifetime support</li> <li>• Rusting and damage due to improper storage condition or maintenance are not covered by warranty</li> <li>• Gloves are consumable items and are NOT covered by warranty</li> <li>• The Oxygen Sensor is a consumable component NOT covered by warranty. Please follow the videos below for proper operations               <ol style="list-style-type: none"> <li>1) Replacing a worn unit</li> <li>2) Storing the sensor to ensure maximum longevity when not in use</li> </ol> </li> </ul>
Application Notes & Warnings	<ul style="list-style-type: none"> <li>• The interconnections between the glovebox chamber and the gas purification system must be unimpeded during the purification cycles</li> <li>• The use of corrosive gases is prohibited because they will damage the water and oxygen sensors</li> <li>• Regularly perform regeneration of gas purification columns to maintain the optimum purification efficiency</li> <li>• The O<sub>2</sub> removing rate is highly dependent on the type of purging gas used. To obtain faster chamber purging, Nitrogen is preferred to Argon due to its lighter molecular mass</li> <li>• Corrosive liquid (such as LiPF<sub>6</sub> solution) must be sealed in a container inside the glovebox. Otherwise, liquid vapor may condense and corrode the steel chamber and/or purification pipelines</li> </ul>

## Order Information

$\alpha$	*	1	2	3	4	Description
Vacuum Glovebox	800					Dimensions 31.5" L × 23.6" W × 25.6" H
	1000					Dimensions 39.4" L × 23.6" W × 25.6" H
	1200					Dimensions 47.2" L × 23.6" W × 25.6" H
	1500					Dimensions 59.1" L × 23.6" W × 25.6" H
	1800					Dimensions 70.9" L × 23.6" W × 25.6" H
Structure configuration		V				One Glovebox
		S				Split Glovebox
		D				Double Sided Glovebox
Function option			P			Purging System
			G			Gas Purification System, H <sub>2</sub> O、O <sub>2</sub> ≤ 1ppm
			O			Solvent purification system
Other function options				A5		Square Antechamber 15.7" L × 9.8" W × 9.8" H
Antechamber					FW	Openable Front Window

\* No. is the basic required option, 1,2,3,4 for the optional order number, according to the needs of their own configuration. If you have special requirements, you can contact us.

Order No. Example:

①  $\alpha$ -1000VPGO-A5, said the single-station 1000mm long glove box with automatic cleaning, water oxygen purification system, volume adsorption system, as well as the configuration of a square transitional tank;

②  $\alpha$ -1500VPG-A5, said the split 1500mm single-sided duplex glove box with automatic cleaning, water and oxygen purification system, and the configuration of a square transitional tank.

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