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Vigor is the best choice
you can make for your research



www.vigor-glovebox.com

Designed by Scientists, for Scientists.

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Company Profile

Vigor is a world-class manufacturer of inert gas enclosures, purification systems, and cleanroom equipment. Founded in 2005 by PhD chemists, Vigor has developed innovative no-leak sealing technology, as well as proprietary gas purification systems that enable our users to experience leakage rates and impurity levels over an order of magnitude better than the industry standard. Vigor's superior design can remove impurities (O_2 , H_2O , N_2) to ppb levels, and achieve ISO-2 level cleanroom.

Vigor's scientists and engineers have extensive R&D experience in the field of gas purification and are uniquely capable of working with you to create custom solutions to any research problem. Vigor regularly designs customized systems for a wide array of applications, and regularly integrates high-tech equipment (deposition systems, evaporators, coating systems, 3D printers, testing equipment, and more!) with inert enclosures. Vigor is also committed to developing break-through technologies that make research easier, and thanks to this, Vigor holds more than 50 patents covering various innovations.

Vigor has offices in the United States, China and Europe, as well as distributors around the world. With a growing crowd of satisfied customers all over the globe in a vast number of fields, from materials chemistry, to OLED manufacture, to lithium batteries, to laser welding, to solar cells, to nuclear applications, Vigor guarantees that your research or production is in good hands with the highest quality and most innovative technology on the glovebox market.



Vision

To be a world-leader in inert and clean environment technologies and equipment.

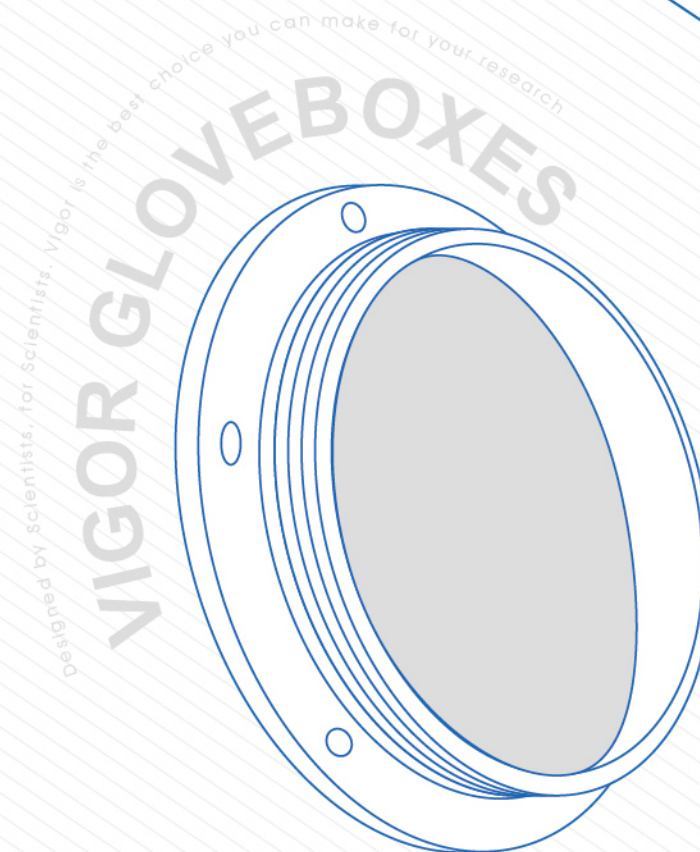
Mission

To create more value for customers, Vigor strives to always be innovating and inventing better technical solutions to research problems.

Team

Vigor has a strong design team led by distinguished experts in the fields of chemistry, materials science, and engineering, many of whom hold PhDs.

With our rich composite theoretical and practical background from working in various R&D environments, Vigor's team truly understands the needs of a scientist, and is uniquely capable of working with customers to solve any technical problem.



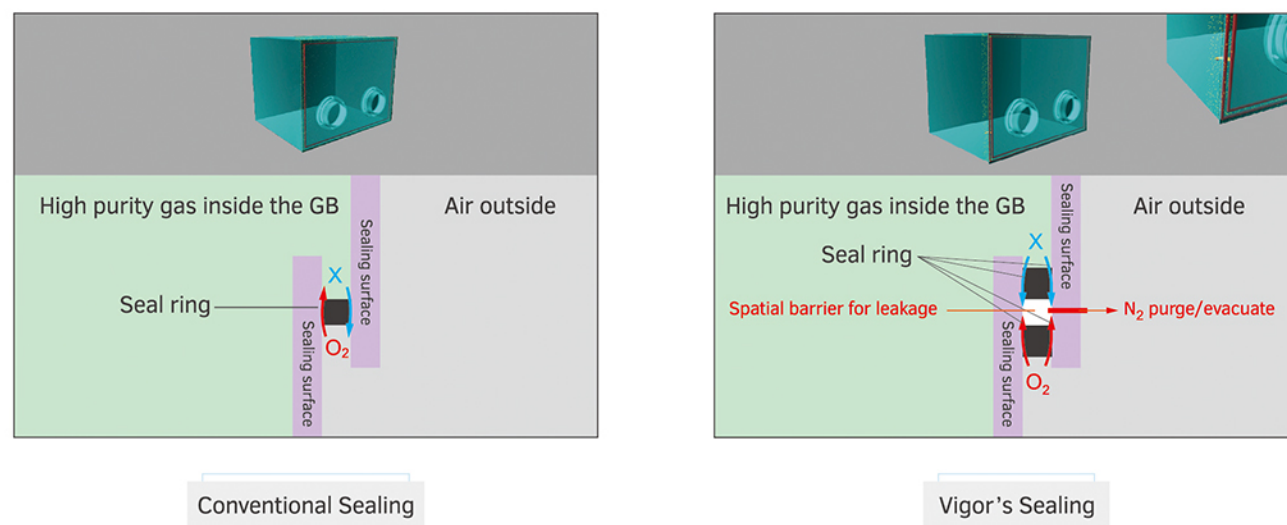
Our Customers



Our Strengths

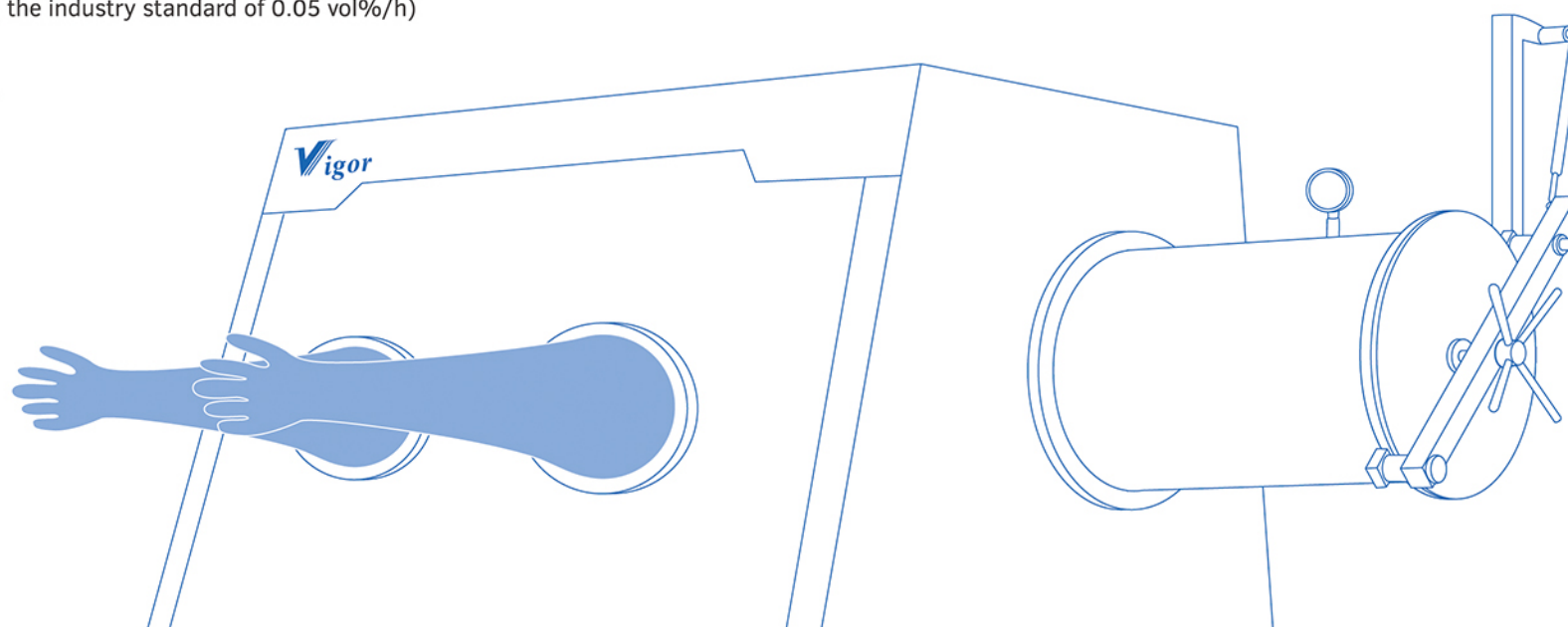
Leak-Free Sealing Technology

Inward diffusion can be a problem, and not all seals are made equal. Vigor provides you with the most advanced sealing technology on the market, and a guarantee that your research or application stays protected from the atmosphere. Vigor gloveboxes are made of stainless steel and are entirely welded except for the front window and glove ports, which is where you'll find our patented double seals. Tucked in between two traditional seals, Vigor has incorporated a vacuum train that eliminates diffusion from either side.



Advantages of Vigor's Patented Sealing

- Ultra-low leakage rate
(Over an order of magnitude lower than the industry standard of 0.05 vol%/h)
- Ultra-low impurity levels
(O₂ and H₂O quickly drop below 1 ppm)
- Low regeneration frequency
(Usually once per year)
- Long seal lifetime, often over 10 years without any signs of leakage
- Ultra-low energy consumption

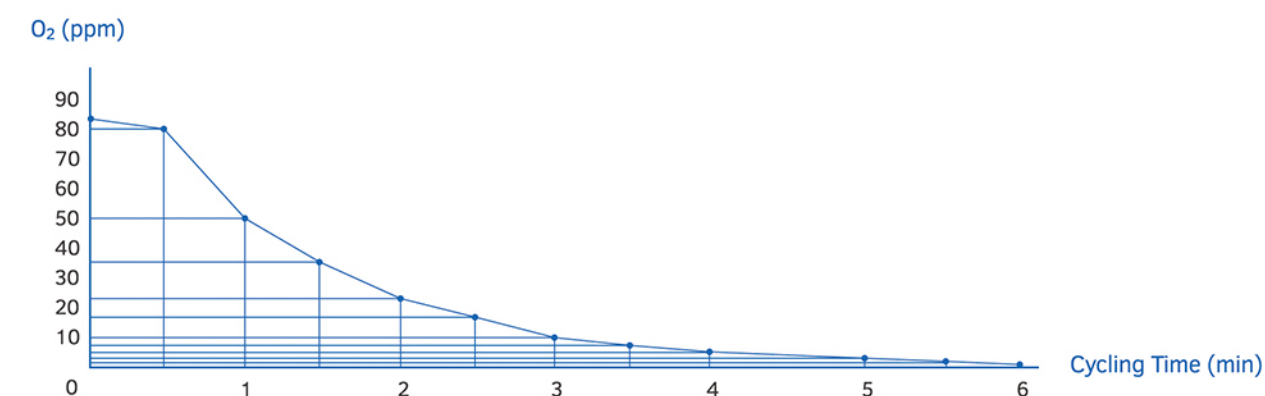


High Efficiency Purification Systems

Many years of R&D experience with ultra-high purity gas separation and purification has helped Vigor design and optimize gas purification trains with improved capacity and efficiency.

Optimization Parameters

- Proprietary adsorption materials
- Purifier filling methods
- Gas flow and distribution
- Internal structure of purification columns



Accurate Trace Gas Analysis

Oxygen Analyzer

Vigor chooses electrochemical fuel cell technology

Advantages:

- Excellent accuracy, especially at low ppm
- Not affected by solvents
- Replaceable sensor, low operating cost
- From a reputable specialized sensor manufacturer

Moisture Analyzer

Vigor chooses alumina film detectors

Advantages:

- Accurate, reliable, widely used
- Low maintenance requirements
- From a reputable specialized sensor manufacturer

Applications

Chemical Synthesis Gloveboxes

- Long lifespan
- $O_2 < 1$ ppm $H_2O < 1$ ppm
- Low leakage (< 0.001 vol%/h)
- Excellent purifier capacity (O_2 : 45-60L)
- Accurate moisture and oxygen detection
- Infrequent regeneration
- Low failure rate
- Safe and convenient



Nuclear Research & Industry Gloveboxes

- Advanced leak-free technology
- Radiation protection: lead plate, flint glass, leaded gloves
- Ultra-low moisture and oxygen content: < 1 ppm
- Capacity to perform no-leak/contaminated glove changing under negative box pressure
- Safe transfer of nuclear materials: bag-in-bag-out technologies



OLED/OPV Gloveboxes

- Cleanroom environment
- Substrate cleaning equipment
- Spin Coating equipment
- Thermal treatment equipment
- Vacuum deposition equipment
- Manual and automatic encapsulation equipment
- Temperature control systems
- Vacuum controlled drying systems for inkjet printing



Lithium Battery and Super-capacitor Gloveboxes

- Excellent seal ability with long lifespan
- Protection device for moisture and oxygen sensors
- Strong resistance to organic solvents
- Can integrate with different vacuum heating/drying technologies



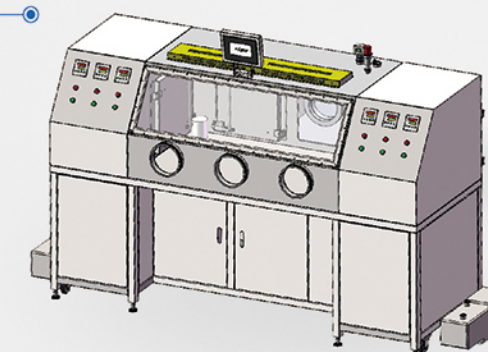
Additive Manufacturing Gloveboxes

- Custom enclosures around your AM machine process
- Low O_2 and H_2O gas management integration
- Pre-process powder packaging enclosures
- Post-process de-powdering enclosures
- Hermetic powder storage with on-board O_2 monitoring



Laser Welding Gloveboxes

- Low leakage rate
- Low moisture and oxygen content
- Ergonomic
- Accurate moisture and oxygen detection
- Process efficient
- Fast and slow purge features available



Standard Gloveboxes



3 Ports Gloveboxes
L×W×H (mm) 2100×750×1815



4 Ports Gloveboxes
L×W×H (mm) 2400×750×1815



4 Ports Gloveboxes
L×W×H (mm) 3000×750×1815



4 Ports Gloveboxes
L×W×H (mm) 2100×1000×1815



6 Ports Gloveboxes
L×W×H (mm) 2400×1000×1815



8 Ports Gloveboxes
L×W×H (mm) 3000×1000×1815

Introduction

Vigor's standard glovebox is a top-of-the-line glovebox model: Our super-high purifier capacity and patented sealing technology are complimentary. Vigor's all-welded stainless-steel design minimizes potential points of leakage and allows you to have a fast and easy initial set up. Our unique seals enable our gloveboxes to experience exceptionally low leakage rates (<0.001 vol%/h). We combine our exceptional all-welded platform with the expected high quality ancillary components: Siemens PLCs, Burkert valves, Edwards vacuum pumps, General Electric fuel cell oxygen analyzers, General Electric or Michell moisture analyzers, and Fuji blowers. Our purification train is also an impressive performer: its capacity is typically 2-3 times higher than that of other gloveboxes. Any accessory that you need to make your research easier can easily be integrated since each glovebox is custom made.

Specifications

Box

Material	304SS
Dimensions (mm)	Length: 1200/1500/1800/2400mm Width: 750mm Height: 900mm
Shelves	Length: 990/1290mm Width: 180mm 304SS Fixed or adjustable shelves
Window	Toughened glass Thickness: 8mm
Lighting	LED
Glove Ports	Aluminum O-ring Sealed Diameter: 220mm
Gloves	Butyl rubber Thickness: 0.4mm
Feedthrough	KF 40 flanges sealed with blank caps
Power Interface	110/220V
Filters	Mounted on the vents

Large Antechamber

Material	304SS White external varnish Brushed inner surface
Location	Left or right side
Dimensions	Inner diameter: 370mm Inner length: 600mm
Transfer Mode	Sliding tray
Internal Tray	304SS
Door	Double doors Anodised aluminum Thickness: 10mm
Operation Mode	Manual and automatic
Optional Antechamber	Rectangle/L-shaped/Cylindrical T-shaped/Rectangle T-shaped

Small Antechamber

Material	304SS White external varnish Brushed inner surface
Location	Left or right side
Dimensions	Inner diameter: 150mm Inner length: 300mm
Transfer Mode	Sliding tray
Internal Tray	304SS
Door	Double doors Anodised aluminum Thickness: 10mm
Operation Mode	Manual

Stand

Adjustable levelers and castors for mobility

Power Line

120V/60Hz, option for 2 or 3 prong outlet

Gas Purification Systems



Sing/Double Column/Regenerable Organic Column

Items	Single Column	Double Column	Regenerable Organic Column
Dimensions (mm) L×W×H	550×880×830	610×1180×830	605×880×830
Gas Purification Column	1	2 (One for backup)	1
Capacity	O ₂ : 45-60L H ₂ O: 2-2.5kg	O ₂ : 90-120L H ₂ O: 4-5kg	-
Purifier capacity can be regenerated using hydrogen-containing regeneration gas.			
Organic Solvent Column	1	1	Regenerable
Circulation Blower	1 (Rate of flow: 60 or 90m ³ /h)		

Technical Parameters

- Control system: PLC by Siemens, 7" color touchscreen
- Vacuum pump: Oil pump, maximum velocity: 12m³/h
- Tube: Stainless steel
- Main control valve: Electromagnetic pneumatic valve/electric pneumatic control
- Working gas: N₂&Ar
- Regeneration gas: N₂, Ar&H₂ mixture (H₂ concentration: 5-10%)
- Operation mode: Closed-circuit circulation
- Purification area: Maximum: 5m³
- Impurity levels: H₂O<1 ppm; O₂<1 ppm
- Regeneration: Automatic programming
- Box pressure control: Automatic pressure control, pedal and manual control (Adjustable pressure range: ±10mbar)

Custom Inert Atmosphere Systems

Introduction

Vigor is ready to work with you to design any kind of system you may need, making new and challenging research projects possible.

Customized Gloveboxes



Integrated with freezer & cold trap

Customized Gloveboxes



Integrated with coating equipment

Customized Gloveboxes (OLED)



Cleanroom: ISO-5

Customized Gloveboxes (OLED/OPV)



Cleanroom: ISO-4

Customized Gloveboxes (OLED/OPV)



Integrated with freezer (Cleanroom: ISO-4)

Customized Gloveboxes (Lithium Battery)



Integrated with heat antechamber

Cleanroom Gloveboxes

Parameters

- Moisture<1 ppm
- Oxygen<1 ppm
- Leakage rate<0.001 vol%/h
- Cleanroom: ISO-4



* Can be customized according to different cleanroom levels

Solvent Purification Systems



3 Columns
L×W×H (mm) 785×740×1820



5 Columns
L×W×H (mm) 1110×740×1820



7 Columns
L×W×H (mm) 1495×740×1820

Introduction

Vigor's solvent purification systems are safe high-efficiency and convenient for customers to remove water and oxygen from flammable and noxious solvents.

Features

- Common solvents: toluene, acetonitrile, hexane, ether, THF, DMF, methylene chloroform
- Number of solvents: 3, 5, 7 (Customized in terms of the requirements of the user)
- Purification capacity per solvent is ~1200L (Dependent on initial water content)
- Flow rate, up to 800 mL/min
- H₂O<1 ppm, O₂<1 ppm

Material	304# stainless steel
Common Solvent	Toluene, acetonitrile, hexane, ether, THF, DMF, methylene chloroform etc.
Number of Solvent	3, 5, 7 (Customized in terms of the requirements of the user)
Purification Capacity Per Unit	<1200L (Dependent on initial water content)
Flow Rate	Up to 800 mL/min
Technical Parameter	H ₂ O<1 ppm, O ₂ <1 ppm
Fluid Reservoir	17L
Internal Material	Included dehydration and deoxygenization materials
Particle Filter	Equipped with particle filter
Gas Supply System	Included gas purifier
Working Gas	99.99% N ₂ -Ar
Gas Connection	One gas supply port for each solvent
Vacuum System	One dry pump
Explosion-proof Cabinet	Fire-proof cabinet for solvent purification system

Custom Enclosures and Gas Management Systems



Introduction

Equipped with high efficiency purification and auto-control systems, and can achieve ISO-3 level cleanroom.

Parameters

- High-efficiency moisture and oxygen adsorption purifier
 - O₂<1 ppm, H₂O<1 ppm
 - The volume can be 25/50/100m³ or even bigger
 - Auto control
- Exclusively for OLED/QLED manufacturing environment and applied to ISO-3 or even higher
 - Applied to IJP environment with optional organic solvent adsorption column
 - Optional adsorption column for other gases

VP-60 & VP-100 & VP-200

	VP-60	VP-100	VP-200
Parameters			
Working Space (m³)	25	50	100
Blower (m³/h)	>500	> 1000	>2000
O ₂ (ppm)	<1	<1	<1
H ₂ O (ppm)	<1	<1	<1
Adsorption Content O ₂ (l)	600	1500	3000
Adsorption Content H ₂ O (g)	18000	50000	100000
Sensor			
O ₂ (ppm)	●	●	●
O ₂ (%)	●	●	●
H ₂ O (ppm)	●	●	●
Pressure Sensor	●	●	●
Solvent Sensor	○	○	○
Features			
Leakage Rate Detection	●	●	●
Curve Chart H ₂ O/O ₂ (ppm)	●	●	●
Curve Chart (Box Pressure)	●	●	●
Automatic Regeneration	●	●	●
Color Touch Screen	●	●	●
Dry Vacuum Pump	●	●	●

● Standard ○ Optional

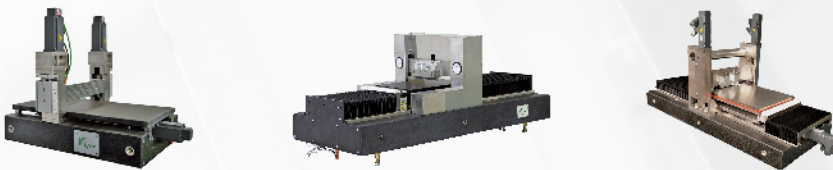
High-Precision Roll-to-Roll Equipment

Roll-to-roll technology plays a critical role in the production of functional films. Our high-precision roll-to-roll coating system has an air-floating oven and a slit and dimple knife-coating unit. It can meet requirements from pilot plants to full production for industries of new energy materials, flexible electronics, displays and photoelectricity.

Parameters	Values
Dimensions (mm) L×W×H	3000×1600×2000
Width (mm)	20-350
Velocity (m/min)	Max.30
Coating Thickness (mm)	0.005-0.3
Coating Uniformity	≤5%
Solids Content	1-60%
Viscosity (cps)	1-10000
Controlling Range of Tension (Kg·f)	≥1
Oven Temperature Range (℃)	20-120

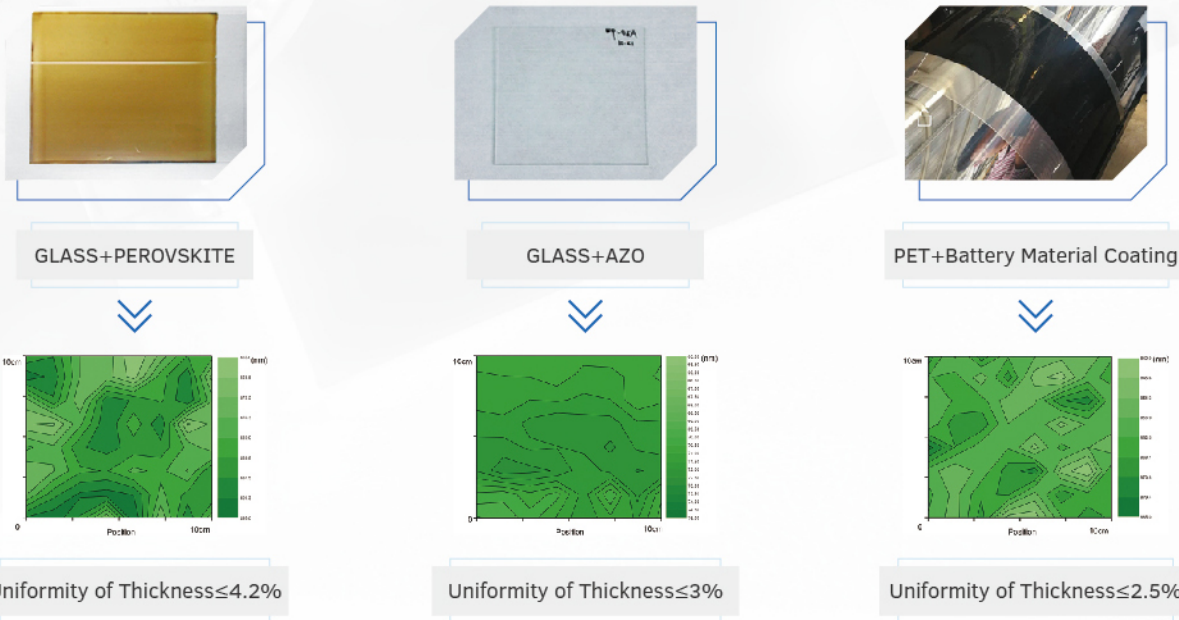


Sheet Coating Equipment



Items	Advanced Moving Die Head Coating System	Advanced Moving Panel Coating System	Advanced Panel Coating System
Dimensions (mm) L×W×H	600×400×450	800×400×400	1200×600×550
Width (mm)	10-220	10-200	10-300
Velocity Control Range (m/min)	0.1-5.0	0.1-5.0	0.05-3.0
Thickness of Wet Film (Viscosity70, Glue, Dry Film 550nm)	5-6%	<4%	<4%
Thickness of Wet Film (um)		5-100	
Solids Content		1-70%	
Viscosity (cps)		1-10000	
Heating Range (℃)		20-150	

Slot-Die Coating Examples



Accessories



Our Distributors

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