



Dapeng Laser Glass Cutting Machine

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Dongguan Dapeng Laser Technology Co.

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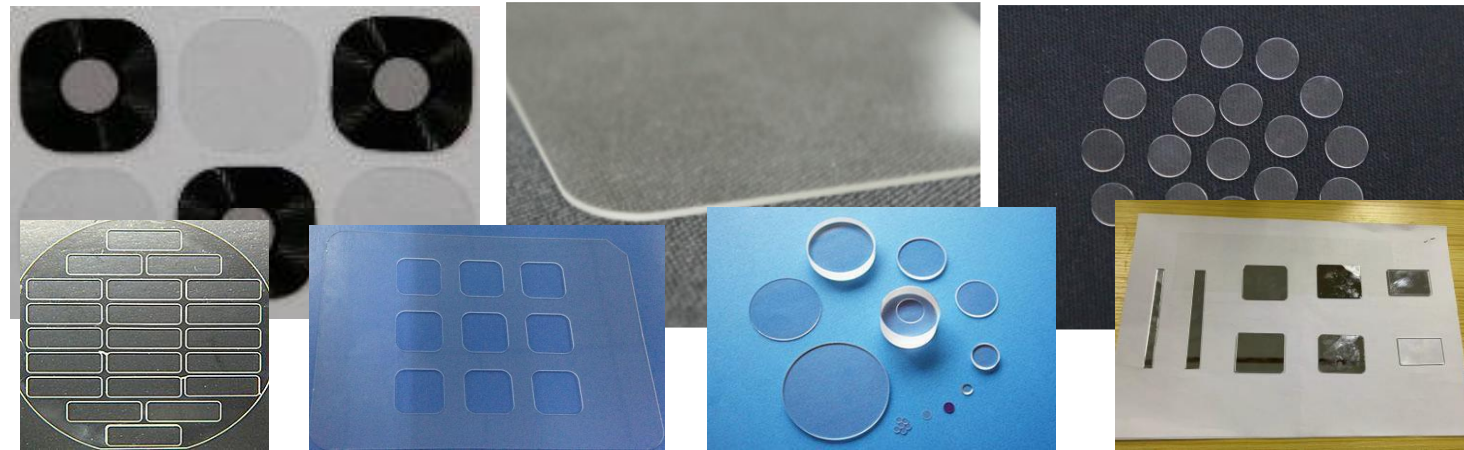
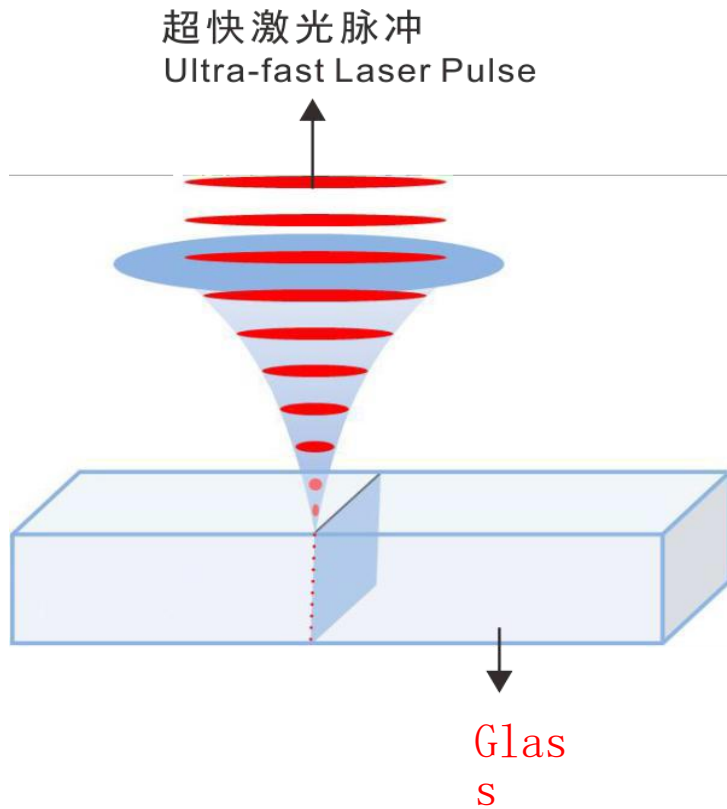
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Picosecond Laser Glass and Sapphire Cutting

Technology Principle

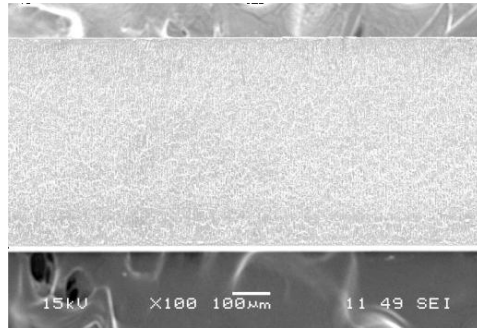
Using the non-linear effect of ultrafast laser transmission inside transparent media, ultrafast laser pulses form $<3\mu\text{m}$ reformation channels inside them in a very short time ($\sim 10\text{ps}$). Combined with the small spot and long focal depth optical path design, it can greatly improve the stability of laser cutting process and significantly reduce the material damage area to obtain excellent processing quality; the advanced position synchronous output laser control design can precisely control the focused spot spacing, solving the problem of consistency of laser processing for shaped cutting.



Technology Introduction



Straight cutting effect

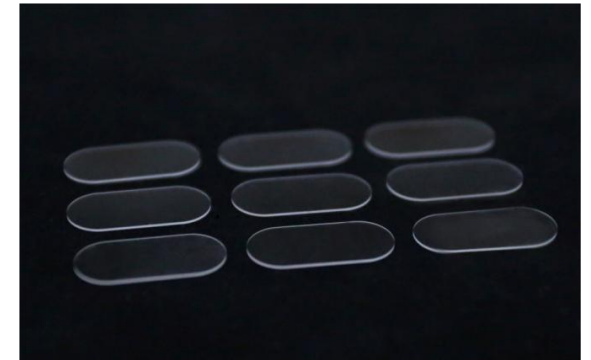
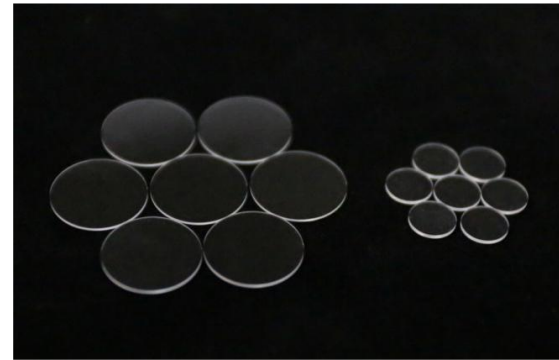


Section effect



Form cutting (non-strengthened glass)

- Cutting incoming materials: plain glass, chemically strengthened glass, sapphire, etc.
- Product range: Transparent brittle flat material
- Non-processable products: physically strengthened glass, gross glass, curved glass
- Cutting method: one cut + thermal separation (lobes)
- Chipped edge: $<0.03\text{mm}$



Efficient cutting of standard round sapphire products

Cutting heterogeneous products with similar waist shape

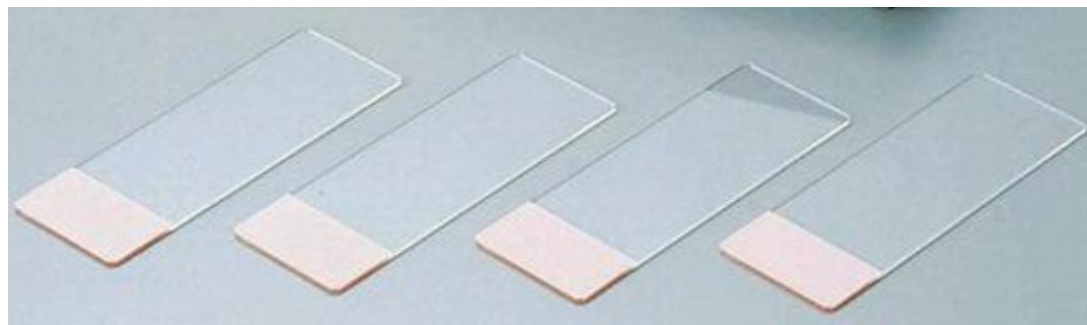
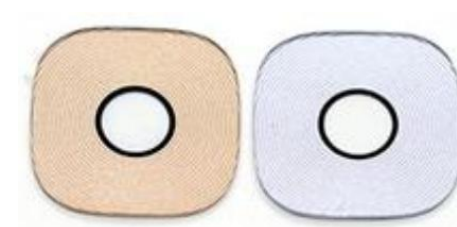
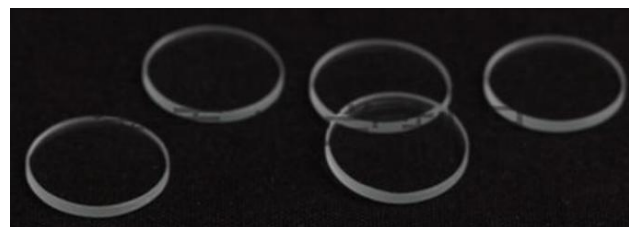
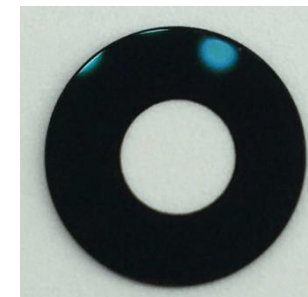
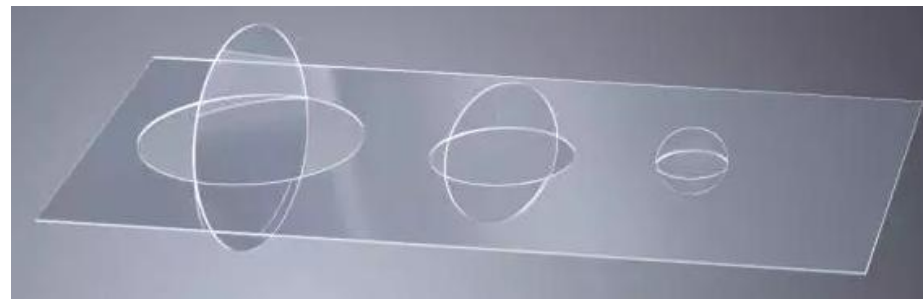


Shenzhen Dapeng Laser
Technology Co.

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Town, Baoan District, Shenzhen, China Fubilon
Industrial Park

Sample Show



Examples of unsuitable samples for processing.



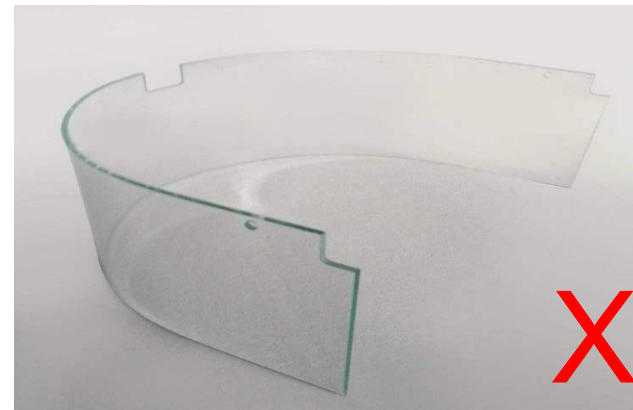
Physically strengthened glass



Incompletely translucent rough glass



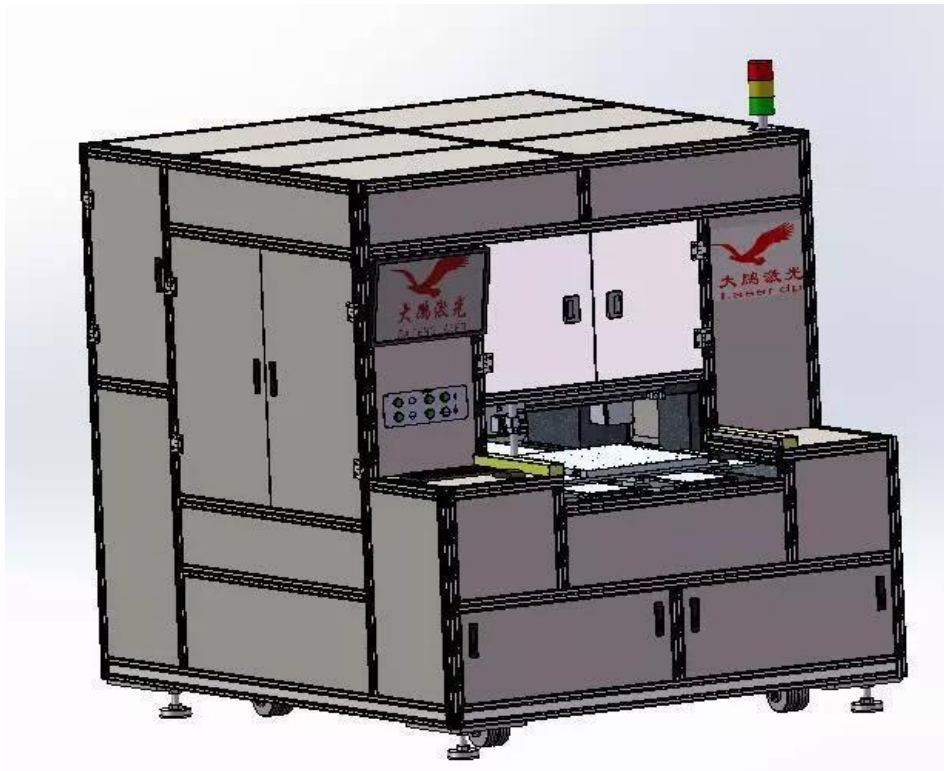
Tubular, rod-shaped glass



Curved Glass

Precision microprocessor

Infrared



Model features.

- Non-contact processing with little damage to the material and high cutting accuracy.
- Vacuum adsorption platform with good results in the quality of processed products.
- Layered three-dimensional cutting for cutting non-strengthened and chemically strengthened glass.
- Short laser action time at a single point, small heat affected area, no glass fragmentation.
- High speed cutting with linear motor, high efficiency.

Product Advantages.

- Diversification of processed products.
- Fast processing speed, high processing quality and easy operation.
- Stable equipment and low maintenance costs.
- Powerful graphics drawing and editing functions, can support PLT, DXF and other common vector file formats.

Application industry.

This machine is mainly used for transparent and brittle products such as glass and sapphire. Cutting of materials, such as display panels, touch screens, cell

phone glass back covers and car
displays



Types of Glass and Sapphire

There are many ways to classify glass, either by composition, by type of strengthening, or by specific brand. Sapphire, on the other hand, is generally classified only by crystal orientation.

•Classification by type of reinforcement.

Plain glass: refers to glass that has not undergone any additional processing and is generally easier to cut.

Chemically strengthened glass: strengthening by means of immersion in a chemical solution, the main parameter is the depth of strengthening.

Physically reinforced glass: Reinforced by using high temperature heating followed by rapid cooling, and cannot be processed in any way after reinforcement.

•Classification by composition.

Soda lime glass: general daily use, alkaline glass, automotive, construction, general cutting difficulty, depending on the specific situation. Al-Mg glass: optical glass, cell phone screen cover, lens, camera, easier to cut.

Borosilicate glass: heat impact resistant, non-alkaline glass, laboratory use, container glass, not easy to cut.

Sapphire is mainly classified by crystal orientation.

•By Brand.

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a

ss: U.S.-made cell phone

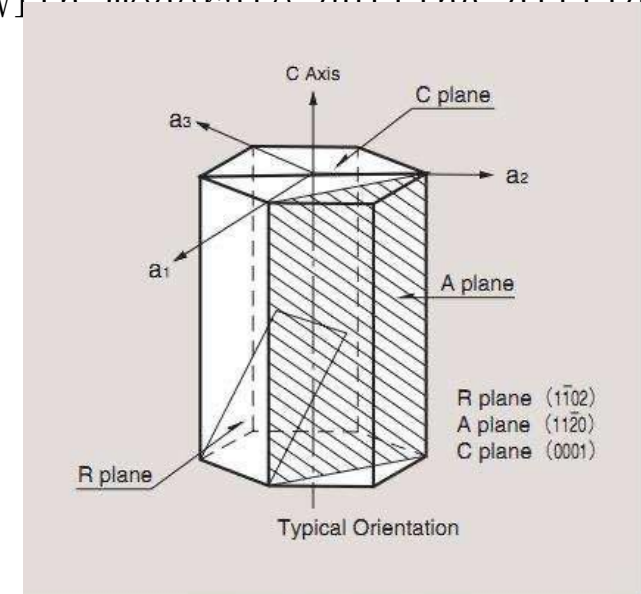
screen glass
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Japan-made high-strength glass

Schott glass: Germany-made

high-strength high-end glass

Panda glass: China-made high-strength glass

- A direction: highest strength, difficult to cut
- C direction: optical applications, easy to cut
- R direction: LED substrate applications with moderate cutting difficulty



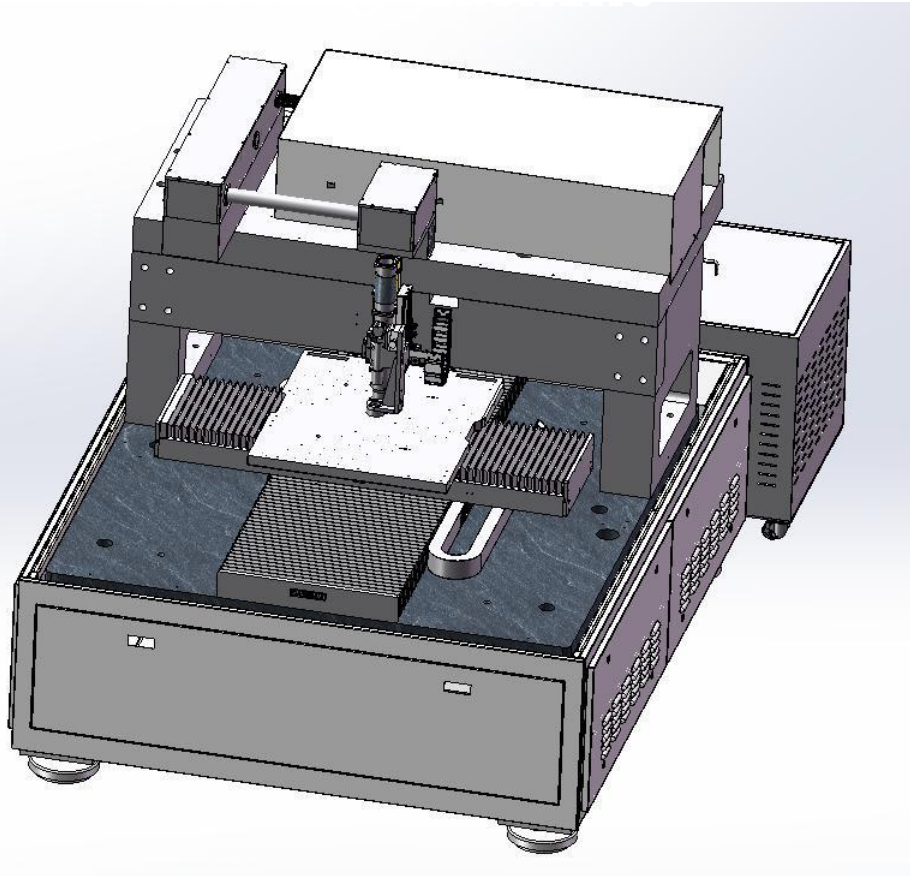
Unit Cell of Sapphire



Introduction to glass and sapphire applications

- 3C industry glass: plain glass, chemically strengthened glass display panel, touch screen cell phone glass back cover and car display etc.
- Optical glass: various lenses, lenses, optical devices.
- Sapphire: cell phone cover, camera cover, keypad, wearable device, LED industry.
- Auto glass: windows, mirrors, light covers.
- Photovoltaic glass: Solar panel base plate.
- Daily use glass: architectural decoration, furniture, utensils.

Single-cut glass



Cabinet L x W x H: 1300mmx 1150mmx
1800mm

Equipment Introduction

Model features.

- Single cut type, no lobe function
- The lobes need to be mechanically or chemically strengthened
- Linear motor + marble platform
- CCD positioning function is optional

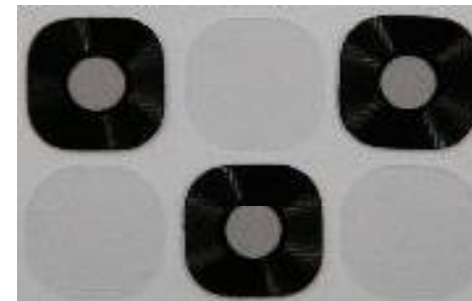
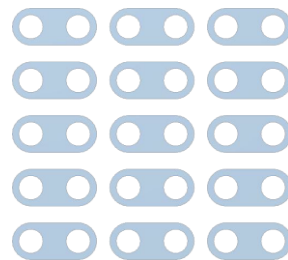
Processing width.

- 400mm*300mm
- Dimensional cutting accuracy: $\pm 10\mu\text{m}$
- CCD positioning accuracy: $\pm 10\mu\text{m}$
- Machining accuracy of the whole machine: $\pm 25\mu\text{m}$
- Processing quality: chipping $< 30\mu\text{m}$

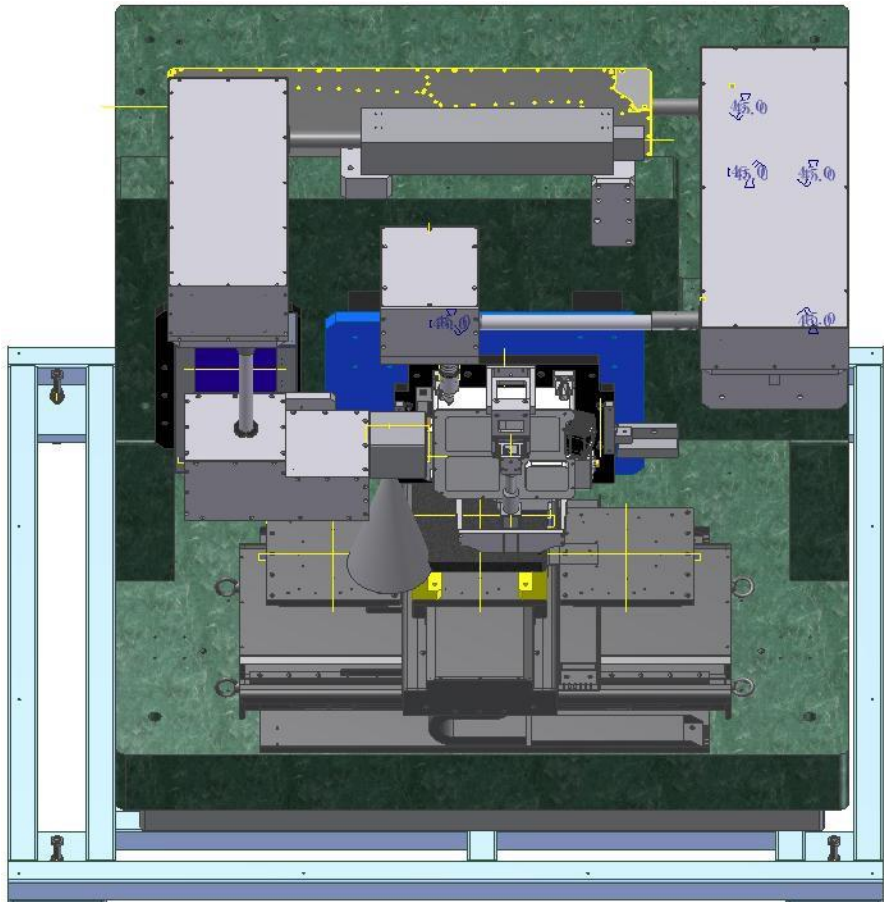
Application direction.

- This equipment is mainly used for cell phone glass block process, as well as the first stage needs to be screen printing, and later need to be chemically strengthened

Glass products.



Cut-and-crack small format glass cutting machine (fixed gantry type)



Equipment Introduction

Model features.

- Cut-and-Cut One-Piece Design
- CO2 laser lobing method

Shape is for reference only, subject to actual appearance and size



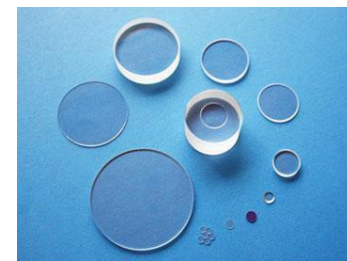
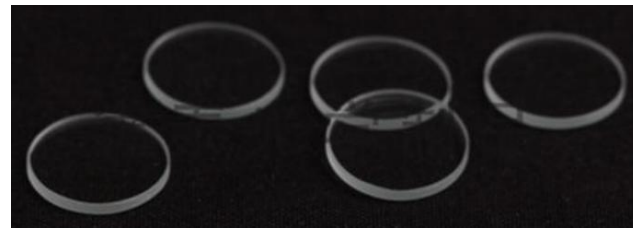
- Linear motor + marble platform
 - CCD positioning function is optional
- Dongguan Dapeng Laser

Processing width.

- 400mm*300mm
- Dimensional cutting accuracy: $\pm 10\mu\text{m}$
- CCD positioning accuracy: $\pm 10\mu\text{m}$
- Machining accuracy of the whole machine: $\pm 25\mu\text{m}$
- Processing quality: chipping $< 30\mu\text{m}$

Application direction.

This machine is mainly used for processing small size glass and sapphire materials, such as display panels, touch screens, cell phone glass back covers and car displays, etc.





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Slitting type small and medium width
glass cutting machine (double fixed

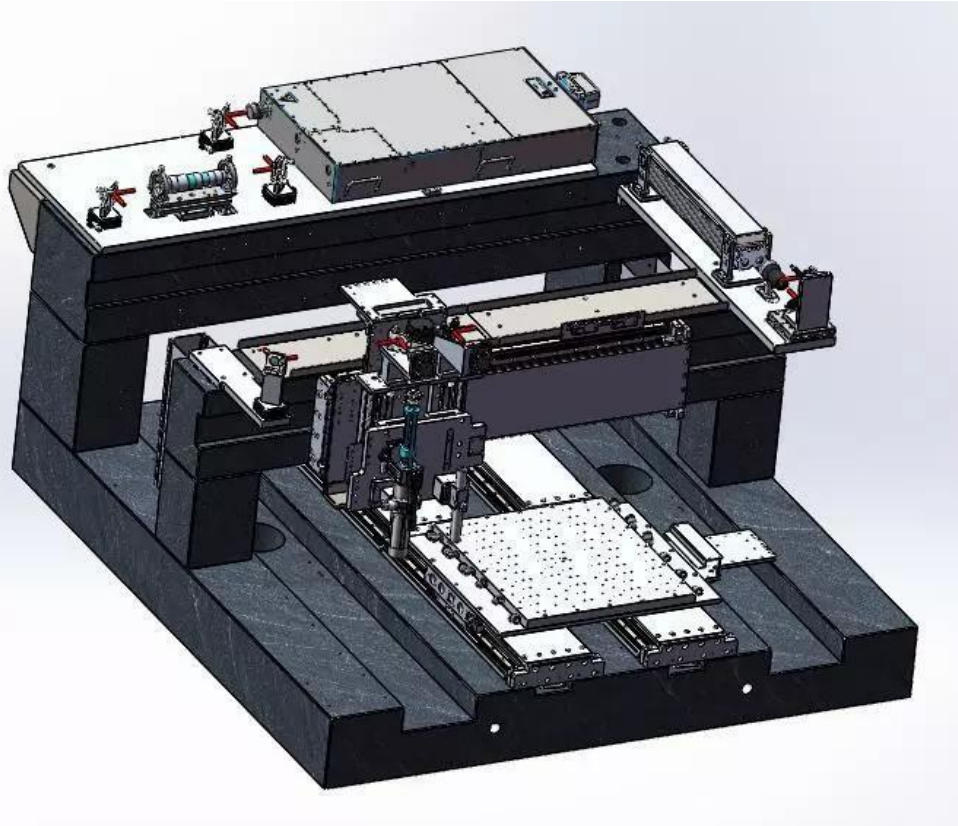
Equipment Introduction

Model

features.

- Cut-and-Cut
One-Piece
Design

Cabinet L x W x H: 2000mmx 1800mmx 1900mm

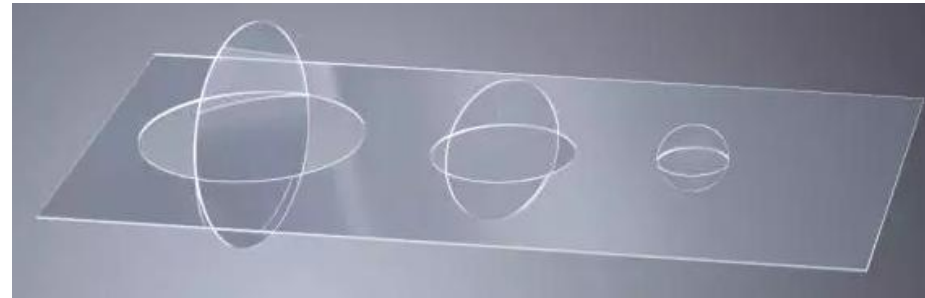


Technical parameters.

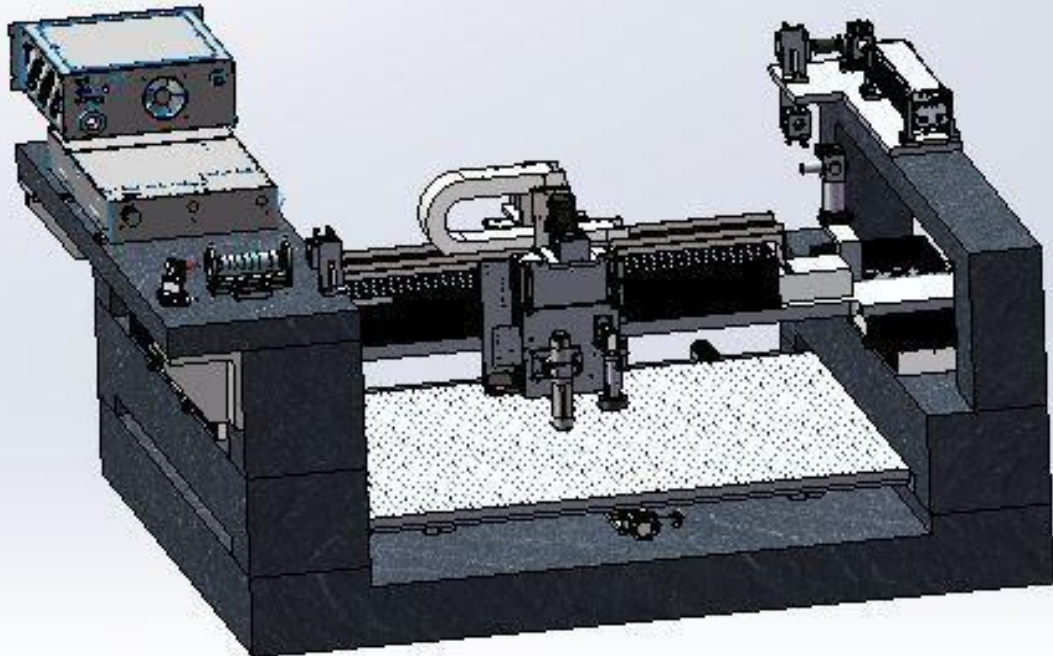
- Processing width: 600mm*500mm
- Dimensional cutting accuracy: $\pm 10\mu\text{m}$
- CCD positioning accuracy: $\pm 10\mu\text{m}$
- Machining accuracy of the whole machine: $\pm 25\mu\text{m}$
- Processing quality: chipping $< 30\mu\text{m}$

Application direction.

- This machine is mainly used for large glass opening



Slitting type medium width glass cutting machine (dynamic gantry)



Cabinet L x W x H: 2500mmx 1900mmx 1900mm

Equipment Introduction

Model features.

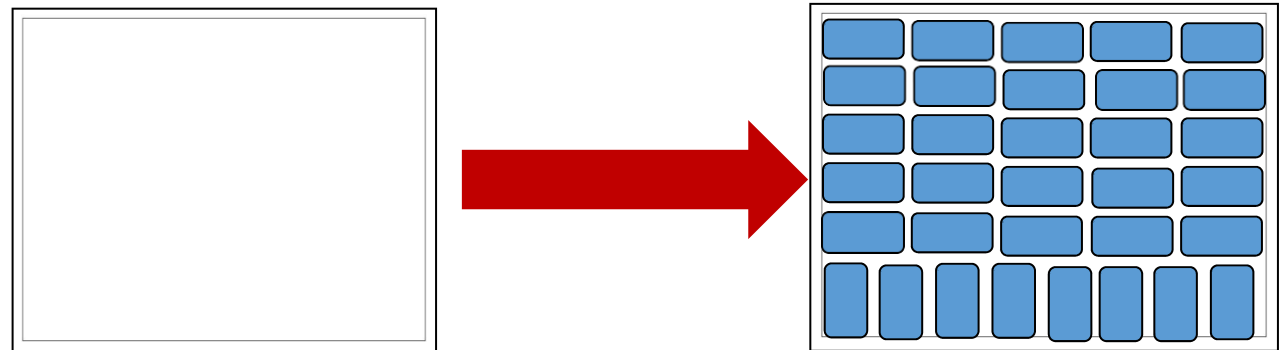
- Cut-and-Cut One-Piece Design
 - CO2 laser lobing method
 - Linear motor + marble platform
 - CCD positioning function is optional
 - Dynamic gantry structure

Processing width.

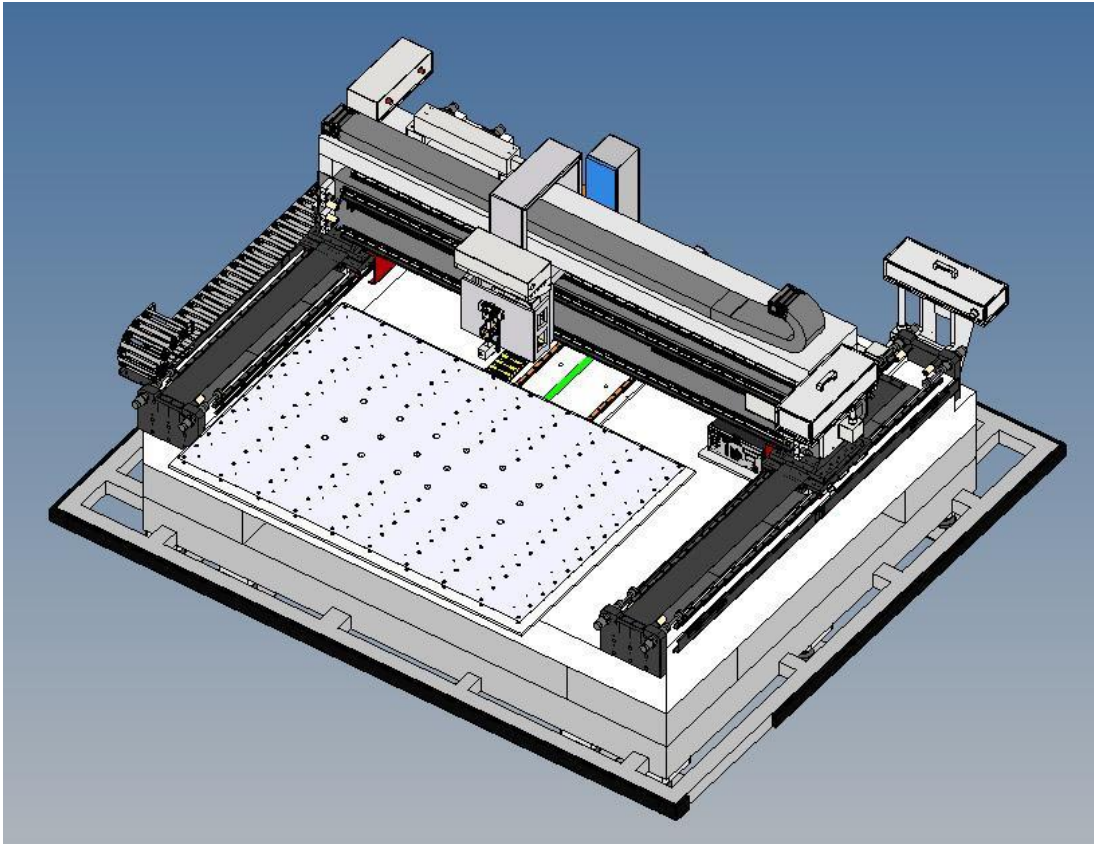
- 1300mm*1100mm
- Dimensional cutting accuracy: $\pm 10\mu\text{m}$
- CCD positioning accuracy: $\pm 10\mu\text{m}$
- Machining accuracy of the whole machine: $\pm 25\mu\text{m}$
- Processing quality: chipping $< 30\mu\text{m}$

Application direction.

Medium format glass cutting and uncutting



Slitting type medium and large format glass cutting machine (single-action)



Cabinet L x W x H: 3000mmx 3500mmx 2500mm

Equipm

Model features.

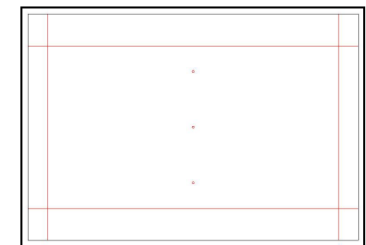
- Cut-and-Cut One-Piece Design
- CO2 laser lobing method
- Linear motor + marble platform
- CCD positioning function is optional
- Dynamic gantry structure

Processing width.

- 1300mm*1100mm
- Dimensional cutting accuracy: $\pm 10\mu\text{m}$
- CCD positioning accuracy: $\pm 10\mu\text{m}$
- Machining accuracy of the whole machine: $\pm 25\mu\text{m}$
- Processing quality: chipping $< 30\mu\text{m}$

Application direction.

Medium and large format glass cutting and uncutting





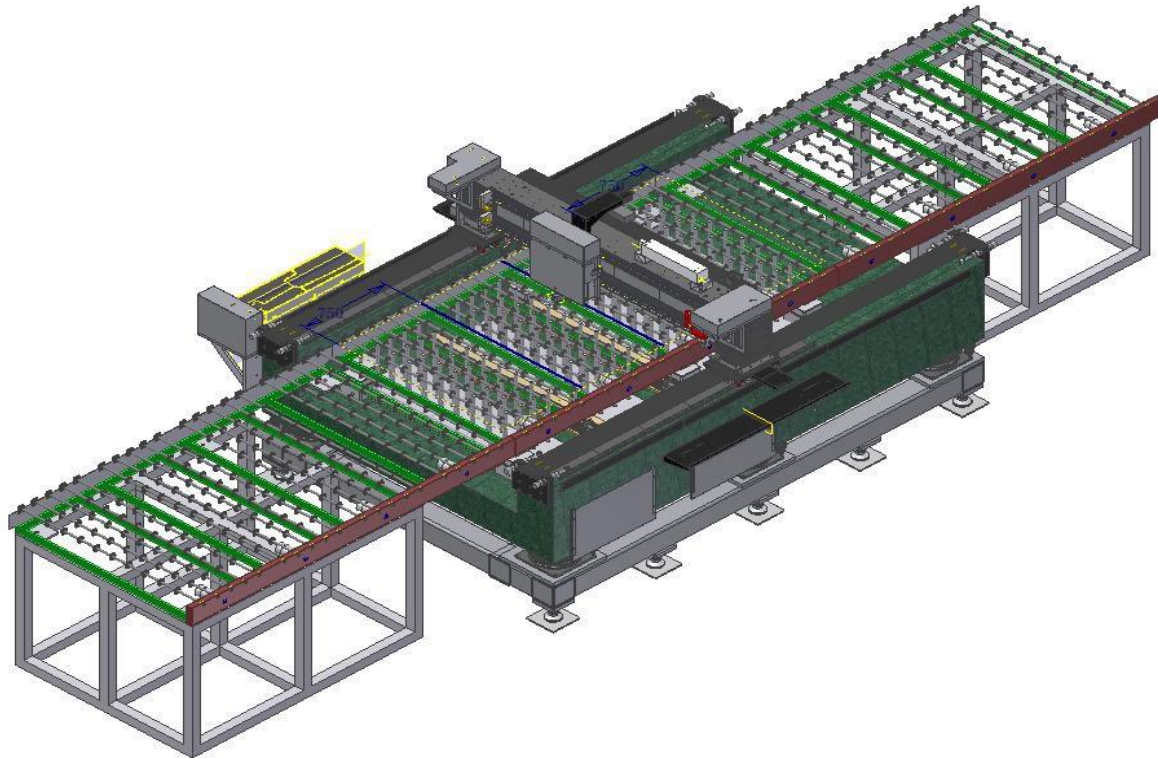
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Cut-and-slice large format glass cutting
machine (single-action gantry assembly line)

Equipment Introduction

Model features.

The shape is for reference only, subject to the actual
appearance and size



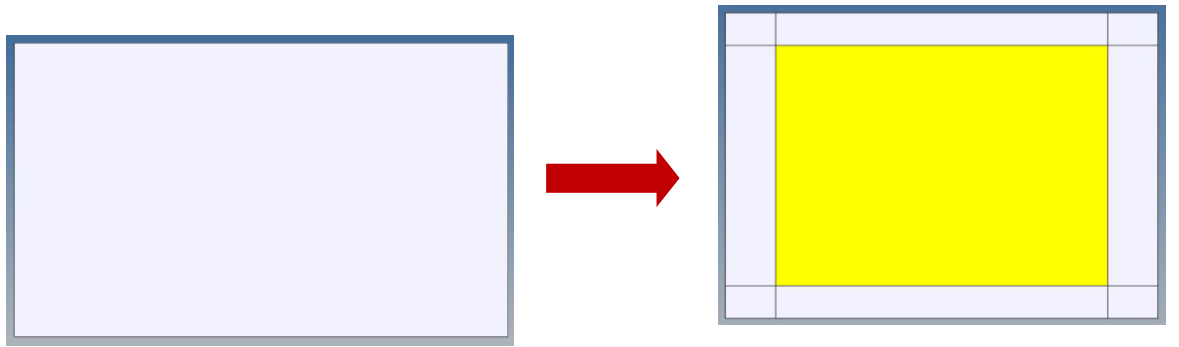
- Dingguan Dapeng Laser Technology Co.
- Cut-and-Cut One
 - CO2 laser lobing method
 - Linear motor + marble platform
 - CCD positioning function is optional
 - Single-action gantry structure
 - Streamline production

Processing width.

- 2000mm*1500mm
- Dimensional cutting accuracy: $\pm 10\mu\text{m}$
- CCD positioning accuracy: $\pm 10\mu\text{m}$
- Machining accuracy of the whole machine: $\pm 25\mu\text{m}$
- Processing quality: chipping $< 30\mu\text{m}$

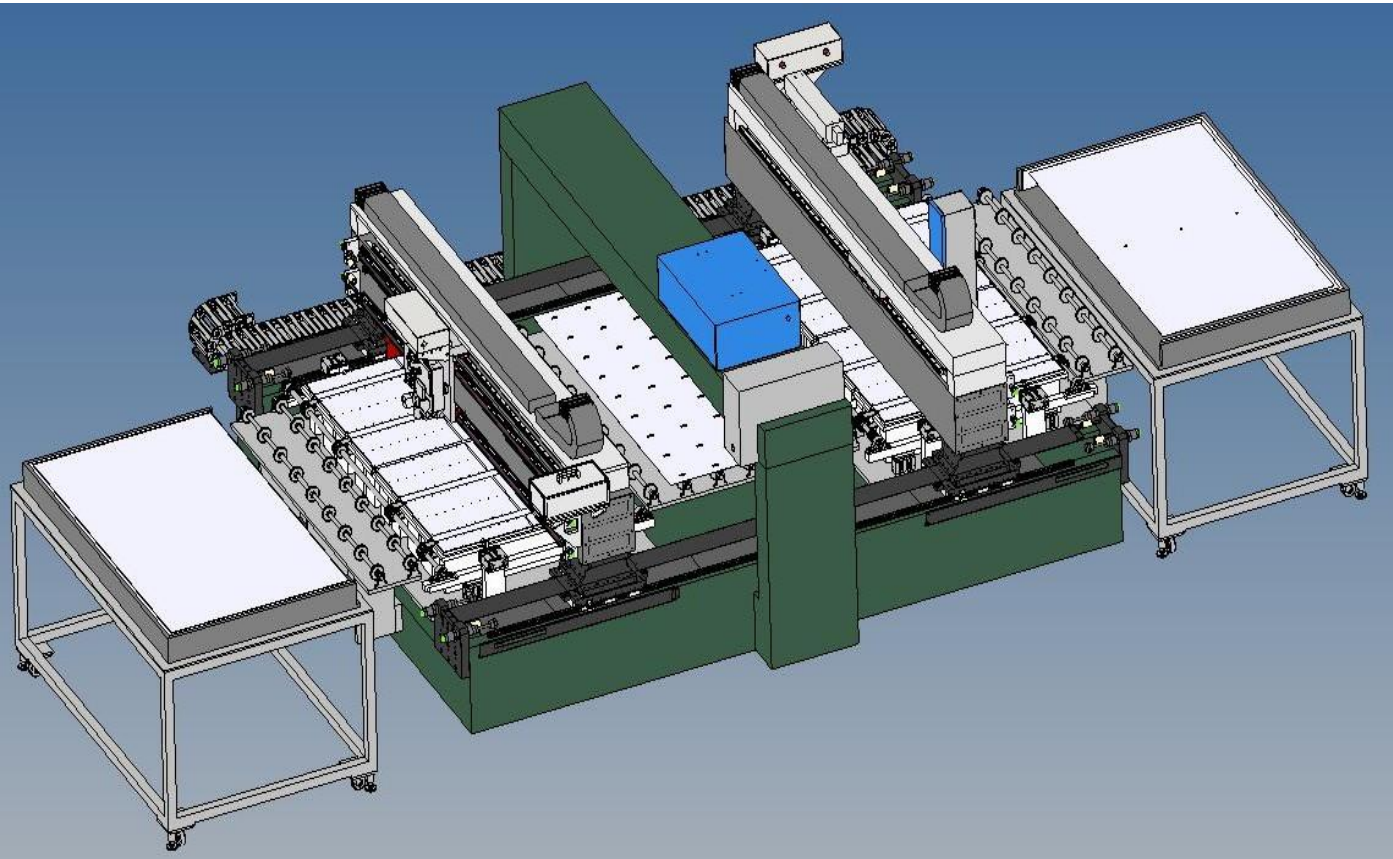
Application direction.

Large format glass cutting



Cutting crack super large format glass cutting (assembly line type)

Model features.



Equipment Introduction

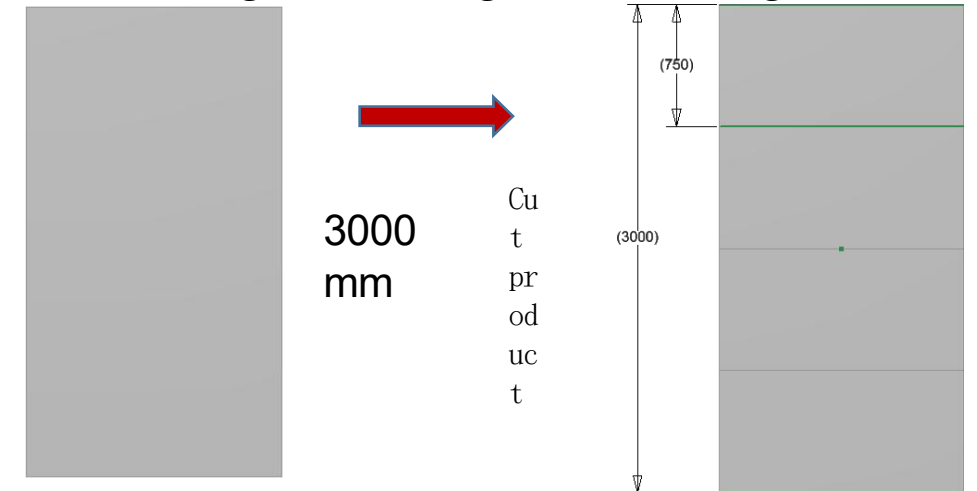
- Cut-and-Cut One-Piece Design
- CO₂ laser lobing method
- Linear motor + marble platform
- CCD positioning function is optional
- Double-action gantry structure
- Streamline production

Technical parameters.

- Processing width: 600mm*500mm
- Dimensional cutting accuracy: $\pm 10\mu\text{m}$
- CCD positioning accuracy: $\pm 10\mu\text{m}$
- Machining accuracy of the whole machine: $\pm 25\mu\text{m}$
- Processing quality: chipping $< 30\mu\text{m}$

Application direction.

Ultra-large format glass cutting



Shape is for reference only, subject
to actual appearance and size.
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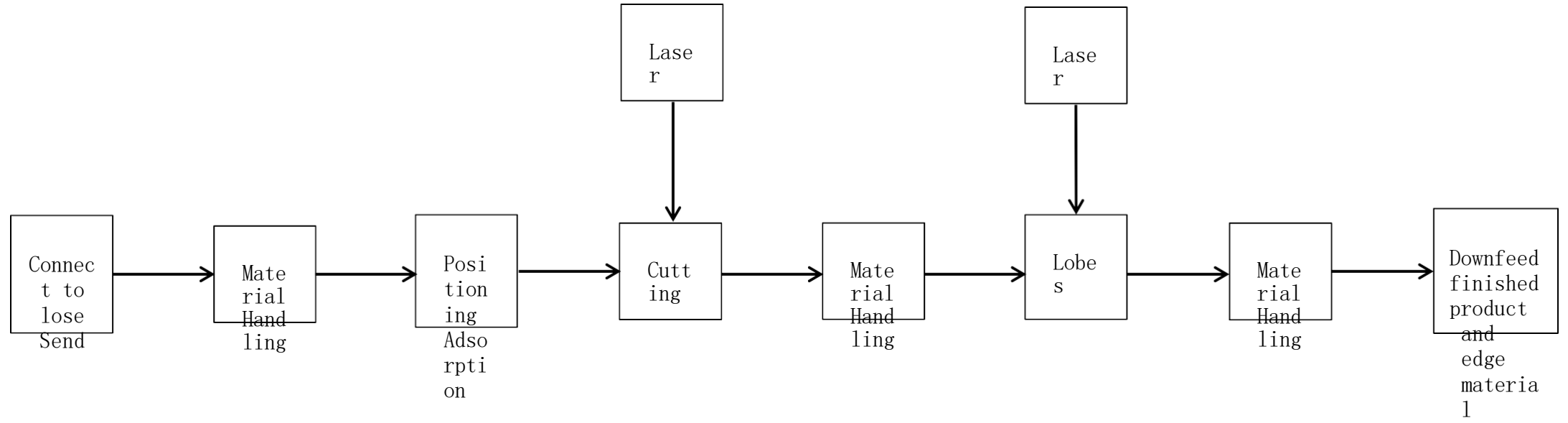
2000mm



Main component specifications

Main technical parameters						
Serial number	Name	Stroke (MM)	Repetition accuracy	Positioning accuracy	Remarks	
1	Two-dimensional linear motor stage	X-axis	Optional	±0.002MM	0.005MM	Roc homemade
		Y-axis	Optional	±0.002MM	0.005MM	
2	Laser parameters	Name	Wave length	Power	Cooling method	
		Cutting Lasers	1064nm	Optional	Water cooling	Home made
		Lobe Lasers	10.6um	Optional	Water cooling	Home made

Cutting process





Factory requirements

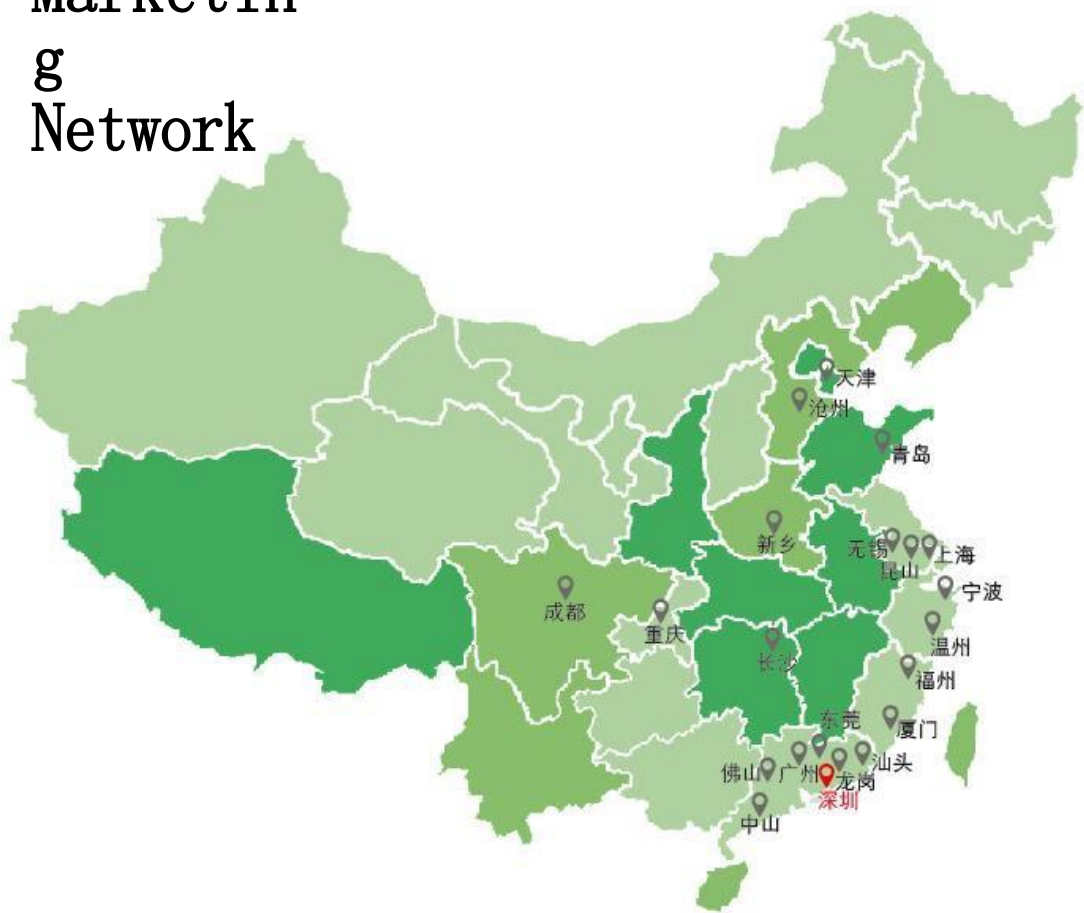
Factory requirements	Dimension(mm)		2000x 1800 x 1900
	Weight (Kg)		3500
	Temperature: (°C)		20-25(7X24/h air conditioned)
	Humidity:		20%~60% no condensation
	Power supply		220V/50Hz AC three-phase five-wire
	Power (KW)		6
	Compressed air	Air pressure(bar)	6 to 10
		Pipe diameter (mm)	12
		Number of airways	2
	Vacuum	Vacuum pressure(bar)	-10 to -6
		Pipe diameter (mm)	12
		Number of airways	2
	Cooling water	Inlet water temperature (°C)	18±2
		Pressure / Flow	0.2Mpa / 9L/min
		Pipe diameter (mm)	16
No vibration sources in the surrounding		Foundation amplitude ≤5μm	



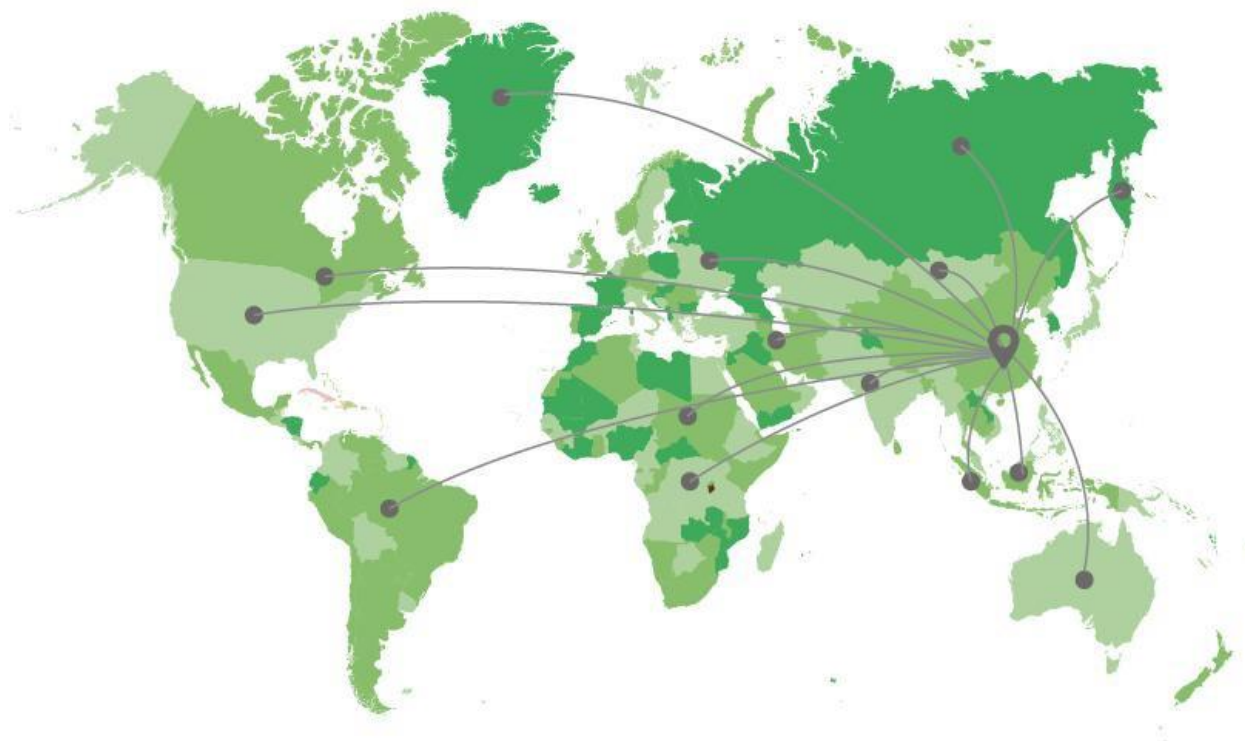
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	area	Vibration acceleration $\leq 0.05G$
	Operating noise(dB)	<100
Consumption	Electricity	Main
	Gas	Main
After Sales	The effective maintenance period of the equipment is one year, if more than one year the customer needs to pay 10% of the total cost of the equipment for maintenance.	

Marketing Network



Coverage Area



Dapeng is rooted in Shenzhen, facing the whole country and expanding the world. Our products are exported to Europe, America, Middle East, Southeast Asia and East Asia.

Company Products



Laser cutting



Laser welding



Laser Marking



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END

Dapeng Laser thanks you for your support