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Governing the affairs of hundred officials, ingenuity can be forged.



Kunshan Yunco Precision Co., Ltd.

ELECTRONIC DEVICES LASER MICRO PROCESSING SYSTEM SOLUTIONS

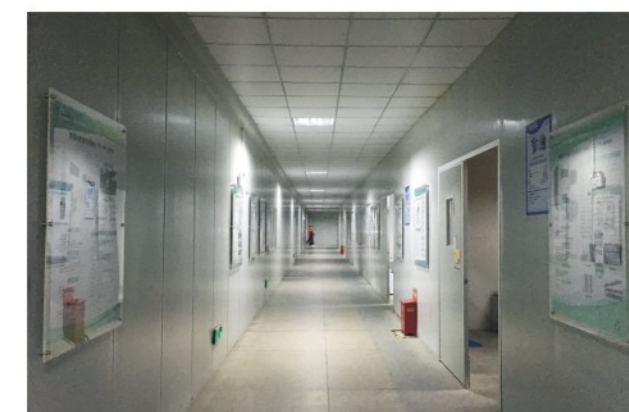


COMPANY INTRODUCTION

Kunshan Yunco Precision Co., Ltd. is driven by independent innovative technology and is market-oriented. Relying on the innovation and entrepreneurial team with many years of experience in research and development, production, sales and after-sales technical service of communication electronic devices opto-mechatronics precision laser micro-machining equipment, we developed a series of precision laser micro-machining equipment, such as precision thin-walled tube five-axis laser cutting machine YC-ETLM500, precision thin-walled tube six-axis laser cutting machine YC-ETLM750, precision electronic equipment four-axis composite laser cutting machine YC-ETLC350, electronic ceramic laser cutting machine YC-CLC335, electronic plane equipment laser cutting machine YC-EPLC6045, UV laser cutting machine YC-UV450, electronic equipment picosecond laser cutting machine YC-PLC350, electronic equipment laser welding machine YC-ELWM300, electronic equipment laser marking machine YC-ELMM300 etc. And the engineering application covers multiple manufacturing fields, such as laptop computers, smart phones, smart bracelets, styluses, electronic cigarettes, smart speakers and other intelligent products.

We can process laptop telegraph complex, "home" key, mobile phone back cover ceramics, cellphone middle frame metal fitting, stylus tube devices, electronic cigarette tube, smart speaker complex, FPC/PCB/aluminum/copper/circuit board, engine valve body fitting, laptop rotary shaft (sapphire, electronic ceramics, glass etc.), SMT stencil, FPC flexible circuit board, thermal ceramic devices etc.

We provides laser micro-machining system solutions such as laser cutting, drilling, welding, marking etc. for the precision electronic devices manufacturers.



Governing the affairs of hundred officials, ingenuity can be forged.

"Shangshu – Yaodian" record: "King Yao instructed Xihe to closely observe the cycle of time and measure the rules of the Sun, Moon and Stars so as to create a calendar for calculating time. And King Yao also ordered Xihe four person to leave for four directions, east, south, west and north to govern four seasons of spring, summer, autumn and winter, and the King Yao said 'ah! You Xi Clan and He Clan, one year has three hundred and sixty-six days, you should use leap month to determine spring, summer, autumn and winter, this will make one year. To govern the affairs of hundred officials therefrom, many things will flourish' ".

Yunco Precision adheres to the ancient Chinese culture, pressing forward day and night alike, continuing to study hard with technological innovation, aiming to create national self-improvement technology and products while contributing to the innovation and development of China's high-end intelligent equipment and processing service platform.

The company's product parts, components, systems, appearances etc. all condense the heart power and professionalism of the Yunco workers, while the subtle extremes show the craftsmanship of Yunco

PATENT CERTIFICATE



TECHNICAL ADVANTAGES



1. Autonomous precision laser processing system platform

Yunco Precision has been adhering to the forward design concept of precision machines and has been researching and developing various targeted laser micromachining system solutions according to the market demands. The company's existing standard models are divided into flat sheet laser micromachining equipment, precision thin-walled tube laser micromachining equipment and composite laser micromachining platform according to the typical shapes of flat sheet and precision thin wall tube. Our main products are five-axis precision thin-walled tube laser cutting machine, six-axis precision thin-walled tube laser cutting machine, ceramic laser cutting machine, UV laser cutting machine, laser welding machine, laser marking machine, flat plate and precision thin-walled tube composite laser processing platform etc. The company has been investing in research and development of supporting automatic loading and unloading system, online precision positioning system, automatic process (assembly, positioning, marking, welding, dispensing, measuring etc.) operating system, precision electronic device shape error measuring system and other core programs. The key technologies such as precision laser micromachining system platform (various motion platforms), key functional components (shafts, laser cutting head, compact probe, and vacuum adsorption platform etc.), and software system and process methods have realized independent research and development, which can meet the demands of customers' diversified and personalized precision electronic devices laser micromachining.

2. Technical support from precision thin-walled tube laser engineering research center

The research center has 20 full-time core technicians, which involved in multiple fields such as optics, precision machinery, electrics and control, software, physics and laser application process etc. The center has long been focused on the study of the laser micromachining system of various precision thin-walled tubular and planar devices. And it has obtained over 200 technology patents and has published 5 technical papers and has obtained 4 software copyrights and a number of core technologies are successively in the declaration of intellectual property right. Relying on the world's leading laser process system R&D team of "Yunco Precision fine thin-walled laser engineering research center" and years of innovative technology in the field of precision thin-walled tubular devices and planar devices laser micromachining, we provides industry-leading laser micromachining system solutions for various types of precision electronic devices.

3. Comprehensive and diversified laser micromachining process

We provide comprehensive and diversified laser micromachining system process according to the different demands of precision electronic devices (precision thin-walled tubular devices: material, outer diameter, wall thickness, length, heteromorphic characteristics, feature types; precision thin-walled planar devices: material, thickness, size). The specific recommended scheme is as follows:

- 3.1) for non-metallic tubular or planar instruments: we recommend to use femtosecond, picosecond lasers and self-made laser cutting head;
- 3.2) for metal tubular instruments, we recommend to use fiber lasers and self-made laser cutting head to conduct dry and wet laser micromachining;
 - A) For different outer diameters: we can provide different rotating shafts such as 8mm or less, 16mm or less, 30mm or less to clamp tubes with different outer diameters;
 - B) For different wall thickness: we can provide lasers with different capacity to meet the laser micromachining demands of various wall thickness precision tubes;
 - C) For different length: Our equipment can support various processing types such as automatic feeding processing of unlimited length pipe and double tube machining of short tube;
 - D) For heteromorphic tubes: Our equipment can support laser micromachining of D-type tube, tubes with positioning requirements at the end, tubes with different sizes at two ends, tapered tube and other special-shaped tube;
- 3.3) for metal or non-metal planar instruments: Our equipment can support laser centripetal processing with taper characteristics, laser vertical processing without taper characteristics and laser processing with planar sheet such as ceramics, aluminum alloy, glass, SMT stencil, FPC flexible circuit board etc.; so Yunco Precision will provide customers with personalized precision thin-walled tubular and planar instruments laser micromachining system solutions through comprehensive and diversified laser micromachining system techniques.

4. Diversified market service ability

- Yunco Precision can provide customers with the following diversified market services
- 4.1) Standard laser processing machine type
 - 4.2) Customized special machines or automated production lines;
 - 4.3) Machine leasing services;
 - 4.4) OEM for multi-variety, small batch product



Content

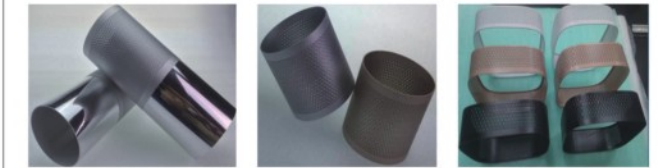


- /P01/** Precision thin-walled five-axis laser cutting machine YC-ETLM500
- /P02/** Electronic planar instruments laser cutting machine YC-EPLC6045
- /P03/** Electronic planar instruments laser processing center YC-EPLC6080
- /P04/** Electronic planar instruments fiber laser marking machine YC-ELMM300
- /P05/** Electronic planar instruments UV laser marking machine YC-ELMM500
- /P06/** Electronic instruments laser welding machine YC-ELWM300
- /P07/** Electronic instruments carbon dioxide laser cutting machine YC-CLCM6045
- /P08/** Electronic ceramic instruments laser cutting machine YC-CLC6045

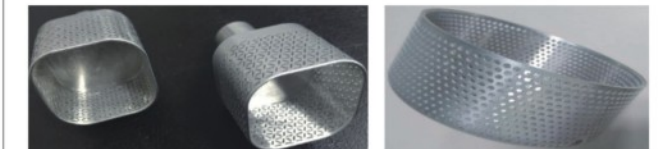
Precision thin-walled five-axis laser cutting machine YC-ETLM500



Sample display



Air purifier housing cutting Speaker housing snow-type hole laser cutting Speaker housing round hole laser cutting



Speaker trumpet hole laser cutting



Stylus and tubular instruments laser cutting and welding sample

Fine cutting

- Small slit width: < 20um
- High cutting precision: $\leq \pm 10\mu m$
- Good cutting quality: No burrs, smooth cuts
- High processing efficiency: one-time cut through the single side wall, continuous automatic feed processing

Strong adaptability

- Compatible with centripetal opening, vertical opening featured fine cutting processing
- Support laser cutting, drilling
- Can process 304, 316L, Ni-Ti, Al, and other metal materials
- Can process equal-diameter tubes, deformation tubes, semi-finished tubes and small-format flat instruments
- Has continuous automatic feeding processing function, and pipe automatic up and down solution options
- Open ECAD and laser processing CAM software

Flexible design

- Exquisite appearance
- Flexible function collocation, support personalized function customization
- Support innovative design from component level to system level
- Intuitive interface, simple operation

Technical certification

- CE
- ISO9001

Technical parameters

Max operating speed	300mm/s(X1); 100mm/s(X2); 50mm/s(Y); 50mm/s(Z); 600rpm(θ) ;
Positioning accuracy	$\pm 3\mu m(X1)$; $\pm 5\mu m(X2)$; $\pm 3\mu m(Y)$; $\pm 3\mu m(Z)$; $\pm 15\text{arcsec}(\theta)$;
Repositioning accuracy	$\pm 1\mu m(X)$; $\pm 3\mu m(X2)$; $\pm 1\mu m(Y)$; $\pm 1\mu m(Z)$; $\pm 3\text{arcsec}(\theta)$;
Cutting slit width	20um~40um
Processing material	304,316L, Ni-Ti, Al and other metal alloy;
Tube blank length	<2.5m ; (customizable support fixture)
Processing wall thickness	0-1.0 ± 0.02 mm;
Tube machining range	$\Phi 1.0-\Phi 16.0 \pm 0.02$ mm;
Plane machining range	200mm*100mm
Processing range	0~300mm (longer products will be processed by piecewise splicing)
Oddment length	80mm
Laser type	Fiber laser
Laser wavelength	1064 $\pm$ 10nm;
Laser capacity	Standard configuration: 250W (200W, 300W,500W, QCW, 150W are optional) ;
Power supply	220V $\pm$ 10%; 50Hz; AC15A (main circuit breaker)
Compatible file format	DXF, DWG;
Equipment size	About 1200mmx1300mmx1800mm
Equipment eight	About 1500Kg ;

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Electronic planar instruments laser cutting machine YC-EPLC6045



Fine cutting

- Small slit width: <20um
- High cutting precision: $\leq \pm 10\mu\text{m}$
- Good cutting quality: No burrs, smooth cuts
- High processing efficiency: Direct driving mobile double-drive system, one-time cut through the single side wall

Strong adaptability

- Support laser cutting, drilling, underlining
- Can process 304, 316L, Ni-Ti, L605, Li, Mg, Al, Cu, Fe, Ceramic and other materials
- Can process plane type and curved surface instruments
- Compatible with dual station configuration, vision positioning and automatic loading and unloading system
- Compatible with acutilingual or flat-moused long & short focal distance fine laser cutting head
- Open ECAD and laser processing CAM software

Sample display



Tungsten steel sheet



Ceramic sheet



Copper sheet



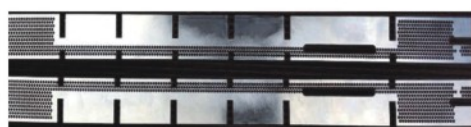
Laser forming of T=1.5mm aluminum substrate



Stainless steel sheet



Molybdenum sheet



Aluminum sheet

Flexible design

- Exquisite appearance
- Flexible function collocation, support personalized function customization
- Support innovative design from component level to system level
- Intuitive interface, simple operation

Technical certification

- CE
- ISO9001

Technical parameters

Max operating speed	500mm/s(X); 500mm/s (Y1&Y2); 50mm/s(Z);
Positioning accuracy	$\pm 3\mu\text{m}(X)$; $\pm 3\mu\text{m}(Y1\&Y2)$; $\pm 5\mu\text{m}(Z)$;
Repositioning accuracy	$\pm 1\mu\text{m}(X)$; $\pm 1\mu\text{m}(Y1\&Y2)$; $\pm 3\mu\text{m}(Z)$;
Processing material	304,316L, Ni-Ti, L605, Li, Mg, Al, Cu, Fe, Ceramic and other material;
Processing wall thickness	0-1.5 ± 0.02 mm;
Plane machining range	450mm*600mm
Laser type	Fiber laser
Wavelength	1064nm ± 10 nm;
Capacity	Standard configuration: QCW150W (100W, 200W, 250W, 300W, 500W are optional) ;
Power supply	220V $\pm 10\%$; 50Hz; AC15A (main circuit breaker)
Compatible file format	DXF, DWG;
Size	About 1400mmx1600mmx1500mm
Weight	About 1500Kg;

Electronic planar instruments laser processing center YC-EPLC6080



Fine cutting

- Small slit width: <20um
- High cutting precision: $\leq \pm 10\mu\text{m}$
- Good cutting quality: No burrs, smooth cuts
- High processing efficiency: Direct driving mobile double-drive system, one-time cut through the single side wall

Strong adaptability

- Support laser cutting, drilling, underlining
- Can process 304, 316L, Ni-Ti, L605, Li, Mg, Al, Cu, Fe, Ceramic and other materials
- Can process plane type and curved surface instruments
- Compatible with dual station configuration, vision positioning and automatic loading and unloading system
- Compatible with acutilingual or flat-moused long & short focal distance fine laser cutting head
- Open ECAD and laser processing CAM software

Flexible design

- Exquisite appearance
- Flexible function collocation, support personalized function customization
- Support innovative design from component level to system level
- Intuitive interface, simple operation

Technical certification

- CE
- ISO9001

Technical parameters

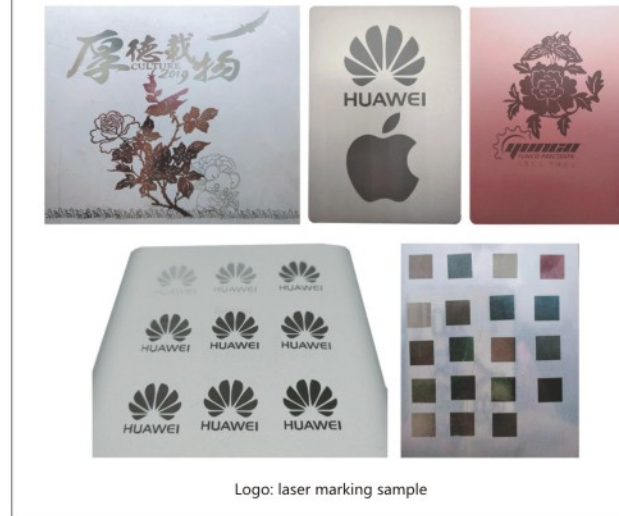
Max operating speed	500mm/s(X); 500mm/s (Y1&Y2); 50mm/s(Z);
Positioning accuracy	$\pm 3\mu\text{m}(X)$; $\pm 3\mu\text{m}(Y1\&Y2)$; $\pm 5\mu\text{m}(Z)$;
Repositioning accuracy	$\pm 1\mu\text{m}(X)$; $\pm 1\mu\text{m}(Y1\&Y2)$; $\pm 3\mu\text{m}(Z)$;
Processing material	304,316L, Ni-Ti, L605, Li, Mg, Al, Cu, Fe, Ceramic and other material;
Processing wall thickness	0-1.5 ± 0.02 mm;
Plane machining range	450mm*600mm
Laser type	Fiber laser
Wavelength	1064nm ± 10 nm;
Capacity	Standard configuration: QCW150W (100W, 200W, 250W, 300W, 500W are optional) ;
Power supply	220V $\pm 10\%$; 50Hz; AC15A (main circuit breaker)
Compatible file format	DXF, DWG;
Size	About 1400mmx1600mmx1500mm
Weight	About 1500Kg;



Electronic planar instruments fiber laser marking machine YC-ELMM300



Sample display



Technical parameters

Max operating speed	50mm/s(X); 50mm/s (Y); 50mm/s(Z); 500rpm (θ)
Positioning accuracy	±5um(X) ; ±5um (Y); ±5um (Z); ± 25arcsec (θ)
Repositioning accuracy	±3um(X) ; ±3um (Y) ; ± 3um(Z); ±10arcsec (θ)
Marking line width	< φ50um (generally speaking: 40um-60um)
Processing material	316L, Ni-Ti, L605, Ti, Al, Cu, plastic and other material;
Tube blank length	0-1.0 ±0.02 mm;
Tube machining range	φ0.3-φ7.0 ±0.02 mm; and φ1.0-φ16.0 ±0.02mm are optional; (Can customize fixture system for larger tube clamping)
Plane machining range	300mm*300mm;
Processing range	0-300mm;
Laser type	Fiber laser
Laser wavelength	1064nm ± 10nm;
Laser capacity	Standard configuration: 30W (20W, 50W are optional) ;
Modulation frequency range	30-60KHZ
Sculpture speed	≤7000mm/s
Min character height	0.2mm
Sculpture depth	0.4mm (depending on the material);
Power supply	220V±10%; 50Hz; AC15A (main circuit breaker)
Compatible file format	DXF, DWG;
Equipment size	About 900mmx850mmx450mm
Equipment eight	About 500Kg;

Fine cutting

- Small marking line width: < 50um
- High marking precision: the radial run out of tube instruments in rotating movement < 10um
- Good marking quality: smooth surface of sculpture point, no obvious deformation or bumps or pits, good stability
- High processing efficiency: pipe is pneumatically controlled with automatic clamping, compatible with pipe automatic loading and unloading system

Strong adaptability

- Fine vision positioning system during processing configuration
- Can engrave various fine and complex patterns on the tiny surface
- Can be used for engraving equal-diameter tubes, deformation tubes, semi-finished tubes and small-format flat instruments
- Can process 316L, Ni-Ti, Ti, Al, Cu, plastic and other similar materials
- Diverse combined precision tube automatic clamping system
- Open ECAD and laser processing CAM software

Flexible design

- Exquisite appearance
- Flexible function collocation, support personalized function customization
- Support innovative design from component level to system level
- Intuitive interface, simple operation

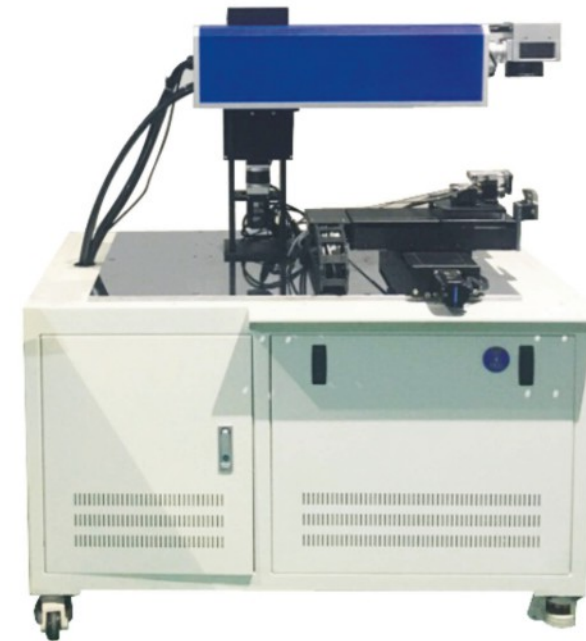
Technical certification

- CE
- ISO9001

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Electronic planar instruments UV laser marking machine YC-ELMM500



Sample display



Fine cutting

- Small marking line width: < 40um
- High marking precision: the radial runout of tube instruments in rotating movement < 10um
- Good marking quality: smooth surface of sculpture point, no obvious deformation or bumps or pits, good stability
- High processing efficiency: pipe is pneumatically controlled with automatic clamping, compatible with pipe automatic loading and unloading system

Strong adaptability

- Fine vision positioning system during processing configuration
- Can engrave various fine and complex patterns on the tiny surface
- Can be used for engraving and processing of equal-diameter tubes, deformation tubes, semi-finished tubes and small-format flat instruments
- Can process 316L, Ni-Ti, Ti, Al, Cu, Teflon, plastic and other similar materials
- Diverse combined precision tube automatic clamping system
- Open ECAD and laser processing CAM software

Flexible design

- Exquisite appearance
- Flexible function collocation, support personalized function customization
- Support innovative design from component level to system level
- Intuitive interface, simple operation

Technical certification

- CE
- ISO9001

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Electronic instruments laser welding machine YC-ELWM300



Technical parameters

Max operating speed	50mm/s(X); 50mm/s (Y); 50mm/s(Z); 500rpm (θ)
Positioning accuracy	±5um(X); ±5um (Y); ±5um (Z); ± 25arcsec (θ)
Repositioning accuracy	±3um(X); ±3um (Y); ± 3um(Z); ±10arcsec (θ)
Welding facula	< φ100um (generally speaking: 30um-50um)
Processing material	316L, Ni-Ti, Ti, Al, Cu, and other alloy;
Processing wall thickness	0-1.0 ±0.02 mm;
Tube machining range	φ0.3-φ7.0 ±0.02 mm; and φ1.0-φ16.0 ±0.02mm are optional; (Can customize fixture system for larger tube clamping)
Plane machining range	300mm*300mm;
Processing range	0~300mm;
Laser type	YAG and optic fiber laser are optional
Laser wavelength	1064nm ± 10nm;
Laser capacity	Standard configuration: 200W (300W, QCW150W are optional) ;
Max energy of single-pulse	50J
Laser welding frequency	1~20Hz
Laser welding depth	0.1-1.0mm
Pulse width	0.1-20ms
Power supply	220V±10%; 50Hz; AC15A (main circuit breaker)
Compatible file format	DXF, DWG;
Equipment size	About 1200mmx1300mmx160mm
Equipment eight	About 700Kg ;

Sample display



Metal tube welding

Fine cutting

- Small welding facula: < 100um
- High welding precision: The radial runout of tube instruments in the rotating movement < 10um
- Good welding quality: smooth welding surface, no obvious deformation or bumps or pits or discoloration, good stability
- High processing efficiency: pipe is pneumatically controlled with automatic clamping, compatible with pipe automatic loading and unloading system

Strong adaptability

- Fine vision positioning system during processing configuration
- Can weld equal-diameter tube, deformation tube, semi-finished tube and small-format flat instruments
- Can process 316L, Ni-Ti, Ti, Al, Cu and other metal materials
- Diverse combined precision tube automatic clamping system
- Open ECAD and laser processing CAM software

Flexible design

- Exquisite appearance
- Flexible function collocation, support personalized function customization
- Support innovative design from component level to system level
- Intuitive interface, simple operation

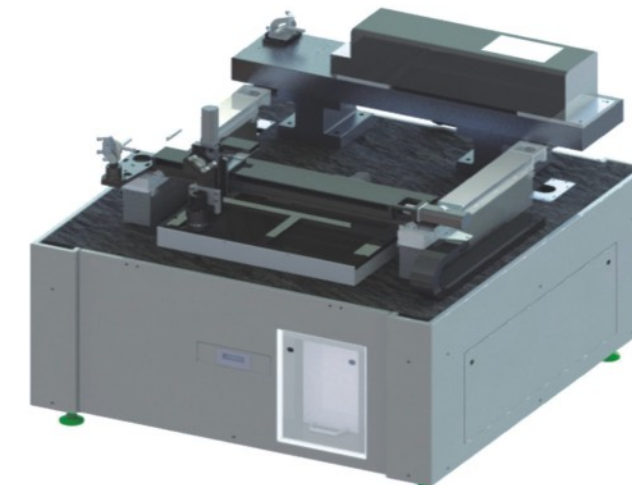
Technical certification

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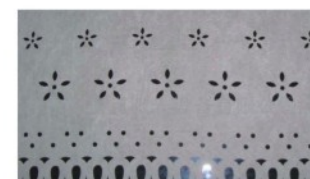
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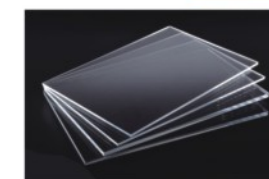
Electronic instruments carbon dioxide laser cutting machine YC-CLCM6045



Sample display



Leather cutting and forming



Acrylic cutting and forming



Cellphone (PC + glass fiber) housing cutting and punching



Laptop ABS housing louver cutting and punching

Technical parameters

Max operating speed	500mm/s(X); 500mm/s (Y1&Y2); 30mm/s(Z);
Equipment running distance	500mm(X); 500mm(Y1&Y2); 100mm(Z);
Positioning accuracy	±10um(X); ±10um(Y1&Y2); ±10um(Z);
Repositioning accuracy	±4um(X); ±4um(Y1&Y2); ± 5um(Z);
Processing material	PC, ABS, epoxy resin, woodwork, paper, acrylic, woolens, plastic, rubber, bamboo products and other material;
Processing wall thickness	0-2 ±0.05 mm;
Plane machining range	500mm*500mm
Laser type	CO2 laser
Wavelength	9.3um, 10.3um, 10.6um are optional
Capacity	Standard configuration: 120W (80W, 200W, 250W, 300W, are optional) ;
Power supply	220V±10%; 50Hz; AC15A (main circuit breaker)
Compatible file format	DXF, DWG;
Size	About 1300mmx1280mmx1680mm
Weight	About 1200Kg;

Fine cutting

- Small slit width: < 90um
- Facula size: ≤80um
- High cutting precision: ≤±30um
- Good cutting quality: No burrs, smooth cuts
- High processing efficiency: Servo/linear motor gantry double drive system, one-time cut through the single side wall

Strong adaptability

- Support laser cutting, drilling, underlining
- Can process PC, ABS, epoxy resin, woodwork, paper, acrylic, woolens, plastic, rubber, bamboo products and other non-metal material
- Can process plane type and curved surface instruments
- CCD vision positioning and dust exhaust system
- Can customize automatic loading and uploading mechanism according to customer's demands
- Open ECAD and laser processing CAM software

Flexible design

- Streamlined design of appearance, small and exquisite
- Flexible function collocation, support personalized function customization
- Support innovative design from component level to system level
- Intuitive interface, simple operation

Technical certification

- CE
- ISO9001

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Electronic ceramic instruments laser cutting machine YC-CLC6045



Fine cutting

- Small slit width: < 20um
- High cutting precision: $\leq \pm 10\mu\text{m}$
- Good cutting quality: No burrs, smooth cuts
- High processing efficiency: Direct driving mobile double-drive system, one-time cut through the single side wall

Strong adaptability

- Support laser cutting, drilling, underlining
- Can process alumina, zirconia, aluminum nitride, silicon nitride, diamond and silicon, germanium, gallium arsenide, and other material
- Multi-axis processing plane type and curved surface instruments
- Compatible with double station configuration, vision positioning and automatic loading and unloading system
- Compatible with acutilingual or flat-moused long & short focal distance fine laser cutting head
- Open ECAD and laser processing CAM software

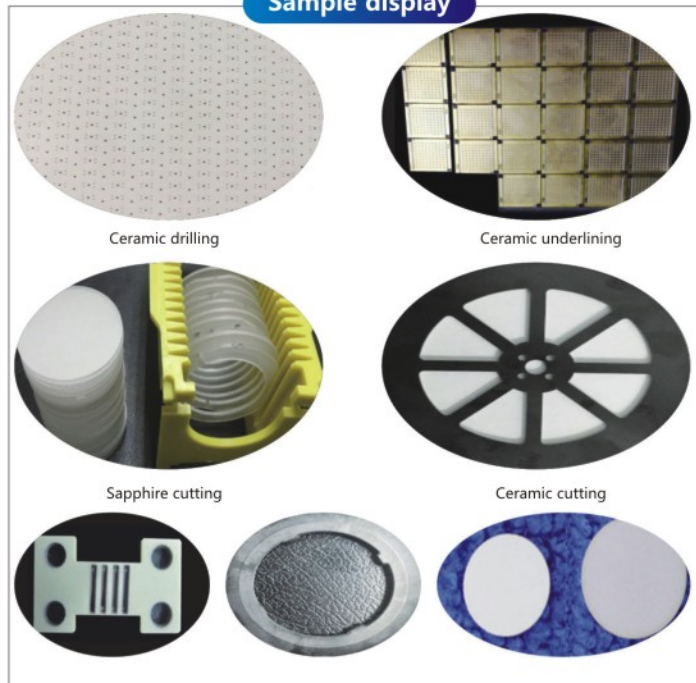
Flexible design

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- Support innovative design from component level to system level
- Intuitive interface, simple operation

Technical certification

- CE
- ISO9001

Sample display



Technical parameters

Max operating speed	500mm/s(X); 500mm/s(Y1&Y2); 50mm/s(Z);
Positioning accuracy	$\pm 3\mu\text{m}(X)$; $\pm 3\mu\text{m}(Y1\&Y2)$; $\pm 5\mu\text{m}(Z)$;
Repositioning accuracy	$\pm 1\mu\text{m}(X)$; $\pm 1\mu\text{m}(Y1\&Y2)$; $\pm 3\mu\text{m}(Z)$;
Processing material	alumina, zirconia, aluminum nitride, silicon nitride, diamond and silicon, germanium, gallium arsenide, and other material
Material wall thickness	0-1.5 ± 0.02 mm;
Plane machining range	450mm*600mm
Laser type	Fiber laser
Wavelength	1064nm $\pm 10\text{nm}$;
Capacity	QCW150W
Power supply	220V $\pm 10\%$; 50Hz; AC 20A (main circuit breaker)
Compatible file format	DXF, DWG;
Size	About 1400mmx1600mmx1750mm
Weight	About 1500Kg;

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