for precision 3C structural parts Solution of laser micromachining system

Changzhou Men-Luck Intelligent Technology Co., Ltd.







01 Precision Laser Cutting Machine for Hard Brittle Materials

ML-SC6045



Technical Parameters:

Maximum operating speed	1000mm/s(X) : 1000mm/s(Yl&Y2) : 50mm/s(Z):
Positioning accuracy	±3um (X) ±3um (Y1&Y2) : ±5um (Z):
Repetitive positioning accuracy	±lum(X); ±lum(Y1&Y2); ±3um (Z);
Machining material	Alumina & zirconia & aluminum nitride & silicon nitride & Diamond &
	Sapphire & Silicon & gallium arsenide & tungsten steel, etc;
Material wall thickness	0~2.0±0.02mm;
Plane machining range	300mm*300mm: (support customization for larger format requirements)
Laser type	Fiber laser;
Laser wavelength	1030-1070±10nm;
laser power	CW1000W&QCW150W& QCW300W& QCW450W for option
Equipment power supply	220V± 10%, 50Hz: AC 20A (main circuit breaker);
File format	DXF、DWG;
Equipment dimensions	1280mm*1320mm*1600mm;
Equipment weight	1500kg;

Sample Exhibition:



Tungsten steel sheet Cutting









WT0.2mm - Ø 0.12mm





Ceramic mobile phone back cover cutting

Zirconia ceramic WT0.7mm marking

Application scope

Laser micromachining of ceramics, sapphire, diamond and calcium steel, high hardness & high brittleness plane and regular curved instruments

High precision machining

- Small cutting seam width: 15 ~ 30um
- High machining accuracy: ≤ ± 10um
- Good quality of incision: smooth incision, small heat affected zone, less 0 burr and edge chipping $\,\leq\,$ 15um
- Size refinement: the minimum product size is 100um

Strong adaptability

- Have the ability of laser cutting, drilling, slotting, marking and other fine O processing skills for plane & curved surface instruments
- Can machine alumina, zirconia, aluminum nitride, silicon nitride, diamond, 0 sapphire, silicon, gallium arsenide and tungsten steel
- Equipped with a self-developed direct drive mobile double drive precision 0 movement platform, granite platform, aluminum alloy granite beam for selection
- Provide the optional function, such as double station & Visual Positioning & automatic feeding and unloading system & dynamic monitoring etc.
- Equipped with self-developed long & short focal length, sharp nozzle & flat nozzle fine laser cutting head
- Equipped with modular material receiving and dust removal pipeline system
- Provide self-developed movable tension frame & fixed tension frame & vacuum adsorption & honeycomb plate, etc. optional fixture
- Equipped with the self-developed 2D & 2.5D & 3D CAM software system for laser micromachining

Flexible design

- Follow the design concept of ergonomics, delicate and concise
- 0 Flexible software & hardware function collocation, supporting personalized function configuration & intelligent production management
- 0 Support positive innovation design from component level to system level
- Open control & laser micromachining software system easy to operate & 0 intuitive interface

- CE
- ISO9001
- IATF16949



02 Laser Cutting Machine for Precision Stainless Steel Instruments

ML-EC6045



Technical Parameters:

Maximum operating speed	1000mm/s(X) : 1000mm/s(YI&Y2) : 50mm/s(Z):
Positioning accuracy	±3um (X) ±3um (Y1&Y2) : ±5um (Z):
Repetitive positioning accuracy	±1um(X) : ±1um (Y1&Y2) : ±3um(Z):
Machining material	Precision stainless steel and hard alloy steel before or after surface treatment;
Material wall thickness	0~2.0±0.02 mm:
Plane machining range	450mm*600mm:
Laser type	Fiber laser;
Laser wavelength	1030-1070±10nm:
laser power	CW200W&250W&300W&500W&1000W&QCW150W for option
Equipment power supply	220V±10%, 50Hz: AC 20A (main circuit breaker);
File format	DXF、DWG;
Dimensions	1280mm*1320mm*1600mm:
Equipment weight	1500Kg:

Sample Exhibition:





WT0.6mm stainless steel sheet cutting







WT1.8mm stainless steel sheet cutting



steel sheet cutting



Chip PVD hard alloy



Regular spherical stainless steel sheet cutting

Application scope

Laser micromachining of plane and curved surfaces instruments of precision stainless steel and hard alloy steel before or after surface treatment

High precision machining

- Small cutting seam width: 15 ~ 30um 0
- 0 High machining accuracy: $\leq \pm 10$ um
- Good quality of incision: smooth incision & small heat affected zone & less burr
- Size refinement: the minimum product size is 20um

Strong adaptability

- Have the ability of laser cutting, drilling, slotting, marking and other fine processing skills for plane & curved surface instruments
- Can machine laser micromachining of plane and curved surfaces instruments of precision stainless steel and hard alloy steel before or after surface treatment
- Equipped with a self-developed direct drive mobile double drive precision movement platform, granite platform, aluminum alloy granite beam for selection
- Provide the optional function, such as double station & Visual Positioning & automatic feeding and unloading system & dynamic monitoring etc.
- Equipped with self-developed long & short focal length, sharp nozzle & flat nozzle fine laser cutting head
- Equipped with modular material receiving and dust removal pipeline
- Provide self-developed movable tension frame & fixed tension frame & vacuum adsorption & honeycomb plate, etc. optional fixture
- Equipped with the self-developed 2D & 2.5D & 3D CAM software system for laser micromachining

Flexible design

- Follow the design concept of ergonomics, delicate and concise
- Flexible software & hardware function collocation, supporting 0 personalized function configuration & intelligent production management
- 0 Support positive innovation design from component level to system level
- Open control & laser micromachining software system easy to operate & 0 intuitive interface

- CE
- ISO9001
- IATF16949 O



03 Laser Cutting Machine for Precision Stainless Steel Instruments

ML-MD3030





Technical Parameters:

Maximum operating speed	1000mm/s(X) : 1000mm/s(YI&Y2) : 50mm/s(Z):
Positioning accuracy	±3um (X) ±3um (Y1&Y2) : ±5um (Z):
Repetitive positioning accuracy	±1um(X) : ±1um (Y1&Y2) : ±3um(Z):
Machining material	stainless steel & hard alloy steel & Ceramics & Aluminum & Copper
	magnesium aluminum alloy
Material wall thickness	0~1.5±0.02 mm;
Plane machining range	300mm*300mm:
Laser type	Fiber laser;
Laser wavelength	1030-1070±10nm:
laser power	CW100W&200W&300W&QCW150W&450W for option
Equipment power supply	220V±10%, 50Hz; AC 20A (main circuit breaker);
File format	DXF、DWG:
Dimensions	1200mm*1300mm*1600mm:
Equipment weight	1200Kg:

Sample Exhibition:









All kinds of holes on SUS WT0.6- Ø 0.05mm microhole

SUS WT0.1-W30um-D50um blind slot

Aluminum tube after anodizing Ø0.2mm microhole cutting









Ceramic WT0.6- Ø 0.06mm aluminum plate Ø 0.1mm -Ø1mm various hole cutting

Alloy steel WT3mm- Ø 0.2mm spinneret hole drilling

WT0.2mm-0.02mi

Application scope

Laser micromachining of precision plane and curved surface instruments of stainless steel & hard alloy steel & Ceramics & Aluminum & Copper & magnesium aluminum allov

High precision machining

- 0 Small cutting seam width: 15 ~ 30um
- 0 High machining accuracy: \leq \pm 10um
- Good quality of incision: smooth incision & small heat affected zone & less burr
- Size refinement: the minimum product size is 20um

Strong adaptability

- 0 Have the ability of laser cutting, drilling, blind slotting, marking and other fine machining technology for plane & curved surface instruments
- Can machine stainless steel, hard alloy steel, ceramics, aluminum alloy and other materials
- Equipped with a self-developed direct drive mobile double drive precision movement platform, granite platform, aluminum alloy granite beam for selection
- 0 Provide the optional function, such as double station & Visual Positioning & automatic feeding and unloading system & dynamic monitoring etc.
- Equipped with self-developed long & short focal length, sharp nozzle & flat nozzle fine laser cutting head
- Equipped with modular material receiving and dust removal pipeline system
- Provide self-developed movable tension frame & fixed tension frame & vacuum adsorption & honeycomb plate, etc. optional fixture
- Equipped with the self-developed 2D & 2.5D & 3D CAM software system for laser micromachining

Flexible design

- Follow the design concept of ergonomics, delicate and concise
- Flexible software & hardware function collocation, personalized function configuration & intelligent production management
- 0 Support positive innovation design from component level to system level
- Open control & laser micromachining software system easy to operate & 0 intuitive interface

- CE
- ISO9001 0
- IATF16949



04 Laser Cutting Machine for Precision Stainless Steel Instruments

ML-MDSO500(5 axis)





Technical Parameters:

Maximum operating speed	500mm/s(X1) : 100mm/s(X2) : 50mm/s(Y) : 50mm/s(Z): 600rpm(θ)
Positioning accuracy	±3um (XI); ±5um (X2);±3um (Y); ±3um (Z) ;±15arcsec (θ)
Repetitive positioning accuracy	±1um(X1) : ±3um(X2) : ±1um(Y) : ±1um (Z) : ±3arcsec (θ)
Cutting seam width	15um~30um:
Machining material	stainless steel & hard alloy steel & Ceramics & Aluminum & Copper
	& magnesium aluminum alloy
Material wall thickness	0~2.0± 0.02 mm;
Pipe clamping range	Ф1.0~Ф16.0 &Ф1.0~Ф40.0±0.02 mm:
Plane machining range	0 ∽500mm(Longer products can be machined by segmented splicing)
Laser type	Fiber laser;
Laser wavelength	1030-1070±10nm:
laser power	CW100W~1000W&QCW150W~450W for option
Equipment power supply	220V±10%, 50Hz: AC 25A (main circuit breaker);
File format	DXF、DWG:
Dimensions	1200mm*1300mm*1750mm;
Equipment weight	1500Kg;

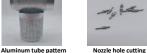
Sample Exhibition:



Aluminum tube pattern



hole cutting 02











Amazon smart speaker



Application scope

Laser micromachining of drilling & blind slotting & cutting of stainless steel, aluminum, copper and titanium with equal diameter, variable diameter and special-shaped precision 3D instruments

High precision machining

- 0 Small cutting seam width: 15 ~ 30um
- 0 High machining accuracy: \leq \pm 10um
- Good quality of incision: smooth incision & small heat affected zone & less burr
- Size refinement: the minimum product size is 50um

Strong adaptability

- Have the ability of fine machining technology of equal diameter & variable diameter & special-shaped precision thin-walled three-dimensional instrument drilling & blind slotting & cutting
- Can machine stainless steel & hard alloy steel & Aluminum & Copper & 0 titanium and other metal materials
- Equipped with self-developed five axis laser micromachining system and precision rotary shaft with automatic clamping system
- Provide visual positioning & automatic loading and unloading system & machining dynamic monitoring & auxiliary workpiece swing and other optional functions
- Equipped with self-developed long & short focal length fine laser cutting head
- Equipped with modular material receiving and dust removal pipeline
- Equipped with self-developed 2D & 2.5D & 3D CAM software system for laser micromachining

Flexible design

- Follow the design concept of ergonomics, delicate and concise
- Flexible software & hardware function collocation, personalized function configuration & intelligent production management
- Support positive innovation design from component level to system level
- Open control & laser micromachining software system easy to operate & O intuitive interface

- CE
- ISO9001 O
- IATF16949



05 Laser Cutting Machine for Precision Alloy Instruments

ML-EC6045



Technical Parameters:

Maximum operating speed	1000mm/s(X): 1000mm/s(YI&Y2): 50mm/s(Z):
Positioning accuracy	±3um (X) ±3um (Y1&Y2) : ±5um (Z):
Repetitive positioning accuracy	±1um(X) ; ±1um (Y1&Y2) ; ±3um(Z);
Machining material	Precision stainless steel and hard alloy steel before or after surface treatment;
Material wall thickness	0~2.0±0.02 mm:
Plane machining range	450mm*600mm:
Laser type	Fiber laser;
Laser wavelength	1030-1070±10nm:
laser power	CW1000W & QCW150W& QCW300W& QCW450W for option
Equipment power supply	220V±10%, 50Hz; AC 20A (main circuit breaker);
File format	DXF、DWG:
Dimensions	1280mm*1320mm*1600mm:
Equipment weight	1500Kg:

Sample Exhibition:









Microstructure cutting of various alloys

sheet cutting

Alloy sheet cutting

MIM structural parts cutting

cutting



lluminum plate WT0.8mm cutting









alloy sheet cutting

Application scope

Laser micromachining of plane and curved surfaces alloy instruments of Al & Cu & W & Mo & Ni & Ti & Zn & Mg & Magnet & Silicon Steel & powder metallurgy

High precision machining

- 0 Small cutting seam width: 15 ~ 30um
- 0 High machining accuracy: \leq \pm 10um
- Good quality of incision: smooth incision & small heat affected zone & less burr
- Size refinement: the minimum product size is 20um

Strong adaptability

- Have the ability of laser cutting, drilling, slotting, marking and other fine 0 processing skills for plane & curved surface instruments
- Can machine arious materials, such as Al & Cu & W & Mo & Ni & Ti & Zn & 0 Mg & Magnet & Silicon Steel & powder metallurgy, etc.
- Equipped with a self-developed direct drive mobile double drive precision movement platform, granite platform, aluminum alloy granite beam for selection
- Provide the optional function, such as double station & Visual Positioning & automatic feeding and unloading system & dynamic monitoring etc.
- Equipped with self-developed long & short focal length, sharp nozzle & flat nozzle fine laser cutting head
- Equipped with modular material receiving and dust removal pipeline system
- Provide self-developed movable tension frame & fixed tension frame & 0 vacuum adsorption, etc. optional fixture
- Equipped with the self-developed 2D & 2.5D & 3D CAM software system for laser micromachining

Flexible design

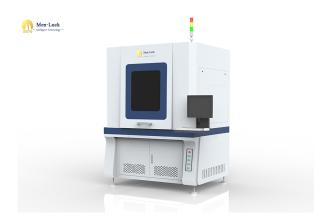
- 0 Follow the design concept of ergonomics, delicate and concise
- 0 Flexible software & hardware function collocation, supporting personalized function configuration & intelligent production management
- Support positive innovation design from component level to system level 0
- Open control & laser micromachining software system easy to operate & intuitive interface

- CE
- ISO9001
- IATF16949



06 Laser Cutting Machine for 3C Metal Structure Parts

ML-SC6045



Technical Parameters:

Maximum operating speed	1000mm/s(X) : 1000mm/s(YI&Y2) : 50mm/s(Z):
Positioning accuracy	±3um (X) ±3um (Y1&Y2) : ±5um (Z):
Repetitive positioning accuracy	±1um(X) : ±1um (Y1&Y2) : ±3um(Z):
Machining material	steel & Aluminum & magnesium aluminum & Copper & Molybdenum & Nicke
	& Titanium & Powder Metallurgy & Ceramics & Sapphire
Material wall thickness	0~2.0±0.02 mm:
Plane machining range	450mm*600mm:
Laser type	Fiber laser;
Laser wavelength	1030-1070±10nm:
laser power	CW1000W & QCW150W& QCW300W& QCW450W for option
Equipment power supply	220V±10%, 50Hz: AC 25A (main circuit breaker);
File format	DXF、DWG:
Dimensions	1290mm*1360mm*1800mm:
Equipment weight	1500Kg:

Sample Exhibition:



Snowflake holes
cutting on the plane
of aluminum alloy C part



Snowflake holes cutting on the plane of aluminum



Plane & arc surface pattern cutting of magnesium alloy D parts



Square hole and round hole cutting for aluminum



Round hole cutting on arc surface of aluminum alloy B part



Round hole cutting on aluminum alloy



Snowflake cutting on aluminum alloy



Round hole cutting on aluminum shaft

Application scope

o Laser micromachining of plane and curved surface alloy instruments of steel & Aluminum & magnesium aluminum & Copper & Molybdenum & Nickel & Titanium & Powder Metallurgy & Ceramics & Sapphire

High precision machining

- O Small cutting seam width: 15 ~ 30um
- O High machining accuracy: $\leqslant \pm 10$ um
- Good quality of incision: smooth incision & small heat affected zone & less burr
- o Size refinement: the minimum product size is 100um

Strong adaptability

- With fine machining technology capabilities of laser cutting, drilling and slotting for planar and curved surface instruments
- Can machine steel & Aluminum & magnesium aluminum & Copper & Molybdenum & Nickel & Titanium & Powder Metallurgy & Ceramics & Sapphire and other materials
- Equipped with a self-developed direct drive mobile double drive precision movement platform, granite platform, aluminum alloy and granite beam for selection
- Provide the optional functions of double station & Visual Positioning & automatic feeding and unloading system & dynamic monitoring of machining
- Equipped with self-developed long / short focal length sharp nozzle & flat nozzle fine laser cutting head
- Equipped with customized profiling fixture & slag dust separation collection module & dust removal pipeline system & safety and explosion-proof treatment system
- O Equipped with self-developed 2D &2.5D&3D CAM software system for laser micro-machining

Flexible design

- o Follow the design concept of ergonomics, delicate and concise
- o Flexible software & hardware function collocation, supporting personalized function configuration & intelligent production management
- o Support positive innovation design from component level to system level
- Open control & laser micromachining software system easy to operate & intuitive interface

- o CE
- o ISO9001
- o IATF16949



07 CO₂ Laser Cutting Machine for Electronic Instruments

ML-EC5050



Technical Parameters:

Maximum operating speed	500mm/s(X);500mm/s(Y1&Y2);30mm/s(Z);
Equipment travel	500mm (X); 500mm (Y1&Y2); 100mm (Z);
Positioning accuracy	±10um (X) ±10um (Y1&Y2); ±10um (Z);
Repetitive positioning accuracy	±4um (X); ±4um (Y1&Y2); ±5um (Z);
Machining material	non metallic materials, such as bio film & plastic & rubber & epoxy resin &
	Acrylic & wool & wood & bamboo products & paper, etc.
Material wall thickness	0~2±0.05 mm:
Plane machining range	500mm*500mm:
Laser type	CO ₂ Laser
Laser wavelength	9.3um&10.3um&10.6um for option:
laser power	80W & 120W& 200W& 300W for option
Equipment power supply	220V±10%, 50Hz: AC 20A (main circuit breaker);
File format	DXF、DWG:
Dimensions	1300mm*1280mm*1680mm:
Equipment weight	1500Kg:

Sample Exhibition:



Laptop ABS shell cooling hole cutting & perforating



Mobile phone (PC + glass fiber) shell cutting & perforating



Leather cutting and shaping



Acrylic cutting

Application scope

Laser micromachining of precision medical and electronic instruments such as biological tissue film & 3C plastic structure part & cloth

High precision machining

- o Small cutting seam width: ≤ 80um
- o High cutting accuracy: $\leq \pm$ 30um
- o Good cutting quality: no burr & smooth cut
- High machining efficiency: adopt direct-drive moving gantry precision
 motion platform, cut through single layer wall thickness at one time

Strong adaptability

- With fine machining technology capabilities of laser cutting, drilling and slotting for planar and curved surface instruments
- o Can machine non metallic materials, such as bio film & plastic & rubber & epoxy resin & Acrylic & wool & wood & bamboo products & paper, etc.
- Equipped with self-developed servo & direct drive mobile gantry precision motion platform for selection, compatible with automatic loading and unloading system
- Equipped with machine vision system & precision clamping fixture & dust removal pipeline system
- Equipped with self-developed 2D &2.5D&3D CAM software system for laser micro-machining

Flexible design

- O Follow the design concept of ergonomics, delicate and concise
- o Flexible software & hardware function collocation, supporting personalized function configuration & intelligent production management
- ${\tt o} \qquad {\tt Support\ positive\ innovation\ design\ from\ component\ level\ to\ system\ level}$
- O Open control & laser micromachining software system easy to operate & intuitive interface

- O CE
- o ISO9001
- o IATF16949



08 Five-axis Laser Cutting Machine for Precision Thin-wall Tube ML-MDSO500(5 axis)





Technical Parameters:

Maximum operating speed	300mm/s(X1) ; 100mm/s(X2) ; 50mm/s(Y) ; 50mm/s(Z); 600rpm(θ)
Positioning accuracy	±3um (XI); ±5um (X2);±3um (Y); ±3um (Z) ;±15arcsec (θ)
Repetitive positioning accuracy	±1um(X1) : ±3um(X2) : ±1um(Y) : ±1um(Z) : ±3arcsec (θ)
Cutting seam width	15um~30um
Machining material	SS & hard alloy steel & Al & Cu & Ti etc. metal materials
Tube blank length	<2.5m(Customizable support fixture compatible with infinite tube feeding)
Material wall thickness	0~1.0±0.02 mm;
Pipe machining range	Ø0.3~ Ø7.5& Ø0.1~ Ø16.0& Ø1.0~ Ø40.0±0.03mm
Plane machining range	200mm*100mm
Machining range	0 ∽ 300mm (Longer products can be machined by segmented splicing)
Length of tailing	60mm
Laser type	Fiber Laser:
Laser wavelength	1030-1070±10nm;
Laser power	Optional 200W & 300W & 500W & 1000W& QCW150W;
Power supply	220V±10% , 50Hz: AC 20A (Main circuit breaker)
File format	DXF,DWG
Dimensions	1200mm*1300mm*1750mm;
Equipment weight	1500Kg

Sample Exhibition:



Stainless steel round



ectric toothbrush tube cuttin



Intelligent touch pen tube cutting



Ø 4.1mm stainless steel tube cutti



Al round electronic cigarette



Stainless steel tube cutting



Ø 2.3mm stainless stee



Ø 1.1mm stainless steel tube cutting

Scope of application

In the field of electronics, SS & Al & Cu & Ti and other materials of equal diameter tube & variable diameter tube & special shaped tube & plane instrument cutting, drilling, slotting etc. laser micro-machining

• High precision machining

- O Small cutting seam width: 15 ~ 30um
- o High machining accuracy: $\leqslant \pm 10$ um
- o Good quality of incision: smooth incision & heat affected zone & less burr
- Size refinement: one time cutting through one side of the tube wall,
 continuous & automatic feeding machining

Strong adaptability

- With laser dry cutting & wet cutting & drilling & slotting and other fine machining capabilities
- o Supporting centripetal & vertical & compound opening feature machining for equal diameter tube & variable diameter tube & plane instrument
- o Can machine SS & hard alloy steel & Al & Cu & Ti etc. metal materials
- Compatible with precision D-type chuck & ER series chuck & three-jaw
 chuck and other precision thin-walled tube clamping systems
- o Combined precision thin-walled tube axle sleeve support system with self-adaptive shape tolerance variation
- Provide the matching scheme of precision thin-walled tube, continuous & automatic feeding machining, dry&wet cutting sealing receiver, dust removal pipeline system
- o Equipped with self-developed long & short focal length fine laser cutting
- Equipped with self-developed 2D&2.5D&3D CAM software system for laser micro-machining

Flexible design

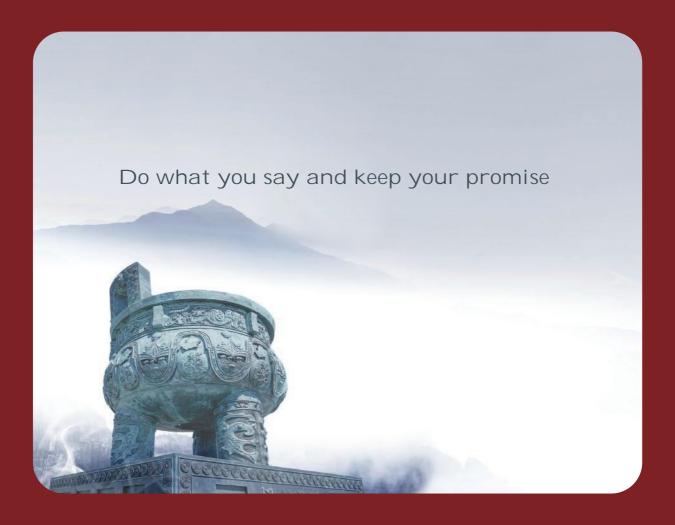
- o Follow the design concept of ergonomics, it is exquisite and concise
- The combination of software and hardware functions is flexible, supporting personalized function configuration and intelligent production management
- O Support positive & innovative design from component level to system level
- O Open type control, laser micro-machining software system, easy to operate & intuitive interface

- o CE
- o ISO9001
- o IATF16949

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