

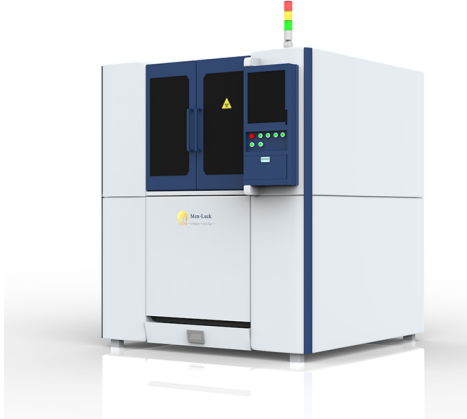
# Laser micromachining of automobile parts

## System solution

Changzhou Men-Luck Intelligent Technology Co., Ltd.

## 01 Laser Cutting Machine for Precision Alloy Instruments

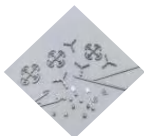
### ML-EC6045



#### Technical Parameters:

Maximum operating speed	1000mm/s(X); 1000mm/s(Y1&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	Al & Cu & W & Mo & Ni & Ti & Zn & Mg & Magnet & Silicon Steel & Powder Metallurgy, etc.
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 optional;
Power supply	220V±10%,50Hz; AC 20A (main circuit breaker);
File format	DXF、DWG;
Dimensions	1280mm*1320mm*1600mm ;
Equipment weight	1500Kg;

#### Sample Exhibition:



All kinds of alloy micro structure forming



Molybdenum sheet cutting



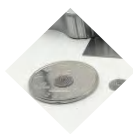
MIM structure cutting



Nickel sheet polar ear cutting



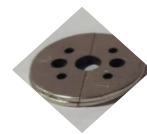
Aluminum plate WT0.8mm cutting



Alloy sheet cutting



Titanium alloy sheet WT0.8mm cutting



Magnetic sheet cutting

#### ● Application scope

- Laser micro-machining of planar and curved surfaces of Al & Cu & W & Mo & Ni & Ti & Zn & Mg & Magnet & Silicon Steel & Powder Metallurgy, etc.

#### ● High precision machining

- Small cutting seam width: 15 ~ 35um
- High machining accuracy ≤ 10um
- Good quality of incision: smooth incision & small heat affected zone & less burr
- Size refinement: minimum product size 50um

#### ● Strong adaptability

- With fine machining technology capabilities of laser cutting, drilling and slotting for planar and curved surface instruments
- Can process Al & Cu & W & Mo & Ni & Ti & Zn & Mg & Magnet & Silicon Steel & Powder Metallurgy 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 modular material receiving and dedusting piping system
- Provide self-developed movable tension frame & fixed tension frame & vacuum adsorption & honeycomb plate etc. optional fixture
- Equipped with self-developed 2D & 2.5D&3D CAM software system for laser micro-machining

#### ● Flexible design

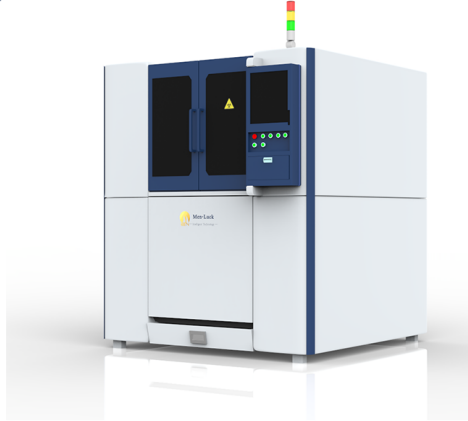
- Follow the design concept of ergonomics, it is exquisite and concise
- The combination of software and hardware functions is flexible, supporting personalized function configuration and intelligent production management
- Support positive & innovative design from component level to system level
- Open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

#### ● Technical certification

- CE
- ISO9001
- IATF16949

## 02 Precision Plane Speaker Mesh Laser Cutting Machine

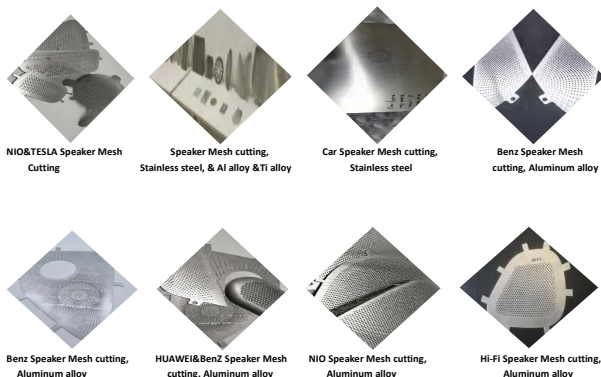
ML-EC6045



### Technical Parameters:

Maximum operating speed	1000m m/s (X) : 1000m m/s (Y1&Y2) : 50 m m/s (Z):
Positioning accuracy	±3um (X) ±3um (Y1&Y2) : ±5um (Z):
Repetitive positioning accuracy	±1um(X): ±1um(Y1&Y2) : ±3um (Z):
Machining material	Steel & Al & MgAl & Ti and other metal materials
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 optional;
Power supply	220V±10%,50Hz: AC 25A (main circuit breaker);
File format	DXF、DWG;
Dimensions	1280mm*1320mm*1600mm :
Equipment weight	1500Kg;

### Sample Exhibition:



- **Application scope**
  - Laser micro-machining of planar and curved surface speaker mesh of steel, aluminum, magnesium aluminum and titanium ect.
- **High precision machining**
  - Small cutting seam width: 20 ~ 35um
  - High machining accuracy  $\leq \pm 10\mu\text{m}$
  - Good quality of incision: smooth incision & small heat affected zone & less burr
  - Size refinement: minimum product size 100um
- **Strong adaptability**
  - With fine machining technology capabilities of laser cutting, drilling and slotting for planar and curved surface instruments
  - Can process Steel & Al & MgAl & Ti and other metal materials
  - Equipped with self-developed direct drive mobile dual drive precision motion platform, granite platform & sealed shafting configuration
  - 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 explosion-proof treatment system
  - Equipped with self-developed 2D & 2.5D&3D CAM software system for laser micro-machining
- **Flexible design**
  - 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
  - Support positive & innovative design from component level to system level
  - Open type control, laser micro-machining software system, easy to operate & intuitive interface
- **Technical certification**
  - CE
  - ISO9001
  - IATF16949

## 03 Precision Thin-walled Tube Laser Cutting Machine

### ML-EC300(3 axis)



#### Tec

Maximum operating speed	300mm/s (X) : 50 mm/s (Z): 600rpm(θ)
Positioning accuracy	±3um (X);±3um(Z); ±15arcsec (θ)
Repetitive positioning accuracy	±1um(X); ±1um (Z): ±3arcsec (θ)
Cutting seam width	20um~30um
Machining material	SS & Al & Cu&Ti and other metal materials
Tube blank length	<2.5m ( Customizable support fixture compatible with infinite tube feeding )
Material wall thickness	0~1.5±0.02 mm;
Plane machining range	Ø0.3~ Ø7.5& Ø0.1~ Ø16.0& Ø1.0~ Ø40.0±0.03mm
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 15A (Main circuit breaker)
File format	DXF,DWG
Dimensions	1200mm*1300mm*1700mm;
Equipment weight	1200Kg

#### Sample Exhibition:



Φ1.0Stainless steel tube forming



Φ9mm Stainless steel pipe cutting forming



Stainless steel pipe cutting



Touch pen tube



Stainless steel pipe cutting forming



Stainless steel filter tube



Φ25mm Cutting seam of stainless steel pipe



Stainless steel tubing forming

#### ● Scope of application

- Laser micro machining of SS & Al & Cu & Ti and other precision thin-walled metal tubes.

#### ● High precision machining

- Small cutting seam width: 15~ 30um
- High machining accuracy:  $\leq \pm 10\mu\text{m}$
- Good quality of incision: smooth incision & small heat affected zone & less burr
- High processing efficiency: one time cutting through one side of the tube wall, continuous & automatic feeding machining

#### ● Strong adaptability

- Laser cutting & drilling & slotting fine processing capability with concentric opening characteristics of equal diameter
- 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
- 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
- Equipped with self-developed long & short focal length fine laser cutting head
- Provide visual positioning & automatic feeding and unloading system & dynamic machining monitoring and other optional functions
- Equipped with self-developed 2D & 2.5D&3D CAM software system for laser micro-machining

#### ● Flexible design

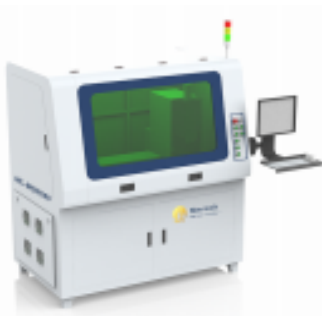
- Follow the design concept of ergonomics, it is exquisite and concise
- The combination of software and hardware functions is flexible, supporting personalized function configuration and intelligent production management
- Support positive & innovative design from component level to system level
- Open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

#### ● Technical certification

- CE
- ISO9001
- IATF16949

## 04 Five-axis Laser Cutting Machine for Precision Thin-wall Tube

### ML-MDN500(3 axis)



#### Technical Parameters:

Maximum operating speed	300mm/s(X1) ; 100mm/s(X2) ; 50mm/s(Y) ; 50mm/s(Z); 600rpm(θ)
Positioning accuracy	±3um (X1); ±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 tube cutting



Electric toothbrush tube cutting



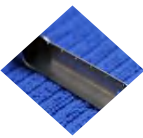
Intelligent touch pen tube cutting



Ø 4.1mm stainless steel tube cutting



Al round electronic cigarette tube cutting



Stainless steel tube cutting



Ø 2.3mm stainless steel tube cutting



Ø 1.1mm stainless steel tube cutting

#### ● Scope of application

- o 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:  $\leq \pm 10\mu\text{m}$
- o Good quality of incision: smooth incision & heat affected zone & less burr
- o Size refinement: one time cutting through one side of the tube wall, continuous & automatic feeding machining

#### ● Strong adaptability

- o 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
- o 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
- o 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 head
- 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, it is exquisite and concise
- o 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

#### ● Technical certification

- o CE
- o ISO9001
- o IATF16949



## 05 Precision Thin-walled Tube Laser Cutting Machine

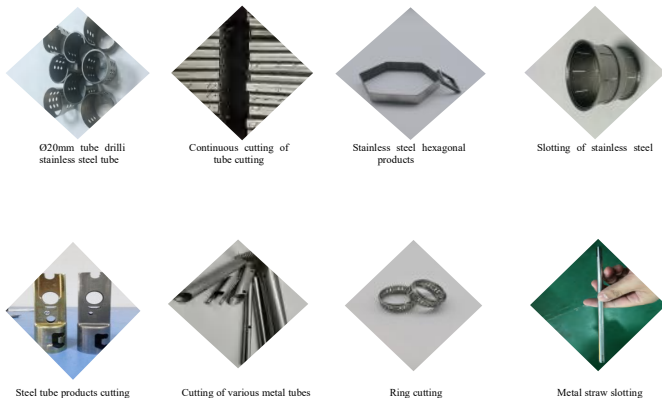
### ML-MDSO600(5 axis)



#### Technical Parameters:

Maximum operating speed	500mm/s(X1) : 100mm/s(X2) : 50mm/s(Y) : 50mm/s(Z); 600rpm(θ)
Positioning accuracy	±3um (X1); ±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	<6m ( 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& Ø10.0~ Ø60.0±0.05mm
Plane machining range	300mm*100mm
Machining range	0~600mm & 0~800mm(Longer products can be machined by segmented splicing)
Length of tailing	60mm
Laser type	Fiber Laser;
Laser wavelength	1030-1070±10nm;
Laser power	200W & 300W& 500W & 1000W & 2000W& QCW150W;
Power supply	220V±10% , 50Hz; AC 20A (Main circuit breaker)
File format	DXF,DWG
Dimensions	1800mm*1300mm*1750mm&1650mm*1450mm*1750mm;
Equipment weight	1600Kg

#### Sample Exhibition:



#### ● Scope of application

- o In the application fields of electronics, automobile and hardware, SS & Al & Cu & Ti 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: ≤ ±10um
- o Good quality of incision: smooth incision & heat affected zone & less burr
- o Size refinement: one time cutting through one side of the tube wall, continuous & automatic feeding machining

#### ● Strong adaptability

- o 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
- o 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
- o 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 head
- 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, it is exquisite and concise
- o 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

#### ● Technical certification

- o CE
- o ISO9001
- o IATF16949

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Do what you say and keep your promise



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— Intelligent Technology —

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