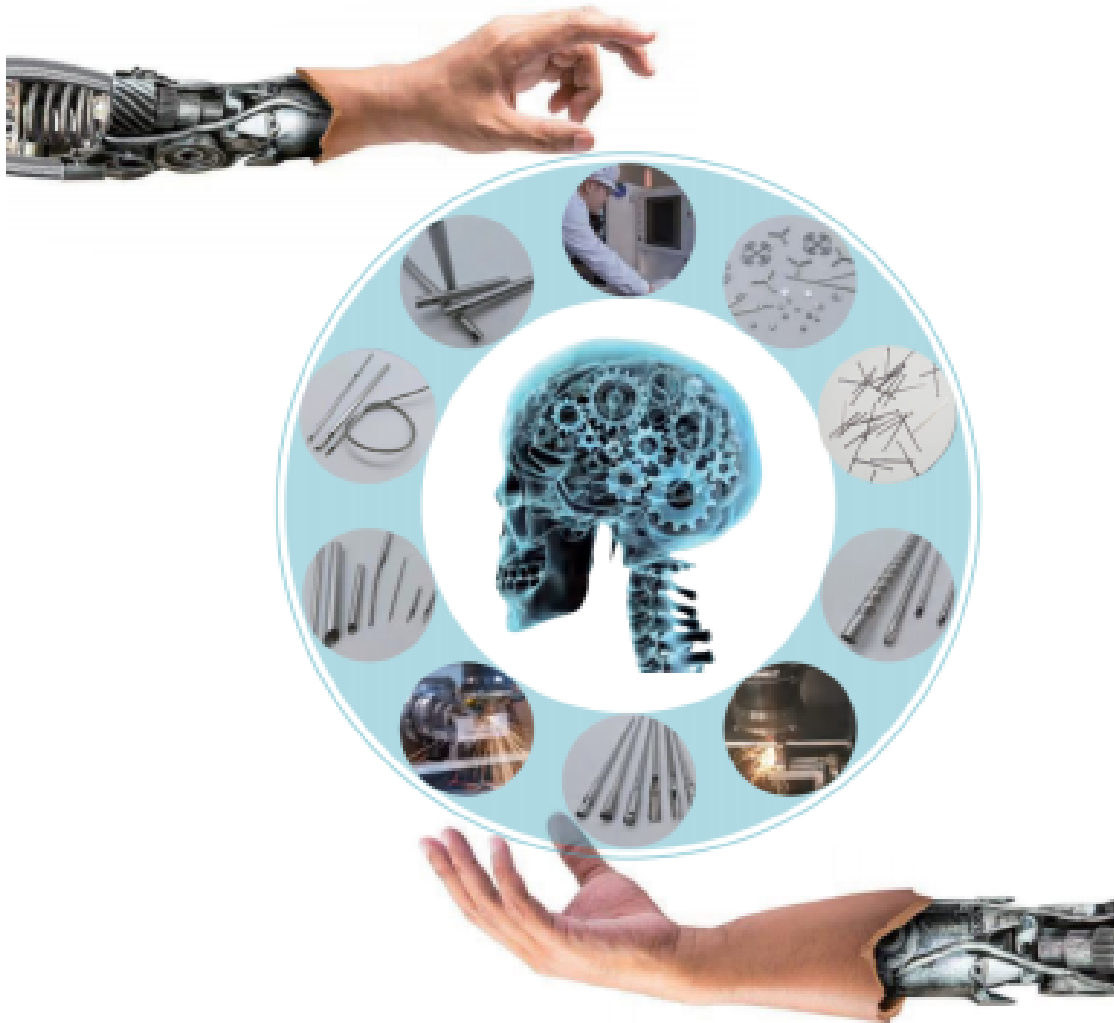




Men-Luck

— Intelligent Technology —



Laser micromachining of surgical instruments

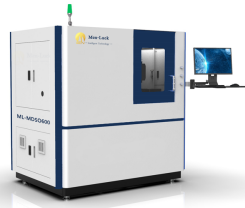
System solution

Changzhou Men-Luck Intelligent Technology Co., Ltd.

01 Five Axis Laser Cutting Machine for Surgical Instruments

ML-MDSO500(5 axis)

ML-MDSO600(5 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	20um~30um;
Machining material	304&316L&Ni-Ti&L605&Al&Gu&Li&Mg&Fe etc.
Tube blank length	< 2.5m (support fixture can be customized);
Processing wall thickness	0~1.5±0.02 mm;
Pipe processing range	Φ0.3~Φ7.5&Φ1.0~Φ16.0±0.02 mm;
Plane processing range	200mm (300mm) *100mm;
processing range	0~300mm&0~600mm (longer products can be processed by segmented splicing method);
Length of surplus material	60mm;
Laser type	Fiber laser;
Laser wavelength	1030-1070±10nm;
laser power	200W&250W&300W&500W&1000W&QCW150W for option;
Equipment power supply	220V±10%, 50Hz; AC 25A (main circuit breaker);
File format	DXF&DWG&STP&IGS;
Equipment dimensions	1200mm(&1800mm)x1300mmx1750mm;
Equipment weight	1500Kg;

Sample Exhibition:



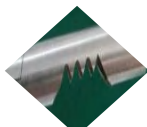
Soft drill and planer in orthopedic



D-type electrode tube slotting



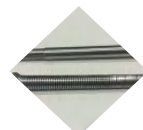
Suture tube cutting



Machining of planer tooth



Teeth cutting of nose drill



Spiral slotting of orthopedic soft drill



Suture tube cutting



Inner and outer casing tube of ultrasonic knife

● Application scope

- Laser micromachining of surgical and orthopedic instruments such as rigid endoscope & ultrasonic scalpel & endoscope & stapler & suture device & soft drill & planer & puncture needle & nose drill

● High precision machining

- Small cutting seam width: 18~30um
- High machining accuracy: $\leq \pm 10\mu\text{m}$
- Good quality of incision: no burr & smooth incision
- High machining efficiency: one-off cutting through one side tube wall & continuous automatic feed machining

● Strong adaptability

- With laser dry cutting & wet cutting & drilling & slotting and other fine machining capabilities
- Centripetal & vertical & compound opening feature machining for supporting equal diameter tube & variable diameter tube & plane instrument
- Can process 304&316L&Ni-Ti&L605&Al&Gu&Li&Mg&Fe and other materials
- Compatible with precision D-type chuck & ER series chuck & three-jaw chuck and other precision thin-walled tube clamping system
- Adopt the combined precision thin-walled tube shaft sleeve support system with self-adaptive shape tolerance variation
- Provide the matching scheme of precision thin-walled tube continuous automatic feed processing & automatic loading and unloading
- 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
- Provide the optional function of machine vision system to real time online monitor the laser dynamic machining process
- The software and hardware functions match flexibly, support personalized function configuration & intelligent production management
- Support forward innovative design from component level to system level
- Open type control & laser micromachining software system is easy to operate & intuitive interface

● Technical certification

- CE
- ISO9001
- ISO13485

O2 Laser Cutting Machine for Medical Hypo Tube & Spiral Tube

ML-MDE300(3 axis)



Automatic laser cutting machine for medical spiral tube ML-MDE300(3 axis)

Technical Parameters:

Maximum operating speed	300mm/s (X) ; 600rpm (θ) ; 100mm/s (Z) ;
Positioning accuracy	±2um (X) ; ±15arcsec (θ) ; ±3um (Z) ;
Repetitive positioning accuracy	±0.5um (X) ; ±3arcsec (θ) ; ±1um (Z) ;
Cutting seam width	15um~30um;
Machining material	304、316L、Ni-Ti、L605 etc.
Tube blank length	<2.5m;
Processing wall thickness	0~0.5±0.02 mm;
Processing pipe diameter	Φ0.1~Φ7.5±0.02mm&Φ0.3~Φ16.0±0.02mm;
Single processing range	0~300 mm (longer products can be processed by segmented splicing method);
Laser type	Fiber laser
Laser wavelength	1030-1070±10nm;
laser power	100W&200W&250W&500W for option;
Equipment power supply	220V±10%, 50Hz; AC 20A (main circuit breaker);
File format	DXF、DWG;
Equipment dimensions	1600mmx950mmx1750mm;
Equipment weight	1500Kg;

- **Application scope**

- Laser micromachining of precision thin-walled metal tubes such as medical flexible Hypo tube, spiral tube and spring tube

- **High precision machining**

- Small cutting seam width: 15~30um
- High machining accuracy: $\leq \pm 5\mu m$
- Good quality of incision: no burr & smooth incision
- High machining efficiency: one-off cutting through one side tube wall & continuous automatic feed machining

- **Strong adaptability**

- Laser cutting & drilling & slotting fine machining capability with concentric opening characteristics of equal diameter tube
- Can process 304 & 316L & Ni-Ti & L605 and other alloy materials
- Compatible with precision D-type chuck & ER series chuck & three-jaw chuck and other precision thin-walled tube clamping system
- Adopt the combined precision thin-walled tube shaft sleeve support system with self-adaptive shape tolerance variation
- Provide the matching scheme of precision thin-walled tube continuous automatic feed processing & automatic loading and unloading
- 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
- Provide the optional function of machine vision system to real time online monitor the laser dynamic machining process
- The software and hardware functions match flexibly, support personalized function configuration & intelligent production management
- Support forward innovative design from component level to system level
- Open type control & laser micromachining software system is easy to operate & intuitive interface

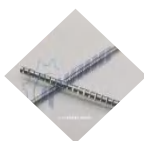
- **Technical certification**

- CE
- ISO9001
- ISO13485

Sample Exhibition:



Φ2.5mm stainless steel cutting



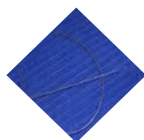
Φ3.0 mm stainless steel tube cutting



Φ1.5mm stainless steel tube cutting



Φ6.8mm stainless steel tube cutting



Φ0.65mm spiral and tongue structure of Hypo tube



Φ1.6mm stainless steel tube cutting

03 Laser Cutting Machine for Medical Plane Instruments

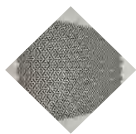
ML-MD6045(4 axis)



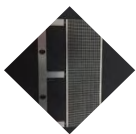
Technical Parameters:

Maximum operating speed	500mm/s (X) ; 500mm/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	304&316L&Ni-Ti&L605&Li&Mg&Al&Cu&Fe&Ceramic etc.
Material wall thickness	0~2.0±0.02 mm;
Plane processing range	450mm*600mm;
Laser type	Fiber laser;
Laser wavelength	1030-1070±10nm;
laser power	100W&200W&250W&300W&500W&1000W&QCW150W for option;
Equipment power supply	220V± 10%, 50Hz; AC 25A (main circuit breaker);
File format	DXF&DWG;
Equipment dimensions	1280mm*1320mm*1600mm;
Equipment weight	1500Kg;

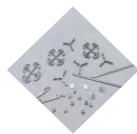
Sample Exhibition:



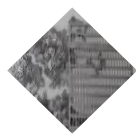
WT0.8mm titanium alloy cranial fixator



CT tungsten steel electrode



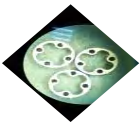
Microstructure cutting of various alloys



Nickel titanium electrode



Ceramic microhole machining



SUS304 endoscope clip



SUS304 snake bone threading earrings



L1.2mm stent rod cutting

● Application scope

- Laser micromachining of plane and curved surface medical instruments such as brain fixed piece, connecting piece and electrode piece

● High precision machining

- Small cutting seam width: 15~30um
- High machining accuracy: $\leq \pm 10\mu\text{m}$
- Good quality of incision: no burr & smooth incision
- High machining efficiency: direct-drive mobile dual-drive system, one-off cutting through single layer material

● Strong adaptability

- With laser cutting, drilling, slotting, scribing and other fine machining capabilities
- Can machine 304&316L&Ni-Ti&L605&Li&Mg&Al&Cu&Fe&Ceramic and other materials
- Can machine plane and curved surface instruments
- Provide double position & machine vision positioning & receiving and closed blanking & automatic loading and unloading system & machining dynamic monitoring and other matching functions
- Equipped with self-developed long & short focal length fine laser cutting head with sharp & flat nozzle & compatible with commercially available laser cutting head
- 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
- The software and hardware functions match flexibly, support personalized function configuration & intelligent production management
- Support forward innovative design from component level to system level
- Open type control & laser micromachining software system is easy to operate & intuitive interface

● Technical certification

- CE
- ISO9001
- ISO13485

04 Laser Cutting Machine for Medical Plane Instruments

ML-MDN300(3 axis) ML-MDN300(3 axis) (Partial graph)



Technical Parameters:

Maximum operating speed	300mm/s (X) ; 100mm/s (Z) ; 600rpm (θ) ;
Positioning accuracy	±2um (X) ; ±3um (Z) ; ±15arcsec (θ) ;
Repetitive positioning accuracy	±0.5um (X) ; ±1um (Z) ; ±3arcsec (θ) ;
Cutting seam width	15um~25um;
Machining material	304&316L&Ni-Ti&L605 etc.
Tube blank length	< 2.5m (support fixture can be customized);
Processing wall thickness	0~0.5±0.02 mm;
Processing pipe diameter	Φ0.1~Φ7.5&Φ0.3~Φ16.0±0.02 mm;
Tailing length	60mm;
Single processing range	0~300mm&0~600mm (longer products can be processed by segmented splicing method);
Laser type	Fiber laser;
Laser wavelength	1030-1070±10nm;
laser power	100W&200W&250W&300W&500W for option;
Equipment power supply	220V± 10%, 50Hz; AC 15A (main circuit breaker);
File format	DXF&DWG;
Equipment dimensions	1200mmx1000mmx1700mm;
Equipment weight	1200Kg;

Sample Exhibition:



Φ0.7 needle tube - slot width 0.3mm

Indwelling needle

Φ1.3 needle tip and hemostasis port

Puncture needle spiral tube

Pediatric puncture tube

- **Application scope**
 - Laser micromachining of indwelling needle, puncture needle, radiofrequency ablation needle, etc
- **High precision machining**
 - Small cutting seam width: 18~30um
 - High machining accuracy: $\leq \pm 10\mu\text{m}$
 - Good quality of incision: no burr & smooth incision
 - High machining efficiency: one-off cutting through one side tube wall & continuous automatic feed machining
- **Strong adaptability**
 - Have the ability of laser dry cutting & wet cutting & drilling & slotting and other fine machining technology
 - Support machining of radial opening feature of equal diameter tube
 - Can machine 304 & 316L & Ni-Ti & L605 etc. materials
 - Compatible with precision D-type chuck & ER series chuck & three-jaw chuck and other precision thin-walled tube clamping system
 - Adopt the combined precision thin-walled tube shaft sleeve support system with self-adaptive shape tolerance variation
 - Provide the matching scheme of precision thin-walled tube continuous automatic feed machining & automatic loading and unloading
 - 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
 - Provide the optional function of machine vision system to real time online monitor the laser dynamic machining process
 - The software and hardware functions match flexibly, support personalized function configuration & intelligent production management
 - Support forward innovative design from component level to system level
 - Open type control & laser micromachining software system is easy to operate & intuitive interface
- **Technical certification**
 - CE
 - ISO9001
 - ISO13485

05 Medical needle laser processing center

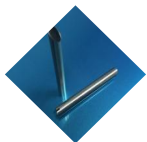
ML-MDN500(3 axis)



Technical Parameters:

Maximum operating speed	300mm/s (X) ; 100mm/s (Y) ; 100mm/s (Z) ; 600rpm (θ) ;
Positioning accuracy	±2um (X) ; ±3um (Y) ; ±3um (Z) ; ±15arcsec (θ) ;
Repetitive positioning accuracy	±0.5um (X) ; ±1um (Y) ; ±1um (Z) ; ±3arcsec (θ) ;
Cutting seam width	15um~25um;
Machining material	304&316L&Ni-Ti&L605 etc.
Tube blank length	< 2.5m (support fixture can be customized);
Processing wall thickness	0~0.5±0.02 mm;
Processing pipe diameter	Φ 0.1~Φ 7.5&Φ 0.3~Φ 16.0±0.02 mm;
Tailing length	60mm;
Single processing range	0~300mm (longer products can be processed by segmented splicing method);
Laser type	Fiber laser;
Laser wavelength	1030-1070±10nm;
laser power	100W&200W&250W&300W&500W for option;
Equipment power supply	220V± 10%, 50Hz; AC 25A (main circuit breaker);
File format	DXF&DWG;
Equipment dimensions	1200mmx1300mmx1750mm;
Equipment weight	1500Kg;

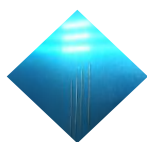
Sample Exhibition:



Φ6.4mm pediatric puncture tube



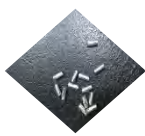
Φ4.0 mm puncture tube fittings



Φ0.7 needle slotting



Stainless steel tube cutting



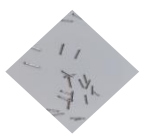
Microtube cutting



Slotting of puncture needle tube in orthopedics department



Pinhole opening



Opening of special microtube

● Application scope

- Laser micromachining of indwelling needle, puncture needle, radiofrequency ablation needle, etc

● High precision machining

- Small cutting seam width: 18~30um
- High machining accuracy: $\leq \pm 10\mu\text{m}$
- Good quality of incision: no burr & smooth incision
- High machining efficiency: one-off cutting through one side tube wall & continuous automatic feed machining

● Strong adaptability

- Have the ability of laser dry cutting & wet cutting & drilling & slotting and other fine machining technology
- Supporting equal diameter tube & diameter-varying tube & centripetal & vertical compound opening feature processing of plane instrument
- Can machine 304 & 316L & Ni-Ti & L605 etc. various alloy materials
- Can machine equal diameter tube & deformed tube & semi-finished tube & small format plane instrument
- Compatible with precision D-type chuck & ER series chuck & three-jaw chuck and other precision thin-walled tube clamping system
- Adopt the combined precision thin-walled tube shaft sleeve support system with self-adaptive shape tolerance variation
- Provide the matching scheme of precision thin-walled tube continuous automatic feed machining & automatic loading and unloading
- 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
- Provide the optional function of machine vision system to real time online monitor the laser dynamic machining process
- The software and hardware functions match flexibly, support personalized function configuration & intelligent production management
- Support forward innovative design from component level to system level
- Open type control & laser micromachining software system is easy to operate & intuitive interface

● Technical certification

- CE
- ISO9001
- ISO13485

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Do what you say and keep your promise



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