ESUNTEK

上海伊陽機械有限公司

SHANGHAI ESUNTEK MACHINERY CO.,LTD.



HIGH PRECISION WIRE CUT EDM MANUFATURING EXPERTS

ESUNTEK 伊陽

上海伊陽機械有限公司

SHANGHAI ESUNTEK MACHINERY CO.,LTD.

The Headquarters In Shanghai

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V 2018.12



01 Company Profile

Shanghai ESUNTEK Machinery Co., Ltd. Simply called “ESUNTEK”, was established in 2002. Today, ESUNTEK has developed into a high-tech industry group with continuous innovation capability, composed by two bases respectively in Shanghai responsible for sales and financial , Nantong responsible for production and R&D. Adhering to the enterprise spirit of Innovating forever, Quality for success, ESUNTEK independently developed her main products of Wire EDM Cut Machine.

ESUNTEK is one of strong and leading manufactures in the Wire EDM Cut Machine. Her machines led to a rapid development of Wire EDM industry in China.

ESUNTEK’s machine has been widely run in a lot of famous company in China, for example GM SHANGHAI, LINGYUN INDUSTRY CO., LTD, XIZI UHC, SEIKI (NANTONG) CO., LTD…etc.

ESUNTEK’S machine have been sold not only in China, but also exported to numbers of country in the world, such as USA, ITALY, RUSSIA, BRAZIL, INDIA, EGYPT, TAILAND, VITANAM, INDONESIA…etc.

ESUNTEK has many advanced production testing equipments and labs, getting the certification of ISO9001, CE..etc.

ESUNTEK Company sincerely cooperates with friends from all over the world with exquisite technology and perfect after-sales service. Cooperation, work together.

02 Company Culture

Esuntek Machinery has a team that is full of vigor and vitality. Esuntek Culture takes the concept innovation as the guide, strategic innovation as the guarantee, and market innovation as the goal.

Our R&D team is guided by customer needs and constantly provides new products to our customers.

Our application team, technology-oriented, provides advanced technology that adds value to customers beyond the product itself.

Our service team aims to improve our customers and provide efficient and perfect services.







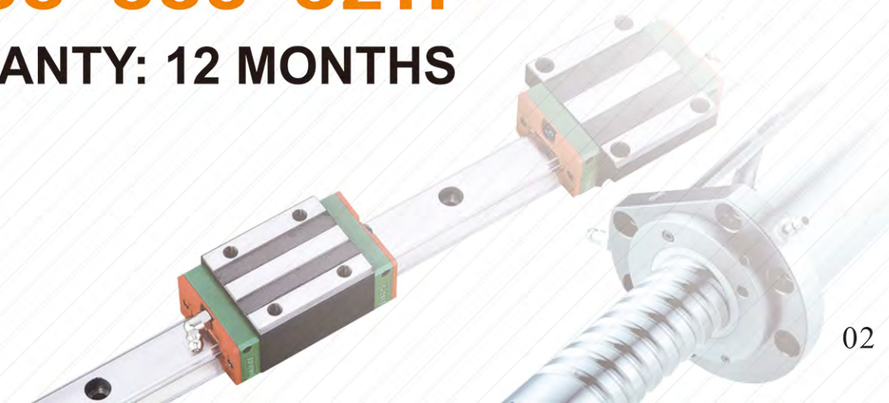
03 Service

TECHNICAL SUPPORT

RESPONSE TIME:24 HOURS

TEL: 400-005-0211

WANRRANTY: 12 MONTHS



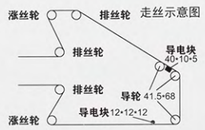




Two way constant tension adjustment mechanism

High-rigidity casting design, using finite element analysis to design the machine body, with the best column design to carry the column, reduce the deformation caused by the stress of the casting, in order to achieve the basic elements of high precision.

★The high-strength column design greatly reduces the vibration amplitude of the upper head.
★The responsive AC servo motor system guarantees cutting accuracy.
★The oil-water separation design system of the whole machine tool makes the machine more clean and environmentally friendly.



Two way constant tension adjustment mechanism diagram

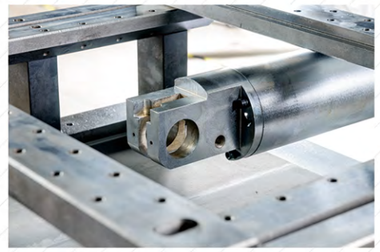


04 Mechanical Structure

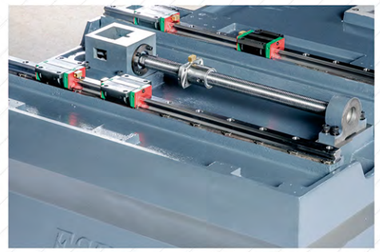


▲ A rugged cast iron design is the foundation of high precision.

Get rid of the traditional design concept of the lower arm, using a circular cross section to improve the vibration resistance of the lower head. ▶



The large diameter ball screw and ultra-precision linear slide improve the motion accuracy effectively. The sunken support design distributes the support force evenly to the entire casting, reducing the deformation of the machine. ▶



Adopt laser calibration instrument to ensure machine's movement accuracy. ▶



05 Control Info From ESUNTEK

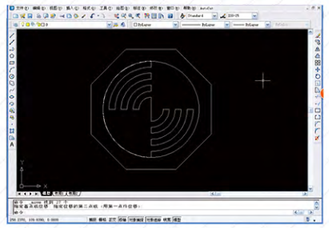
- PC divice: Industrial PC
- CPU: Inter G550 MCU (Dual Core High Speed Process)
- Display device: Industrial PC display
- Operate Interface: Windows XP system, Keyboard, Mouse
- Input Interface: LAN USB driver
- Memory capacity: SSD (Solid State Disk)
- Min command unit: 0.001mm
- Max programmable dimension: ±9999.9999mm
- Unit:Metric/Inch switch able

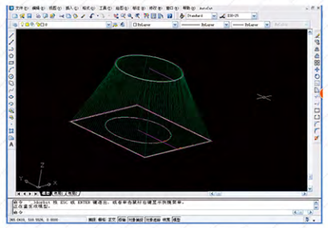


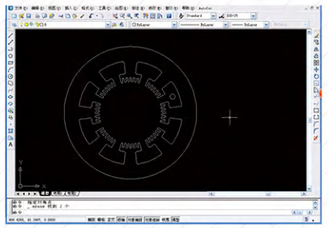


06 Operation Control

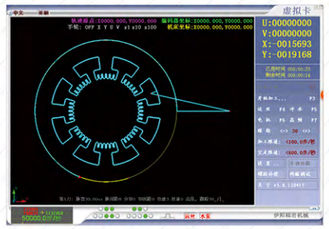
Graphics Rendering

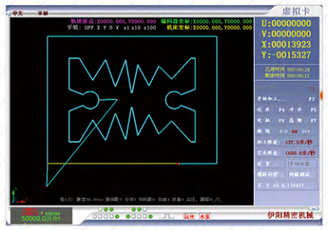


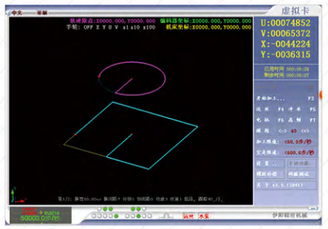




Operation Control





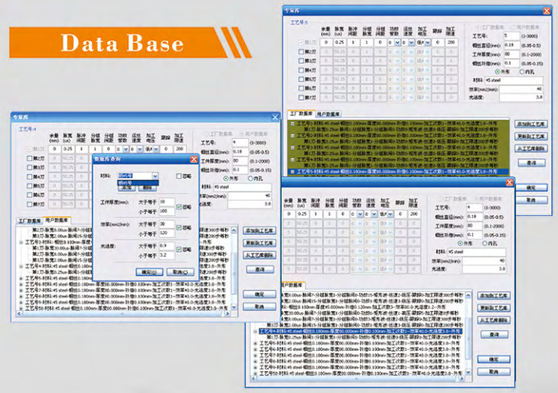




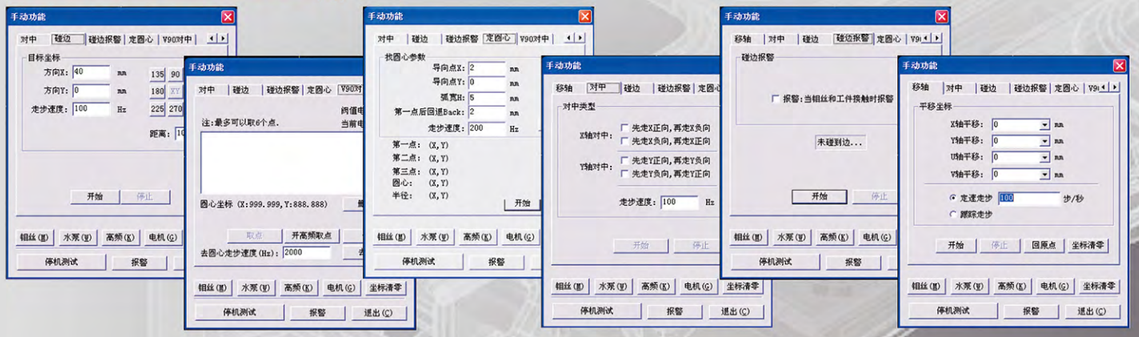
Post Processing



Data Base

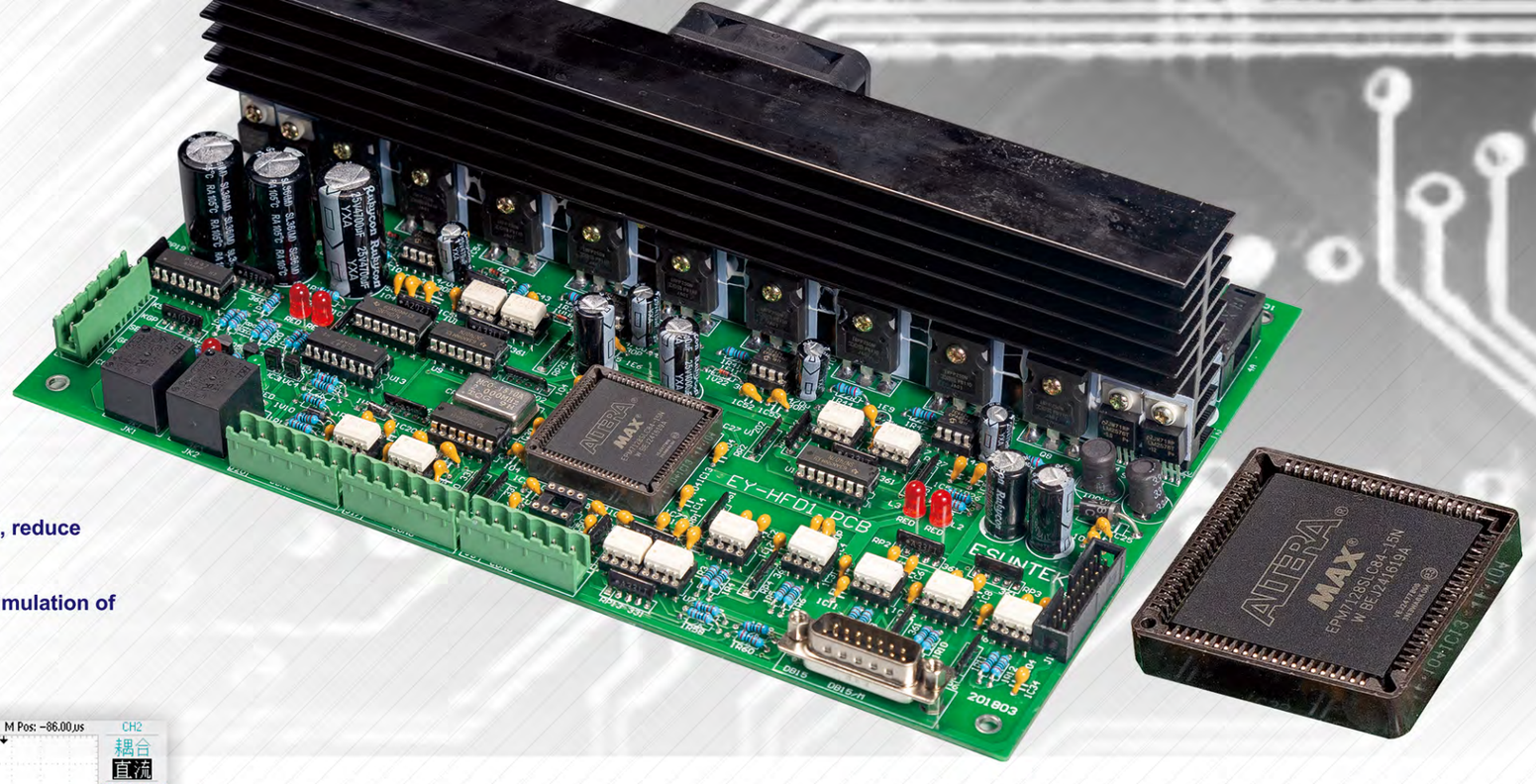


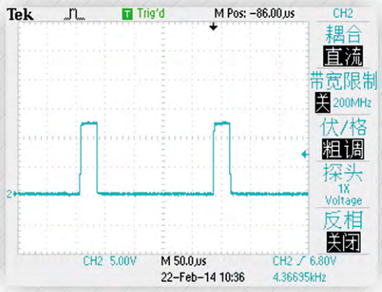
Measurement Function



07 Pulse Power

- High frequency pulse power supply with active crystal, significantly improves the stability and discharging performance.
- High frequency pulse power supply circuits use modular design method, easily upgrade the software.
- Multiloop power supply mode to meet different processing requirements.
- Processing parameters have several times binning range than common pulse power, which expand and refine adjustable range.
- With the protection function of cutting the short circuit designed in circuit, reduce the probability of short circuit in the process and improve cutting speed.
- The advance welding technology used in circuit, through the static test, simulation of dynamic monitoring, significantly reducing the failure rate.



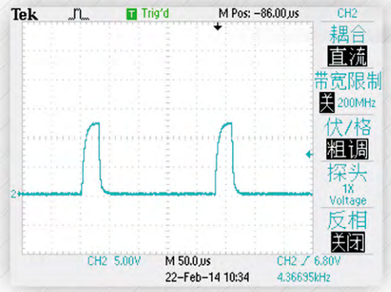


Characteristics of the pulse waveform of the ESUNTEK wire cutting machines:

※It has low distortion of high frequency discharge wave,reduce protection electrolysis during discharge and the cutting surface would have thinner corrosion layer.

※With multiple wavy pattern to expand using scope.

※Intelligent high-frequency power supply can generate waveforms with different voltage.

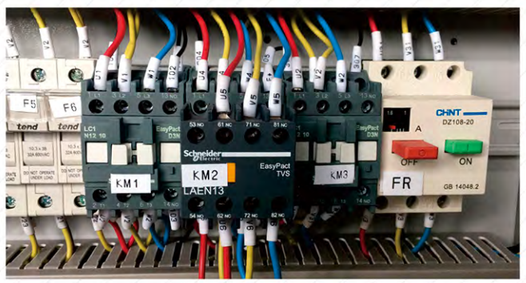


Characteristics of the pulse waveform of the machine found from others company:

※Since the decline side of discharge waveform has tailing phenomenon,the electric corrosion layer of the cutting surface will be deeper than ours.

※Interference waveform between the pulse will affect the cutting stability.

※Effective cutting can't be realized under smaller pulse width.



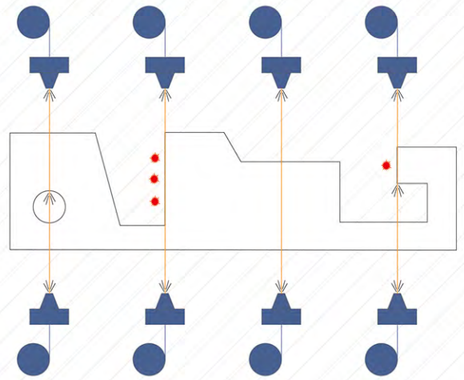
Ensure machine running steady for a long time with Schneider Contactor



Circuit board detector

08 Adaptive Control

- High frequency power supply adopt nanosecond high speed chips.
- Many high speed I/O interface in chips will provide abundant control resources for peripheral circuit.
- To improve the interference immunity of the nanosecond pulse width and substantial increase the response rate at the same time.
- The pulse waveform generated by chips meets the design requirement without distortion completely.



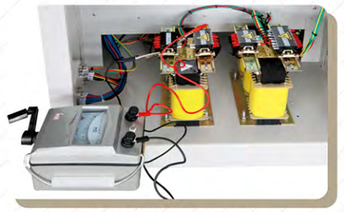
The high speed intelligent pulse power supply adapts all difference thickness of workpiece to work as normal and without break of wire.



Detect the circuit of electric control cabinet



Precision waveform tester

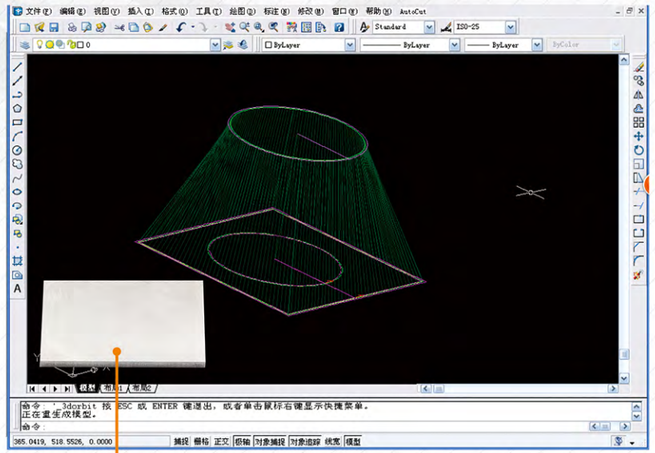


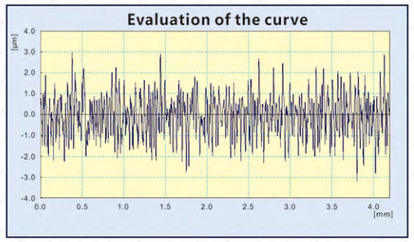
Insulation resistance detecting electrical components

09 Super Finish Circuit

Adopt high frequency power supply to make surface finish less than 0.8um after 1 cut and 3 skims.

With function of anti-electrolysis, significantly improve mold life time.

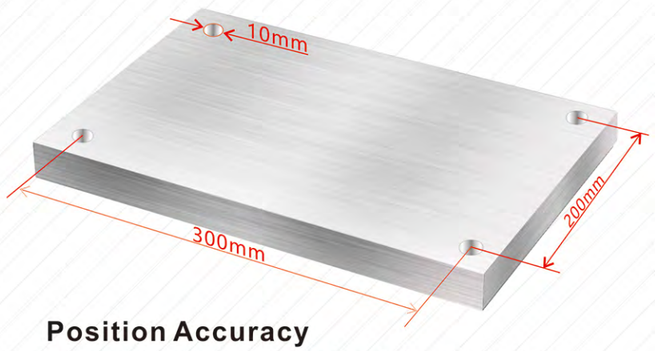




The name of workpiece	Sample	Surveyor	Mitutoyo
Measuring instruments	SurfTest SJ-210	Comments	Ver2.00
Standards	ISO 1997	Evaluation length	4.2mm
Curve	R	Cutoff value	0.8mm
λs	2.5μm	Filtering	GAUSS
Ra	0.740 μm OK		
Rq	0.928 μm		
Rz	6.216 μm		

4'cut	3'cut	2'cut	1'cut
Ra0.75~0.85μm	Ra0.95~1.2μm	Ra1.3~2.8μm	Ra3.0~4.0μm

Material of workpiece :Cr12
Thickness of workpiece:30mm



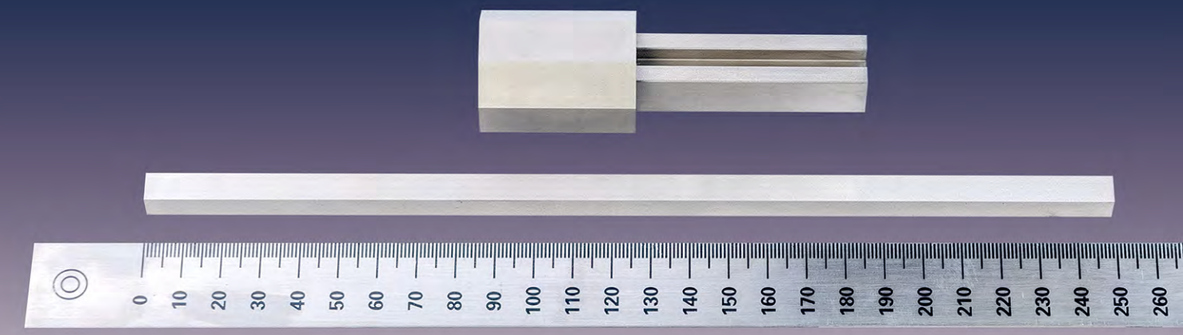
Position Accuracy

Material of electrode wire: Molybdenum wire with diameter 0.18mm
Material of workpiece: Cr 12
Position accuracy: ±5um



Dimensional Accuracy

Material of workpiece: Cr 12
Thickness of workpiece: 40 mm
Contour accuracy: ±5 um



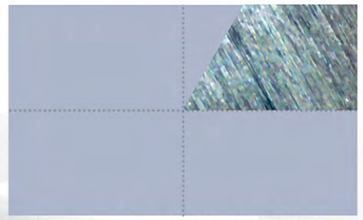


10 Corner Control Function

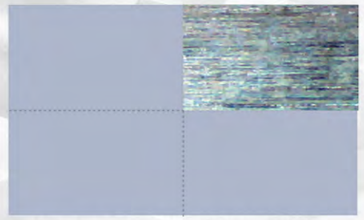
With variety of strategic model, corner control function can reduce cornered "washout", which ensures machining accuracy and molding compatibility, hence effectively improves molding machining quality and improve cutting speed.



Corner angle 30°/Zoom-in x80



Corner angle 60°/Zoom-in x80



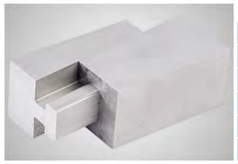
Corner angle 90°/Zoom-in x80



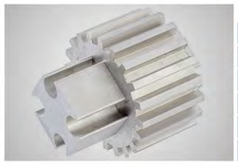
Material	Cr12
Roughness	Ra1.0μm
Accuracy	±0.005mm
No.of cut	1 cut 2 skim
Thickness	Thickness 40mm
Tolerance	Unilateral tolerances0.02mm



Material	Cr12
Roughness	Ra0.9μm
Accuracy	±0.005mm
No.of cut	1 cut 2 skim
Thickness	Thickness 40mm
Tolerance	Unilateral tolerances0.008mm



Material	Cr12
Roughness	Ra1.2μm
Accuracy	±0.01mm
No.of cut	1 cut 2 skim
Thickness	Thickness 40mm
Tolerance	Unilateral tolerances0.015mm



Material	Cr12
Roughness	Ra1.0μm
Accuracy	±0.005mm
No.of cut	1 cut 2 skim
Thickness	Thickness 40mm
Tolerance	Unilateral tolerances0.01mm



Material	Cr12
Roughness	Ra0.9μm
Accuracy	±0.005mm
No.of cut	1 cut 2 skim
Thickness	Thickness 40mm
Tolerance	Unilateral tolerances0.005mm



EFH-43B (Stepper Motor Type)

Fully intelligent:
man-machine dialogue, as long as the corresponding data is input, the system automatically generates and the easy operation.

Industrial control system:
Industrial-grade control system makes the overall operation of the machine more stable.

Environmental protection system:
Closed environmental protection water tank, easy operation and prevent the splash of working fluid.

Filter improvement:
Latest designed multi-layer single-pump filter tank, capacity upgrade, greatly extending the working fluid life.

11 Specifications

Stepper Motor Type

Model	Unit	EFH43B	EFH54B	EFH65B
Dimensions of work slot	mm	900*650	1020*700	1100*840
Max. workpiece size	mm	760*560*300	880*610*300	980*720*300
Max. weight of workpiece	Kg	500	700	900
Size of work table	mm	660*505	780*555	880*681
Table travel of X,Y,Z axis	mm	400*350*250	500*400*250	600*500*250
U&V axis travel	mm	40*40	40*40	40*40
Max.Cutting thickness of workpiece	mm	300	300	300
Supply power	KVA	3	3.5	3.5
Machine dimensions	mm	1250*2050*2100	1500*2150*2100	1650*2250*2100
Machine weight	Kg	2100	2600	3000
Water tank capacity	L	144	144	144

Common Parameters

Item	Unit	Description
Max.taper angle	°/mm	±3°/80 (option±6°/80)
Max. Cutting speed	mm²/min	≥200
Roughness	μm	≤1.0 (1cut 2 skim, Cr12, H=40)
Input power supply	AC/HZ	AC3-380V/50HZ Three phase Five wire
Repeatedly cutting accuracy	mm	≤±0.005 (Octagonal with subtense 14, Cr12, H=40)
Electrode wire diameter range	mm	φ0.13-φ0.2(option 0.06)

B Series Standard Accessories

1.DRO of Axis X,Y
2.Display of DRO
3.Z Axis motor driven
4.Manual lubrication system
5.Two way constant tension adjustment mechanism
6.Multilayer single pump filter water tank
7.Diamond guider
8.Vertical fixture
9.Pinch-wheel
10.Demolition tools

B Series optional accessories

1.Multilayer double pump filter water tank
2.Automatic lubrication system
3.Environment friendly enclosed sheet metal
4.Multi beam work table
5.Aluminum processing function
6.Thin molybdenum wire cutting function



Diamond guider



DRO display



Multiple filter single pump water tank





EFH-43S (Servo Motor Type)

High precision:
Imported high-grade linear guides and ball screws are used to match the stable bed design of Esuntek Machine.

High efficiency:
Adopt he green safety Esuntek design discharge pulse power supply to reduce the loss of molybdenum wire and improve efficiency significantly.

Servo control:
Adopt imported AC servo control system to realize fast and smooth movement of machine.

Manual control unit:
Controlled by the convenient manual control box, Axis of X,Y are automatically moved without manual adjust.

12 Specifications

Servo Motor Type

Model	Unit	EFH43S	EFH54S	EFH65S	EFH86S	EFH1080S	EFH1210S
Dimensions of work slot	mm	900*650	1020*700	1100*840	1400*900	1460*1140	1660*1340
Max. workpiece size	mm	760*560	880*610	980*720	1100*840	1360*1080	1560*1270
Max. weight of workpiece	Kg	500	700	900	1200	2000	3500
Size of work table	mm	660*505	780*555	880*681	1100*760	1250*1015	1450*1215
Table travel of X,Y,Z axis	mm	400*350*250	500*400*250	600*500*250	800*600*250	1000*800	1200*1000
U&V axis travel	mm	40*40	40*40	40*40	40*40	40*40	40*40
Max.Cutting thickness of workpiece	mm	300 (option400)	300 (option400)	300 (option400)	300 (option400)	500 (option800)	500 (option800)
Supply power	KVA	3	3.5	3.5	3.5	4	4
Machine dimensions	mm	1100*1700*2100	1400*1800*2100	1750*2150*2100	2100*2300*2200		
Machine weight	Kg	2100	2600	3000	3600	6000	7000
Water tank capacity	L	180	180	180	180	180	180

Common Parameters

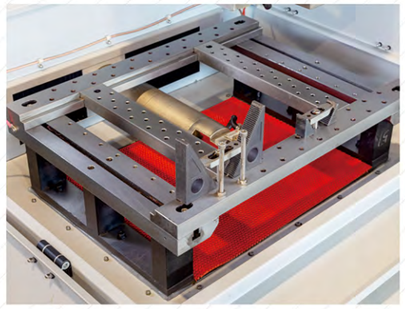
Item	Unit	Description
Max.taper angle	°/mm	±3°/80 (option±6°/80)
Max. Cutting speed	mm²/min	≥200
Roughness	μm	≤1.0 (1cut 2 skim, Cr12, H=40)
Input power supply	AC/HZ	AC3-380V/50HZ Three phase Four wire
Repeatedly cutting accuracy	mm	≤±0.005 (Octagonal with subtense 14, Cr12, H=40)
Electrode wire diameter range	mm	φ0.13-φ0.2(option 0.06)

S Series Standard Accessories

1.Z Axis motor driven
2.Automatic lubrication system
3.Two way constant tension adjustment mechanism
4.Environment friendly enclosed sheet metal
5.Multilayer double pump filter water tank
6.Diamond guider
7.Multi-beam work table
8.Servo motor control
9.Vertical fixture
10.Pinch-wheel
11.Demolition tools

S Series optional accessories

1. Aluminum processing function
2. Thin molybdenum wire cutting function
3.DRO for Axis X,Y
4.DRO display


Multi-beam worktable


Auto lubrication system


Multiple double pump water tank