

CNC Power Supply Device

CNC Controller | Windows10 System + DSP chip performs multiplexing

Maximum Current	15A
Pulse Control Power Supply Unit	Optimal Frequency Control System
Surface Roughness	Ra ≤ 0.3μm
RAM	16GB
Storage Device	256GB SSD
Input Interface	RJ-45 Network Access / Keyboard and Mouse / USB Flash Drive
Display Device	21.5-inch touch screen
Keyboard Layout	Standard Keyboard
Coordinate Control System	Incremental/Absolute
Max Input	9999.9999
User Cutting Condition Parameters	1000 sets of parameter control
Maximum offset Value	1000 sets
Maximum number of rows read	N00000 to N99999
Coordinates	7

Drive System | Flat linear motor(XY), Servo Drive(UVZ)

Number of Simultaneously Driven Axes	7-Axis 6-Linkage Control
Minimum Input Unit	0.0001mm
Rapid Traverse Speed	max.1500.0 mm/min
Positioning Drive System	Linear Scale Closed-loop Control System
Axis Compensation	XYZUV Axes/Backlash Compensation/Pitch Compensation
Program Editor	Background Editor, Program Simulation + Simulation in Synchronization during Processing
Graphical Display	XY Plane and UV Plane and 3D Simulation display
Network Function	WIFI and Wireless Network Transmission
Maximum Power Consumption	13KW
Maximum Power Consumption	250mm ² /min0.25 Wire
Media Type	Purified Water
Standard water resistance	45-50KΩ
Filter Paper	5μ

ENVIRONMENTAL REQUIREMENTS

- 01 Ambient Temperature and Humidity**
Recommended Constant Temperature: 25±1° C;
Humidity: Below 75% RH
- 02 Grounding Construction**
To prevent electromagnetic interference and leakage, please follow the Class III construction as specified in the electrical equipment standards (with a grounding resistance of less than 10Ω)
- 03 Air Pressure Source Requirements**
Supply air pressure above 0.5Mpa (through air cleaning, unit part) Supply flow rate above 50L/min (ANR)

Set Conditions | AC 380V ±10%; 3-phase 50/60Hz ±1Hz;
Input Power Supply | Under stable mains power (in line with local electricity regulations)

- 04 Environment settings**
 - Avoid placing the machine near vibration sources and impact sources that affect the accuracy of the machine
 - Avoid placing the machine near heat treatment or electroplating plants, as the controller may be affected by corrosion
 - Avoid placing the machine in a dusty environment, as it may affect the machine's functionality
 - When positioning the machine, attention should be paid to the moving range of the machine during normal operation and the space required for maintenance and repair
 - The foundation is stable, and the horizontal error is within 20μm
 - Qualified machine tool rail grease. (Recommended: Mobil Lux EPO)

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Official Website

PRECISION WIRE CUT DISCHARGE MACHINE

Linear motor drive



SPECIFIC COMPONENTS

DS PLUS Series

Hybrid High-Rigidity Structure

- High-rigidity composite fuselage design, X-axis moving table and Y-axis moving column type, design, X-axis base support of the worktable, effectively reducing the deformation of the machine and increasing the maximum workpiece load of 1000kg.
- The X and Y axes move independently without cumulative error, effectively improving the accuracy and stability of the machine.
- The minimum deformation is maintained by finite element analysis (FEA), and the two-way reproducibility is achieved by five consecutive laser verification.



- With the best resolution of 0.1 μm full closed-loop servo control, the non-contact transmission makes the machine have the characteristics of no backlash, which can ensure long-term operation accuracy.
- The linear motor has a high sensitivity response, which can improve the processing speed by 8 to 10%. The linear motor has an anti-collision mechanism to greatly improve the operation safety.

Linear Motor



Linear Scales

- With FAGOR/GIVI "high-precision linear scales", the nano-resolution response is stable and fast, ensuring the cutting accuracy of the machine and the processing efficiency of the mold

DS870/DS1280

Moving column design

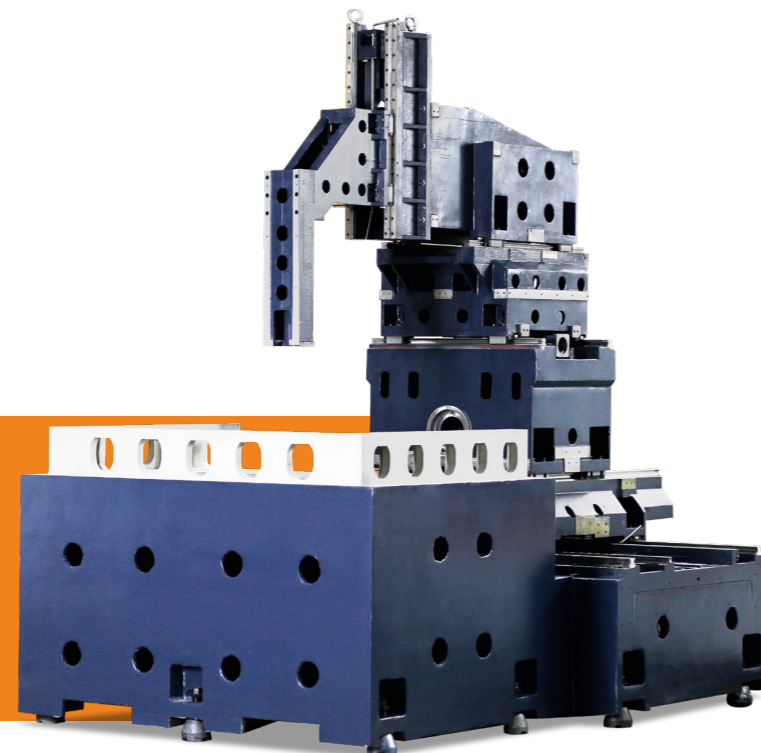
1:1 Design of the Table and Base
For large workpiece processing, it can bear up to 5 tons of workpieces

• Ultra-high Z-axis height

Super Z-axis height design, standard specification 500mm, optional up to 600mm

• Fully submerged type

It can be fully immersed in water during processing to ensure processing quality



MS Series

T-shaped base design

- After Finite Element Analysis, the C-type structure was designed to optimize the mechanical body, integrating the characteristics of honeycomb structure and high rigidity casting, which has the advantages of increased working load and reduced machine deformation.
- The MS series base casting adopts a T-shaped design structure with a long stroke. The X axis is placed on the base to support the Y axis with a short stroke. No matter where the table is located, it can be supported completely and stably.



• HSPK Specialized Power Supply for Wire-cut EDM

Specialized wire-cut EDM power supply customized for aluminum profiles and wire drawing dies, redefining the industry's precision standards.

Adopting the highly efficient 1-cut + 1-trim process, surface roughness is stably controlled at $Ra \leq 0.7\mu m$, delivering an ultra-fine finish with minimal heat-affected layer and no scoring.

It significantly reduces benchwork polishing, shortens production cycles, and lowers labor costs.

High-precision, smooth cavities reduce drawing resistance, minimize wear, extend die life, and enhance the brightness, smoothness and premium quality of aluminum profile surfaces.

Through in-depth overall optimization, higher precision, surface finish, stability and efficiency are fully achieved.



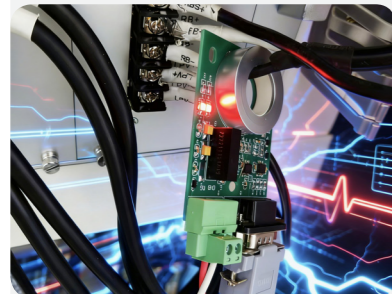
• Tracking Sampling + Circuit Detection Loop Control

Traditional wire-cut EDM suffers from unstable discharge, large current fluctuations, and is prone to wire breakage, electrode damage, uneven surface roughness, and low efficiency. The new generation of HSPK machines is equipped with real-time tracking sampling + current detection closed-loop system, solving machining instability at the source.

The system performs high-frequency sampling of discharge signals and adjusts parameters in real time for more uniform and stable discharge.

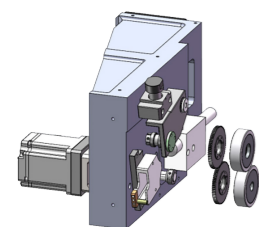
- More stable discharge and uniform current, greatly reducing wire breakage rate
 - Consistent precision during long-term machining, higher reliability
 - Better surface quality, reduced streaks and ripples
 - No frequent adjustment required, longer effective machining time
 - Stable machining for thin materials, cemented carbide, and high-precision molds
- Through intelligent detection for stable machining and real-time control for improved efficiency, we truly achieve less wire breakage, less labor, higher output, and superior quality.

Providing a more stable, efficient, and energy-saving machining solution for precision mold manufacturing.

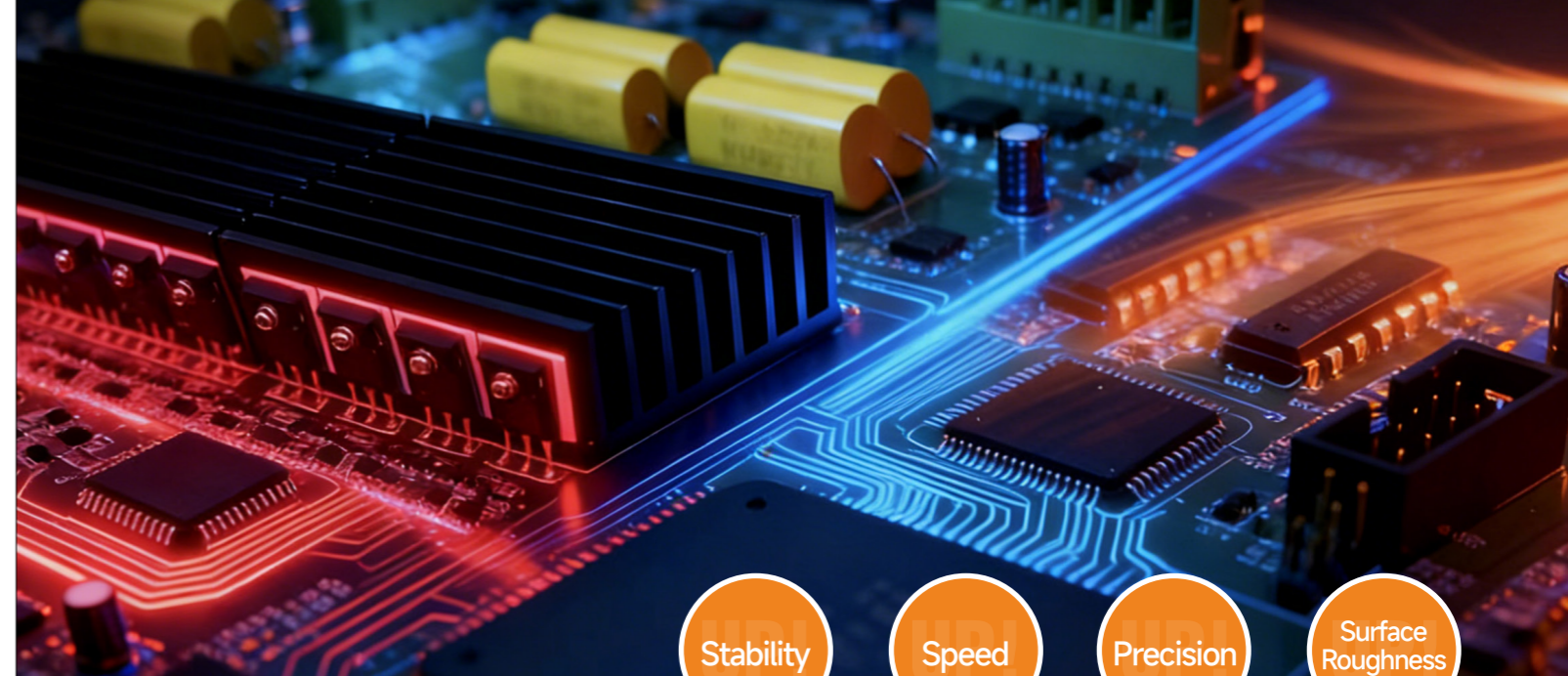
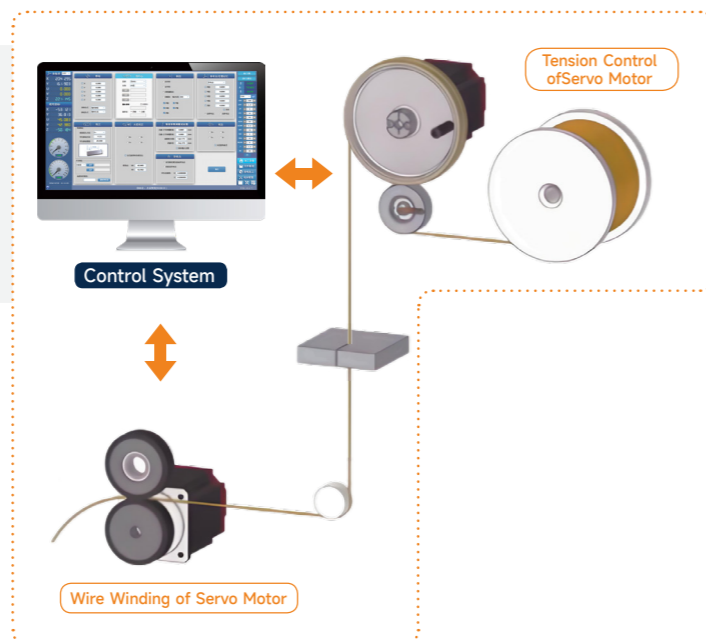


• Dual Servo Wire Feeding System

The dual servo wire feeding system with servo motors effectively suppresses electrode wire vibration, accurately controls the electrode wire tension, and achieves high-precision machining.



The maintenance time for the wire unloading section has been reduced by 50% compared to previous levels.



HV Master Stable Discharge Module

- The HV Master PWM control system enhances the discharge power supply for greater intelligence and stable output, greatly reducing the risk of wire breakage.
- It ensures stable machining speed for molds and improves cutting accuracy. Optimal Machining Efficiency. The R&D team has optimized complex power and signal cables, with control logic integrated into an FPGA chip, reducing power transmission loss, improving conductivity, and achieving high-speed machining.
- New Generation Finishing Power Supply: Achieves synergy between high efficiency and high precision, upgrading overall machining performance.
- All New PLUS is equipped with a new-generation high-frequency finishing power supply.
- By optimizing pulse discharge parameters and energy control algorithms, it achieves a dual breakthrough of high-efficiency machining + high-precision surface quality.



• HSPK Technology · Specialized for 0.2mm Copper Wire, A Leap in Efficiency!

Achieve material cost comparable to 0.25mm standard copper wire with the 0.2mm fine wire diameter, and match machining efficiency of 130 mm²/min. Fine wire · High precision · Cost reduction · Smaller corners Smaller kerf, higher mold accuracy. No compromise on speed, no reduction in productivity. Finer, faster. More precise, stronger.

• Wire Consumption Compensation

During the machining of thick workpieces, prolonged discharge times result in a gradual reduction of the wire diameter, causing a tapering effect (narrower at the top and wider at the bottom). This phenomenon can be mitigated through the wire consumption compensation function, which also enables a reduction in the wire feed rate, thereby optimizing copper wire usage and reducing overall consumption costs.

• 3D Laser pitch compensated Calibration Technology

The actual positioning errors of the machine are measured in X Y Z Direction. Uses the API 3D laser measurement equipment to detect the 90-degree error values between two axes during linear motion, ensuring the machine's optimal precision.

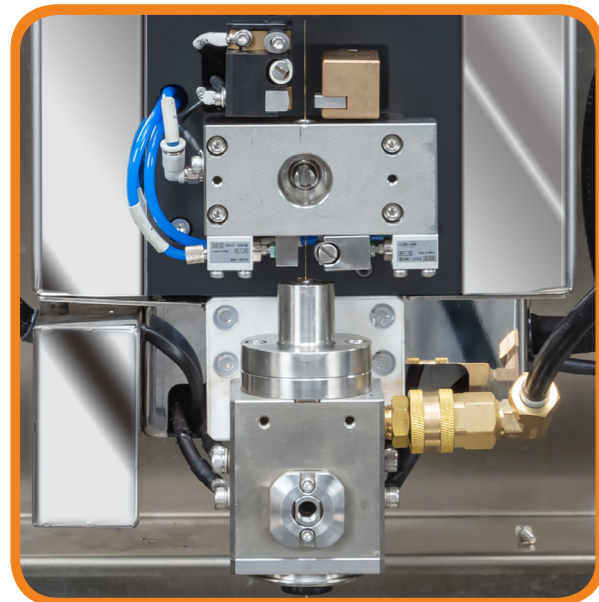
• High quality waste line elimination device

The waste line elimination device of HSPK automatic threading system has significant advantages. Compared with other brands on the market that use robotic arms to remove waste lines, it is not limited by the length of broken lines, and aligns. It can rely on the self-developed waste line removal device to use the exclusive blowing method to arrange the waste line to the front waste line box. Whether it is ordinary length waste line or super long waste line generated by processing thick workpieces, it can be effectively eliminated, thus greatly improving the automation function of the machine and facilitating subsequent threading.



Simplified mechanism design, high-reliability automatic threading technology

- AC servo tension wheel. Provide stable wire tension control during processing; provide forward and reverse wire feeding control during automatic threading, and precisely control the threading length.
- Under different wire diameter conditions, the discharge wire cutting and straightening power supply system is applied to obtain the best straightness and sharp state of the copper wire, which can stably complete the threading process.
- High-pressure air and electronic roller waste line removal device can stably remove waste line regardless of the length of the waste line.



• Z-axis torque anti-collision function

The anti-collision function relies on the precision torque control algorithm to stay alert at all times during the processing process. It can detect abnormal torque changes at the moment of Z-axis collision, quickly trigger the anti-collision mechanism, and use accurate torque control to adjust the Z-axis motion state in time to effectively avoid collisions and protect key components of the equipment from damage.



• INDEPENDENTLY DEVELOPED CONTROLLER

With multiple functions

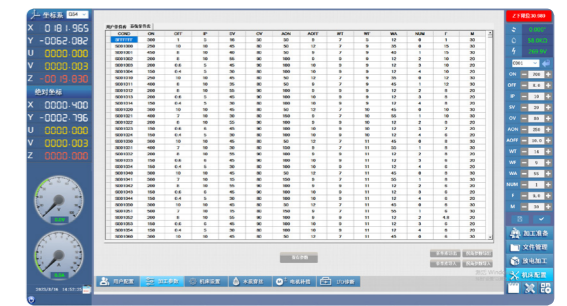
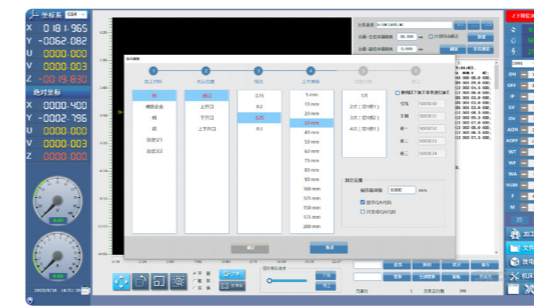


Function Introduction

HSPK's main core competitiveness lies in its 100% self-developed controller, which is easy to operate. DSP has high-speed data processing and accurate algorithm capabilities, which can collect and process motion signals in real time and accurately control complex trajectories. Its R & D team has mastered key technologies and can provide customers with efficient and low-cost after-sales services.

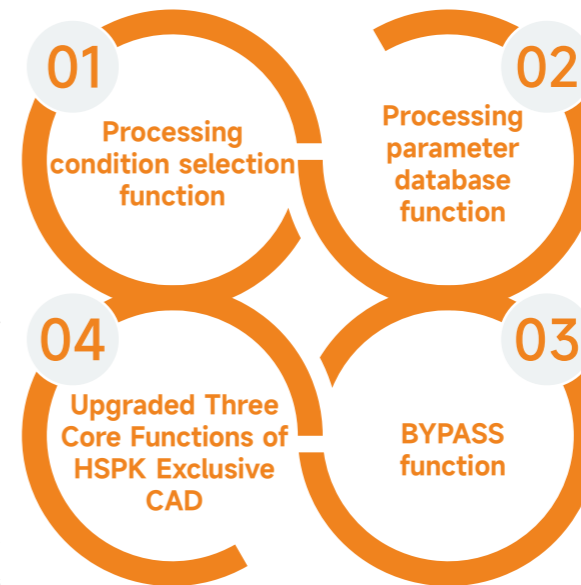
Functional Features

With processing conditions, optional functions of parameter database, high-efficiency CPU drawing speed, including BYPASS function, it can improve the degree of automation and processing accuracy, and realize corner arc control.



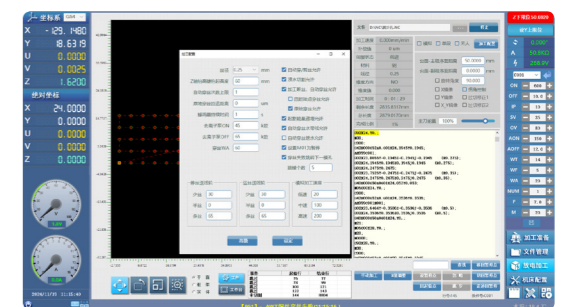
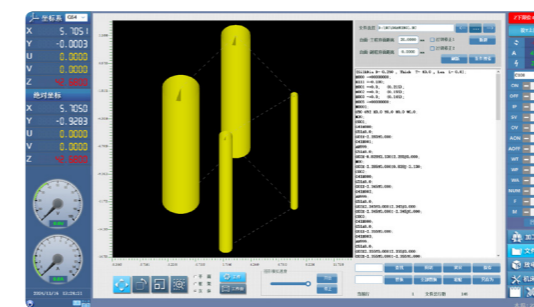
Select the electrode wire diameter, workpiece material, workpiece thickness and other data, the processing parameters are automatically found and transmitted, and the software program automatically generates two-dimensional graphics.

- Intelligent Corner Cleaning Precisely processes sharp corners and special-shaped holes, reduces wire consumption, and improves mold assembly accuracy.
- Flexible Arc Offset & Equal Expansion Ensures smooth and error-free operation, adapts to various machining compensation requirements, and efficiently optimizes arc profiles.
- Efficient Parameter Search with Built-in Processing Library Quickly matches parameters according to material, thickness and wire diameter, reduces trial-and-error costs, and improves yield rate.



Users can write and save parameters in the condition library of processing parameters, import and export the condition library and corner control parameter files, and also check the customer condition in the condition search of file management.

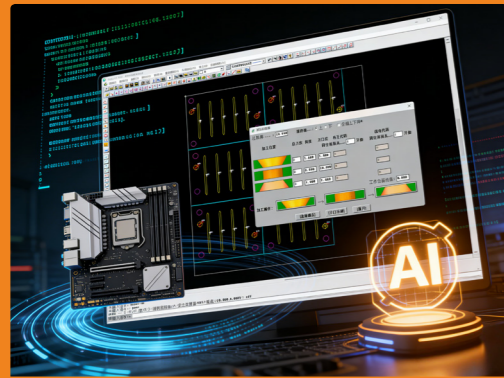
When the porous machining is interrupted, the controller records the die hole information and automatically jumps to the next die hole to continue processing. After completing the last hole, the unfinished die hole can be selected from the recording and jumped to the starting position to continue processing.





Built-in CAD/CAM Programming System

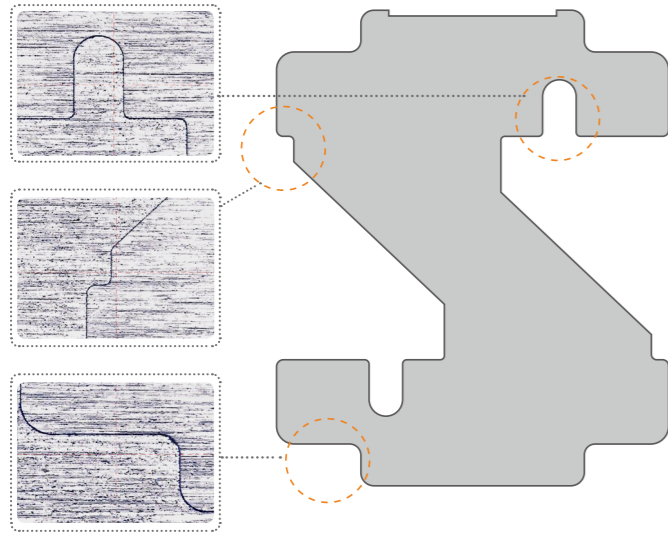
Efficient Data Transfer & Wide Compatibility Integrated CAD/CAM drawing and programming software, no additional configuration required. Equipped with NCEDIT program transmission system, enabling direct program transfer between PC and machine, eliminating the hassle of USB copying, reducing hardware costs, and avoiding risks of program loss or errors. Supports post-processing files for various machine types to meet diverse production requirements.



Full-Range Precision Machining Functions

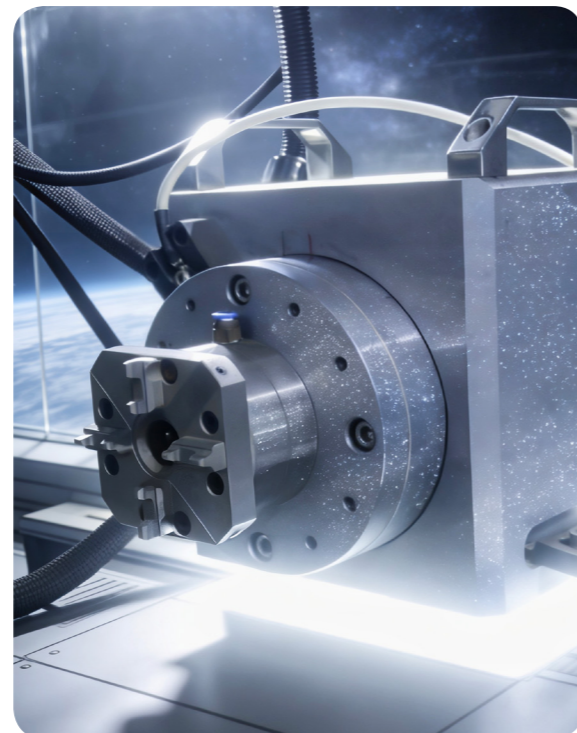
Cost Reduction, Efficiency Improvement & Intelligent Precision Manufacturing Supports precision processes such as upper-lower taper cutting, chipless machining, one-key programming for double-edged dies of wire-drawing dies, and partial taper machining. The CAD module offers over 10 types of corner clearing and corner rounding functions, combined with exclusive wire-cut functions such as automatic wire threading.

For taper die and punch machining, the machining path and parameters can be precisely set, and the generated program directly drives the machine for high-precision machining, reducing material waste from trial cutting, and improving production efficiency and machining quality.



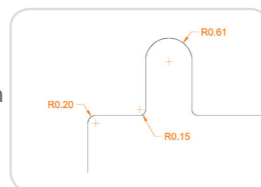
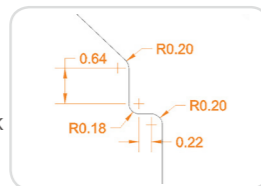
7-Axis 6-Linkage Control

- Breaking through the processing bottleneck of complex workpieces and ensuring high-precision manufacturing.
- The All DS series is equipped with a new generation of dedicated controllers, supporting the extension of rotary axes W and B, realizing 7-axis 6-linkage control with outstanding technical advantages.



Automation and Machining Accuracy Improvement / Corner Arc Control

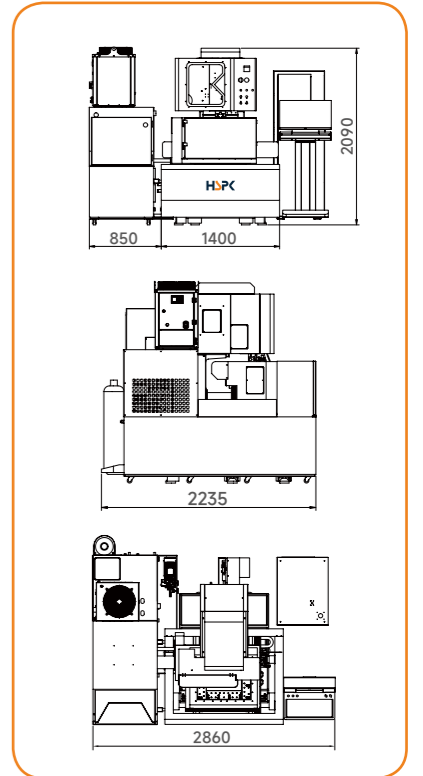
- Arc Path Offset Compensation Function
- Corner Control Function
- Recovery Function after Wire Break
- Multiple Single-Step skip Function
- According to different processing conditions, wire diameter, angle, workpiece, thickness, the control system automatically provides the best processing efficiency and high precision.



MS43

Wire Cut EDM

CNC newly developed control system



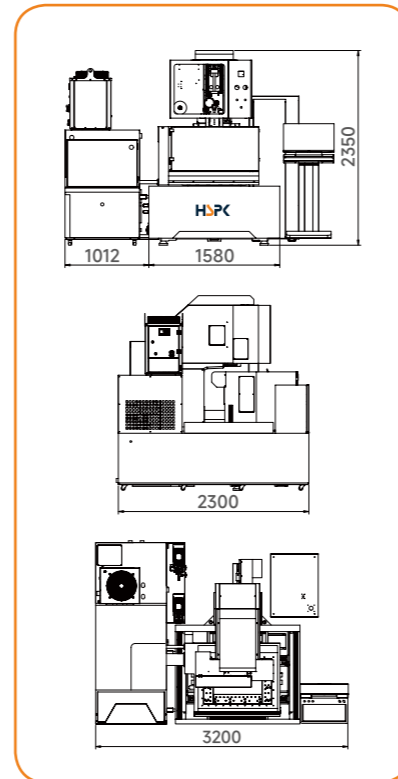
Equipment Parameters

Model	MS43
X-Y axis travel	400×300mm
U-V axis travel	100×100mm
Z axis travel	220mm(Machining height by Fully submerged 190mm)
Maximum machining workpiece size	780mm×650mm×210mm
Maximum workpiece load weight	400KG
The height of the workbench from the ground	950-1000mm
Programmable axis count	5 axis (X,Y,Z,U,V)
Worktable size	630*480mm
Maximum dry run speed	1500.0mm/min
Wire diameter	0.15~0.3mm
Maximum load of wire spool	10KG
Maximum wire tension	0.5~2.4KG
Maximum wire winding speed	18m/min
Maximum machining angle of taper	±15° /80mm wide-angle wire guide is required
Machine weight	2500kg
Mechanical dimensions	2860mmx2235mmx2090mm
Tank capacity	850L

MS64

Wire Cut EDM

CNC newly developed control system



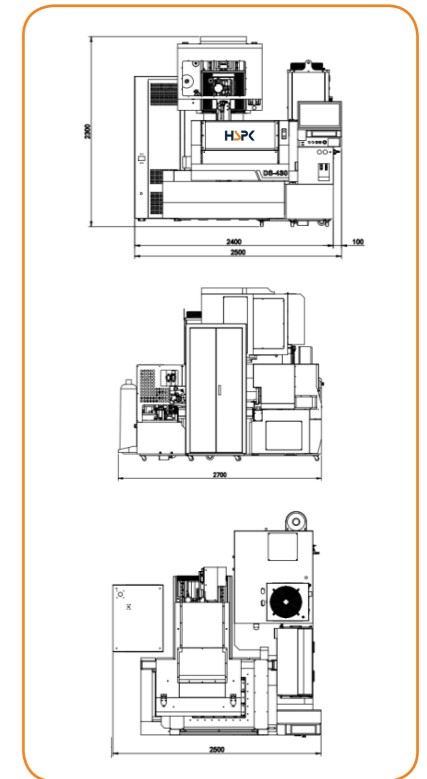
Equipment Parameters

Model	MS64
X-Y axis travel	600×400mm
U-V axis travel	100×100mm
Z axis travel	350mm(Machining height by Fully submerged 320mm)
Maximum machining workpiece size	1000x800mmx340mm
Maximum workpiece load weight	600KG
The height of the workbench from the ground	950-1000mm
Programmable axis count	5axis (X,Y,Z,U,V)
Worktable size	860*570mm
Maximum dry run speed	1500.0mm/min
Wire diameter	0.15~0.3mm
Maximum load of wire spool	10.0KG
Maximum wire tension	0.5~2.4KG
Maximum wire winding speed	18m/min
Maximum machining angle of taper	±15° /80mm wide-angle wire guide is required
Machine weight	3200kg
Mechanical dimensions	3200mmx2300mmx2350mm
Tank capacity	1100L

DS430 PLUS

Wire Cut EDM

CNC newly developed control system



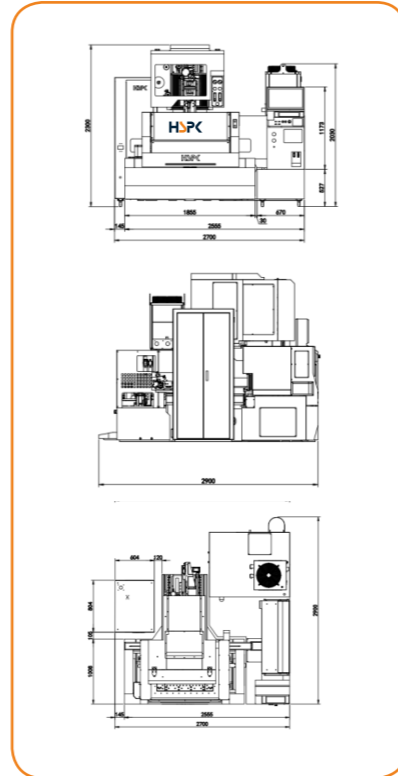
Equipment Parameters

Model	DS430 PLUS
X-Y axis travel	400x300mm
U-V axis travel	100x100mm
Z axis travel	250mm(Machining height by Fully submerged 220mm)
Maximum machining workpiece size	840x750mmx240mm
Maximum workpiece load weight	600KG
The height of the workbench from the ground	900~950 mm
Programmable axis count	7axis (X,Y,Z,U,V,W,B)
Worktable size	630*480mm
Maximum dry run speed	1500.0mm/min
Wire diameter	0.15 - 0.3mm
Maximum load of wire spool	10.0kg
Maximum wire tension	0.5 ~ 2.4kg
Maximum wire winding speed	18m/min
Maximum machining angle of taper	±15° /80mm wide-angle wire guide is required
Machine weight	3400 kg
Mechanical dimensions	2700mm*2500mm*2300mm
Tank capacity	850L

DS640 PLUS

Wire Cut EDM

CNC newly developed control system



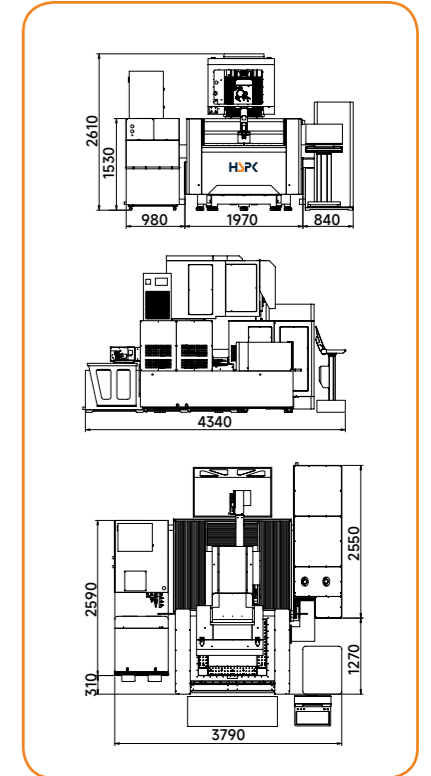
Equipment Parameters

Model	DS640 PLUS
X-Y axis travel	600 x 400 mm
U-V axis travel	100 x 100 mm
Z axis travel	300mm (Machining height by Fully submerged 270mm)
Maximum machining workpiece size	1030mm x 850mm x 290mm
Maximum workpiece load weight	800KG
The height of the workbench from the ground	900~950 mm
Programmable axis count	7axis (X,Y,Z,U,V,W,B)
Worktable size	860*570mm
Maximum dry run speed	1500.0mm/min
Wire diameter	0.15 - 0.3mm
Maximum load of wire spool	10.0kg
Maximum wire tension	0.5 ~ 2.4kg
Maximum wire winding speed	18m/min
Maximum machining angle of taper	±15° /80mm wide-angle wire guide is required
Machine weight	3800 kg
Mechanical dimensions	2800mm x 2700mm x 2400mm
Tank capacity	1100L

DS870

Wire Cut EDM

CNC newly developed control system



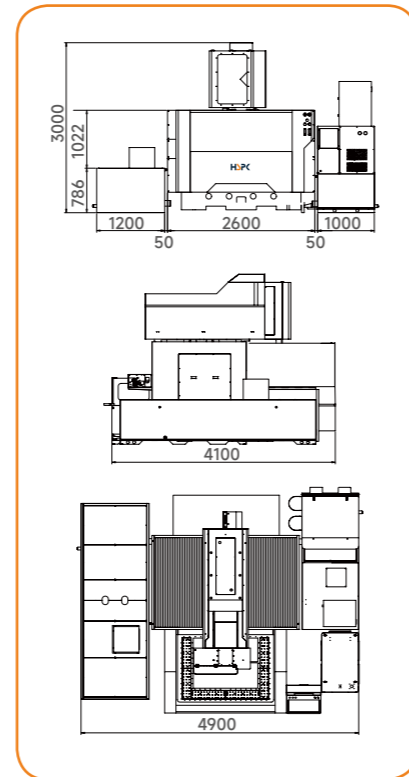
Equipment Parameters

Model	DS870
X-Y axis travel	800×700mm
U-V axis travel	200×200mm
Z axis travel	400mm(Machining height by Fully submerged 370mm)
Maximum machining workpiece size	1400x1170mmx395mm
Maximum workpiece load weight	5000KG
The height of the workbench from the ground	990-1030mm
Programmable axis count	5axis (X,Y,Z,U,V)
Worktable size	1130*930mm
Maximum dry run speed	1500.0mm/min
Wire diameter	0.15-0.3mm
Maximum load of wire spool	10.0KG
Maximum wire tension	0.5~2.4KG
Maximum wire winding speed	18m/min
Maximum machining angle of taper	±15° /80mm wide-angle wire guide is required
Machine weight	8500kg
Mechanical dimensions	3790mmx4340mmx2610mm
Tank capacity	1600L

DS1280

Wire Cut EDM

CNC newly developed control system



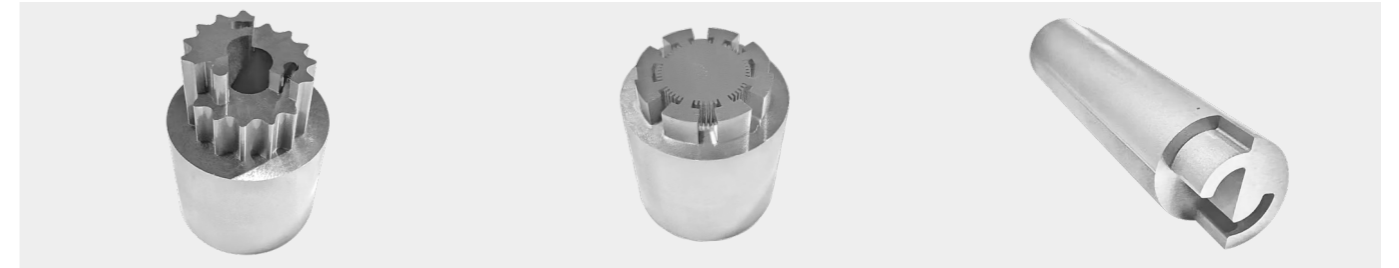
Equipment Parameters

Model	DS1280
X-Y axis travel	1200×800mm
U-V axis travel	200×200mm
Z axis travel	500mm(Machining height by Fully submerged 470mm)
Maximum machining workpiece size	1700x1250mmx495mm
Maximum workpiece load weight	5000KG
The height of the workbench from the ground	990-1030mm
Programmable axis count	5axis (X,Y,Z,U,V)
Worktable size	1520*1080mm
Maximum dry run speed	1500.0mm/min
Wire diameter	0.15-0.3mm
Maximum load of wire spool	10.0KG
Maximum wire tension	0.5~2.4KG
Maximum wire winding speed	18m/min
Maximum machining angle of taper	±15° /80mm wide-angle wire guide is required
Machine weight	10000kg
Mechanical dimensions	4900mmx4100mmx3000mm
Tank capacity	3700L

SAMPLE DISPLAY



• Assembly sample



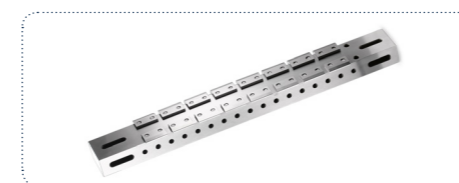
• Material: SKD11 • Thickness: 30mm		• Material: SKD11 • Thickness: 30mm		• Material: SKD11 • Thickness: 60mm	
Number of cuts	3	Number of cuts	3	Number of cuts	3
Wire diameter	0.25mm	Wire diameter	0.25mm	Wire diameter	0.25mm
Cutting length	1243mm	Cutting length	1858mm	Cutting length	810mm
Surface roughness	Ra0.62μm	Surface roughness	Ra0.62μm	Surface roughness	Ra0.68μm
Corner	R0.7	Corner	R0.5	Corner	R0.3
		Cutting time	9h20min	Cutting time	1h21min

• TAPE-B Assembly sample • Male female Assemble sample • TAPE-A Sample



• Material: SKD11 • Thickness: 30mm		• Material: SKD11 • Thickness: high 50mm low 20mm		• Material: SKD11 • Thickness: 100mm	
Number of cuts	3	Number of cuts	3	Number of cuts	3
Wire diameter	0.25mm	Wire diameter	0.25mm	Wire diameter	0.25mm
Cutting length	2000mm	Surface roughness	Ra0.62μm	Surface roughness	Ra0.65μm
Surface roughness	Ra0.62μm	Corner	R0.4	Slope	15°
Corner	R0.2				
Cutting time	4h30min				

• Optional device



Bridge device



Voltage regulators



Rotation axis