



Accuracy & Technology Leading Company

### ACCUTEX TECHNOLOGIES CO., LTD.

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### Environmental Requirements



<b>Power source</b>	AC220V/AC380V±5% : 3Phase 50 / 60Hz±1Hz
<b>Temperature /Humidity</b>	25±1°C : less than 75%RH
<b>Environment</b>	<ul style="list-style-type: none"> <li>The machine should be not placed near punching machine, drilling machine or any interfering sources.</li> <li>The machine should be not placed near heat treatment or electroplate systems.</li> <li>The machine should be placed in an airtight room to keep dust out.</li> <li>Before positioning machine, pay attention to machine movement during operation and the space needed for maintenance.</li> <li>Solid foundation of horizontal error should be less than 20µm.</li> </ul>
<b>Earth construction</b>	Earth resistance below 10Ω : separate the earth terminal with other machines.
<b>Pneumatic pressure</b>	≥ 6kg / cm <sup>2</sup> (Applicable for machine with AWT and linear motor)

■ Due to continual research and development, specifications are subject to change without notice.

# AL series

The Best Solution of  
CNC Wire Cut EDM Technology

Linear Motor Built-in





# AL SERIES

## Shaft Linear Motor

- Shaft Linear motor driven with full closed loop control without backlash can use for a long time with high repeatability, low friction loss and high efficiency.
- Rapid servo response can enhance the sensitivity of discharge gap control for the cutting speed up 8%~10%



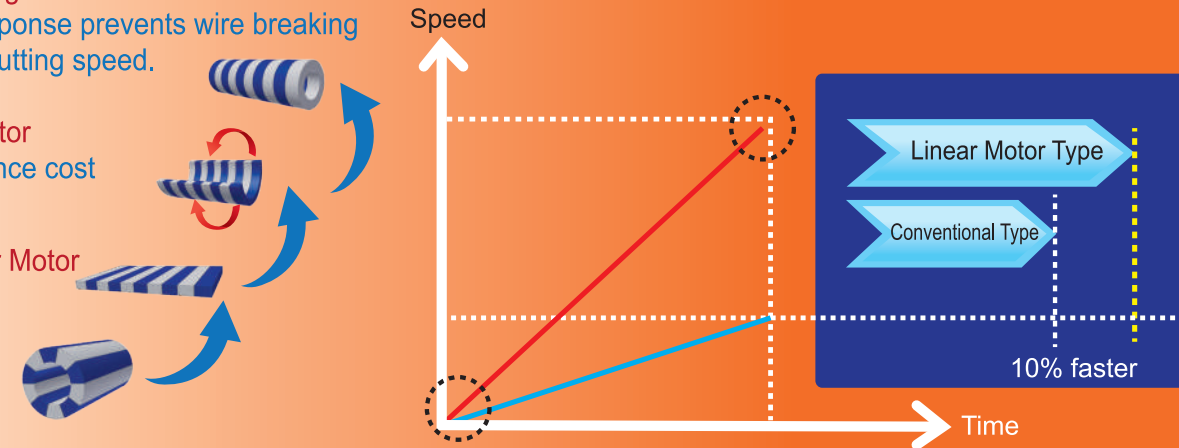
### Improving Cutting Performance

Rapid servo response prevents wire breaking and increases cutting speed.

Shaft Linear Motor  
lower maintenance cost

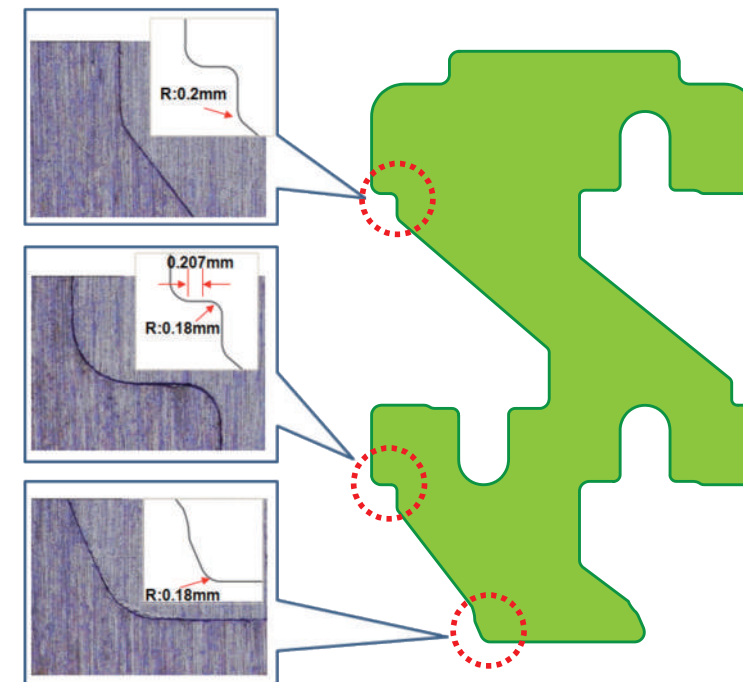
Flat Type Linear Motor

Rotary Motor



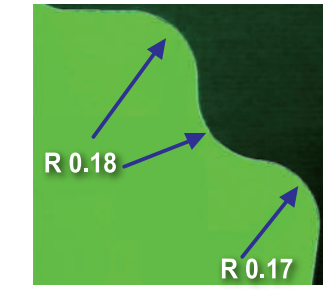
## Corner Control (Corner Pro)

According to different cutting data, wire diameter, angle and workpiece thickness, the Accutex controller automatically optimizes parameters to maintain the best corner cutting performance with high accuracy, as well as cutting speed. Even on the small and continuous corners, Accutex still can meet the best corner accuracy.

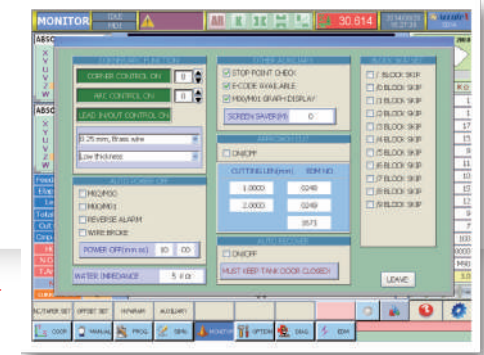


Punch and die can match smoothly within 3µm clearance.

Cutting Speed :  
1st Cut : 130 mm<sup>2</sup>/min Wire : Ø0.25mm  
2nd Cut : 260 mm<sup>2</sup>/min Thickness : 50mm  
3rd Cut : 320 mm<sup>2</sup>/min



Contour matches closely between workpiece and cutting path.

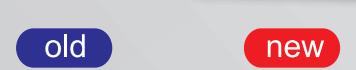
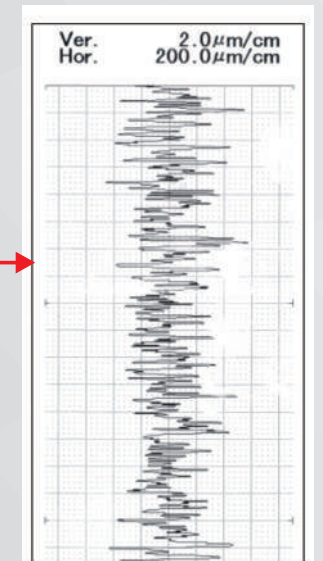
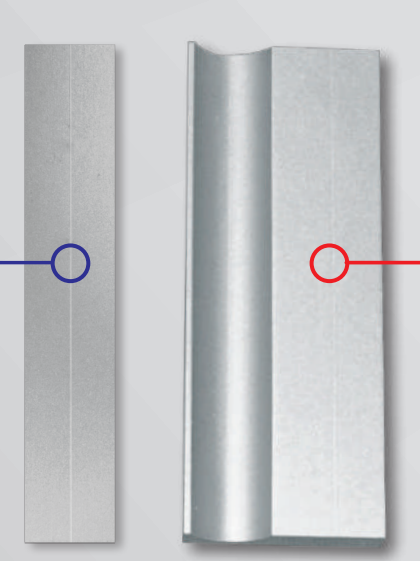
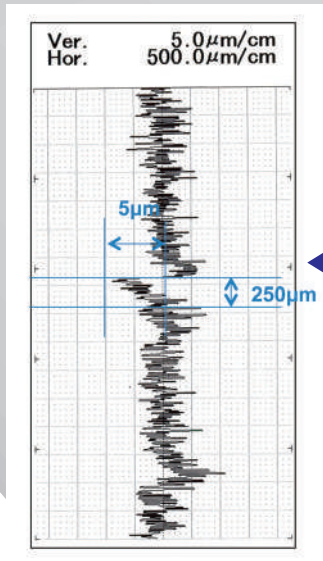


Corner, Arc and Lead In/Out Controls can be enabled / disabled directly from setting or by M-code.

## Lead in/out Technology

Reduce the wire mark at lead-in block less than 2µm.

Material: SKD11  
Wire : 0.25mm  
Thickness : 50mm  
Cutting times: 3

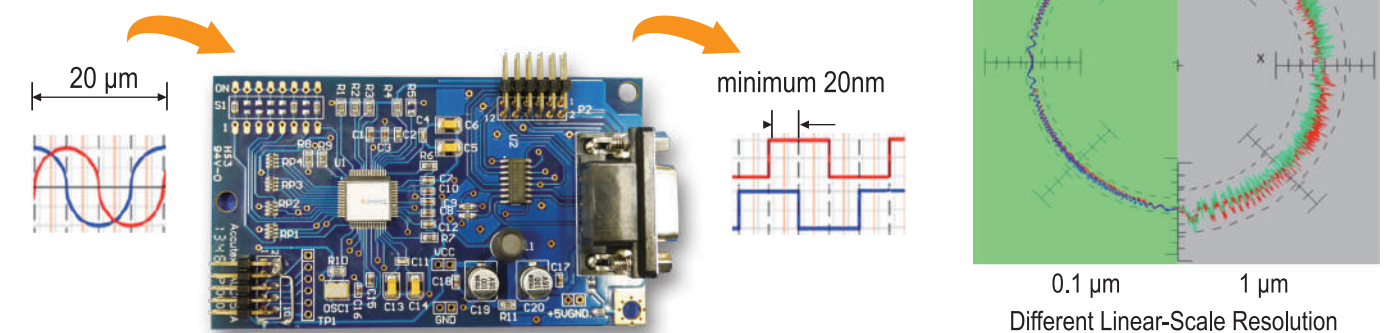


wire mark is around 5µm.

wire mark is similar to surface roughness

## High Resolution Signal Processor

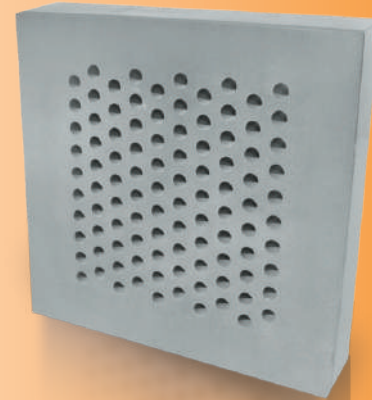
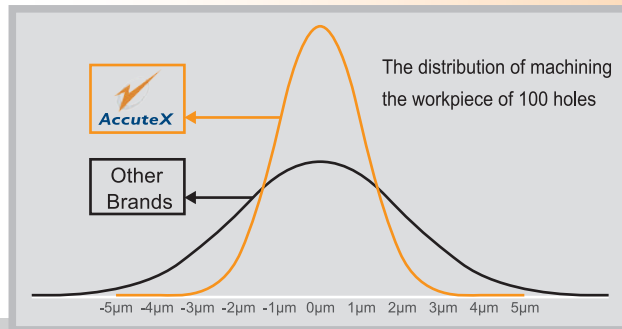
High resolution signal processor achieves more smooth velocity control, and enhances the stability of position control. It can match up the best contouring accuracy. The best resolution for standard scale can narrow down to 20nm.





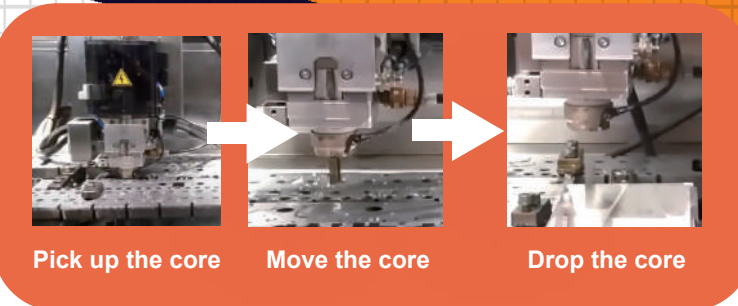
## Stable Discharge Board (SD-Master)

- High repeatability in accuracy by applying the same cutting data on different machines, the consistence enhances the quality of workpiece and simplifies management procedure.
- High speed cutting by SD-Master in stable discharge power stabilizes the cutting process, especially under high-speed mode.
- By Cutting 100 holes of 6mm continuously, 95.45% of all workpieces accuracy are within  $\pm 1.5\mu\text{m}$ . Cutting conditions are made by SKD-11 with 30mm thickness by 0.25mm brass wire with 3 cuts under good temperature and environment control.



## Core Remove Module

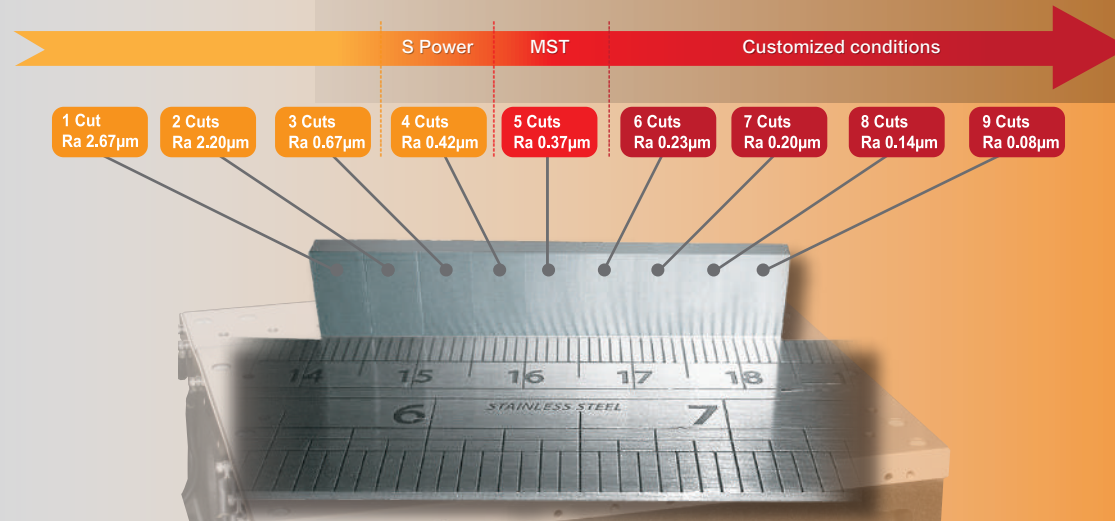
During Wire Cut EDM machining, by using the new-generation flushing nozzle to remove the core automatically can reduce human operation and increase productivity.



Patented technology to remove core. Patent pending ( No.TW107142479)  
Core Remove Module can fit together with existing machine.  
Final core collection box can setup easily on multi-positions.  
Integrated with CIMFORCE intelligent manufacturing system and robot to increase productivity.

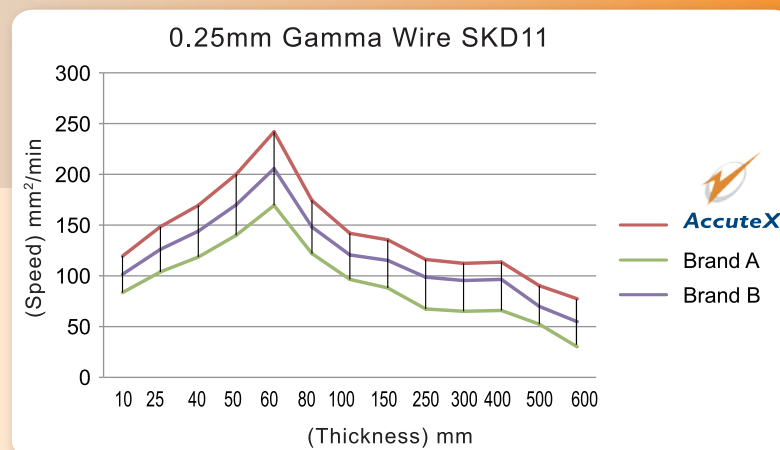
## MST

Micro Sparking Technology (MST), this unique technology can reach the best Fine Finish to Ra 0.08 $\mu\text{m}$  on 40mm thickness Tungsten carbide material (Stroke less than 600mm).



## Cutting Efficiency Comparison

- AccuteX R&D team simplifies the generator and electric circuit to eliminate unnecessary power loss, and enhance the cutting efficiency.
- The cutting efficiency compared with other brands under different workpieces thickness is as below.

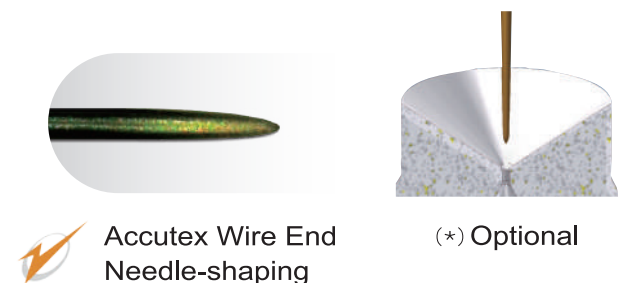


(\*) Date from Accutex service database

## AWT, Best Threading Reliability (\*)

### AC servo tension wheel

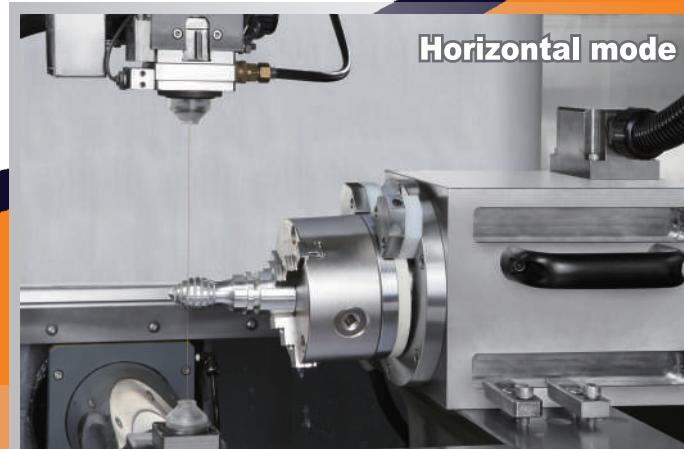
- "AC Servo Tension Wheel", tension control during cutting, features reverse tension while wire breaks.
- "Wire End Needle-Shaping", while the wire is cut off by electricity, the reverse tension and annealing heat treatment are applied to strengthening the wire at the same time.
- "Waste Wire Auto Removing Device" is Accutex exclusive device, used by air blow system to remove waste wire to the collection cabinet quickly and easily.



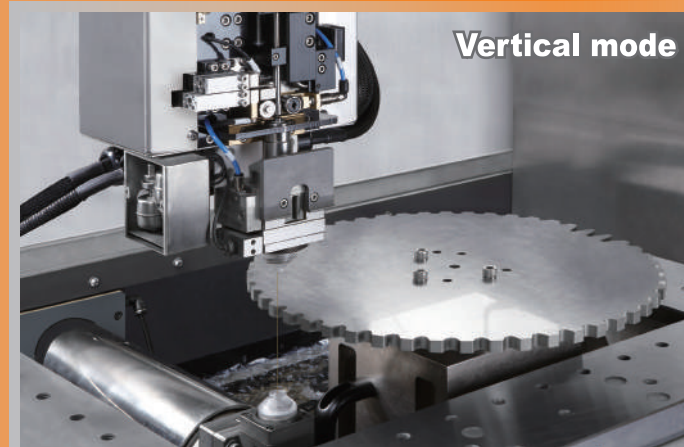


## AccuteX Submerged Type Rotary Table (\*)

- Accutex 6th Axis Rotary Table is leading ahead of other WEDM manufacturers by years in R&D which can be applied to submerged operation.
- The Built-in Type Motorized Spindle features ultra-high resolution 720,000 pulses per each revolution, free of backlash problems.
- With IP68 waterproof class, the Accutex Rotary Table may totally be submerged in the water and will still maintain high performance and high accuracy.
- Rotary table can be applied in the vertical and horizontal types.



Horizontal mode



Vertical mode

(\*) Optional

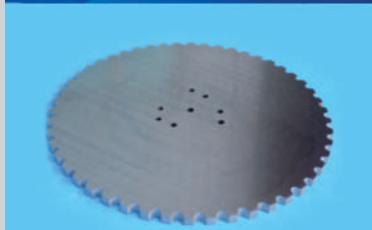
Synchronously cutting



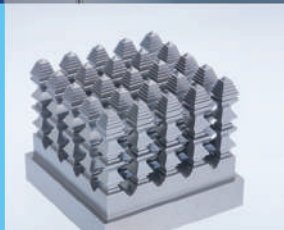
Medical part



Precise robotics component



Array electrode

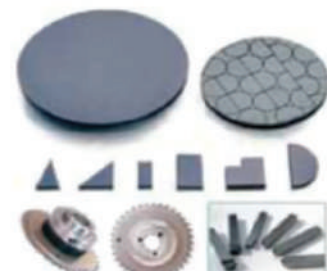


## PCD Cutting & Graphite Machining Power Supply (\*)

- The exclusive ignition circuit and stabilized discharging power supply are the most suitable design for PCD and graphite cutting; furthermore, with quality assurance for a long time machining.
- The collapse of workpiece edge by wire cut can be controlled within minimum range along with high speed machining.
- Accutex wire cut EDM can do 5 axes simultaneous interpolation, also the W axis (6th Axis rotary table) can be installed while doing complex PCD cutting tools.



PCD MODULE



PCD applications



PCD cutting tool

## Machine Specifications

Specifications	Submerged Type			
	AL-400SA	AL-500SA	AL-600SA	AL-750SA
Max. Workpiece Size L x W x H (mm)	790x610x215	990x610x295	990x650x295	1190x800x295
MAX. Workpiece Weight(Kg)	400	500	550	750
X/Y Stroke	400x300	500x300	600x400	750x500
U/V Stroke (mm)	100x100	100x100	100x100	100x100
Z Stroke (mm)	220	300(Opt.400)	300(Opt.400)	300
Max. Cutting Taper(H=100)	±21°	±21°	±21°	±21°
Wire Spool Weight (Kg)	10	10	10	10
Footprint W x D x H (mm)	2050x3200x2070	2480x3090x2210	2480x3090x2210	3000x3370x2250
Water System Capacity (L)	630	900	900	1060
Machine Weight (Kg)	3000	3600	3700	4300

(\*)To acquire the optimum stable cutting performance, the suggested-maximum height of cutting workpiece is the Z axis stroke minus 40mm.

## Controller Functions

Backlash compensation	Pitch compensation	Program management	Program edit Program simulation
Anti- Collision	Program show / Hide	Linear / Circular interpolation	Auto corner
N code move	Sub program	Multi-blocks skip	Corner control function
MDI function	Taper setting	4 axes cutting	M01 stop
Single block	Mirror	Cutting path rotation	Axis exchange
Short back	Constant feed / Servo feed	2 <sup>nd</sup> software limit	Axis Rotation
Pick up function	Dry run	Single block stop	Reference point setting
Reference point return	Retrace to start point/Start point return	Auto Power recovery (Option)	Diagnosis
Cutting log	Maintenance dashboard	Compensation for wire consumption	Lead-in / Lead-Out Control

## Controller Specifications

Controller System	Windows
Control Device	64-bit Industrial PC
Memory Device	1GB CF Card
Screen Display Device	Color TFT Touch Screen
Data Input	Keyboard, Mouse Pointer, RS-232, USB, Ethernet, FTP
No. of Control Axes	5 Axes / 6 Axes (Option on W Axis)
Simultaneous Axes	4 Axes / 5 Axes (Option on W Axis)
Min. Command Unit	0.0001 mm
Max. Command Range	± 9999.9999 mm
Command Type	mm / inch
Cutting Data Memory	99999 Sets
Ignition Power Supply	32 Steps, 53V~138V
On Time	24 Steps
Off Time	43 Steps
Discharge Mode	Rough Cut / Skim Cut / Fine Cut

## Standard Accessories

- Upper/Lower Flushing Nozzle
- Diamond Guide
- Conductor Plate
- Diamond Guide Remove Jig
- Brass Wire
- Tool box
- Waste Wire bin
- Ion Resin Tank
- Ion Exchange Resin
- Paper Filter
- Vertical Alignment Jig
- Water Chiller
- SD Master
- Auto Wire Threading(AWT)
- Anti-Collision on X/Y/Z/U/V Axes
- Linear Scale

## Optional Accessories

- Spray mist Lubricator
- PCD/Graphite Cutting
- Transformer
- Final Core Remove
- High pressure Water Jet Threading (Anti-Collision on Z-Axis is invalid)
- Pilot Lamp
- 0.1mm Wire Application
- Alarm Messenger
- Auto Voltage Stabilizer
- Remote Master
- 0.07mm Wire Application
- CE
- 6th Axis Package(W axis)
- Safety Door Interlock
- 45kg Wire Jumbo feeder
- Wire Chopper
- MST(AL-400SA/500SA/600SA)