AccuteX

AU series

The First Name in CNC Wire Cut EDM

Achievement of a decade

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經營技術典範獎
BEST PRACTICE AWARD FOR OPERATIONS TECHNOLOGY
國家品質獎-功能典範類
National Quality Awards

www.accutex.com.tw

Environmental Requirements

Power source	AC220V / AC380V±5% ; 3 Phase 50 / 60Hz±1Hz
Temperature / Humidity	25±1°C ; less than 75%RH
Environment	• The machine should be not placed near punching machine, drilling machine or any interfering sources. • The machine should be not placed near heat treatment or electroplate systems. • The machine should be placed in an airtight room to keep dust out. • Before machine positioning, pay attention to machine movement during operation and the space needed for maintenance. • Solid foundation of horizontal error should be less than 20μm.
Earth construction	Earth resistance below 10Ω ; separate the earth terminal with other machines
Pneumatic pressure	≥6 kg / cm^2 (Applicable for machine with AWT system)

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

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Team Work

The conception of AccuteX originated with a group of engineers who shared the same forward thinking ideas. The products marketed with the AccuteX logo are symblos of high accuracy and advanced technologies. With over 30 years dedicated to Innovation as well as Research and Development, the AccuteX Team has been developing and mastering cutting edge techniques in the Wire Cut EDM field, thus establishing the company's core competitive power on the stage of international business.

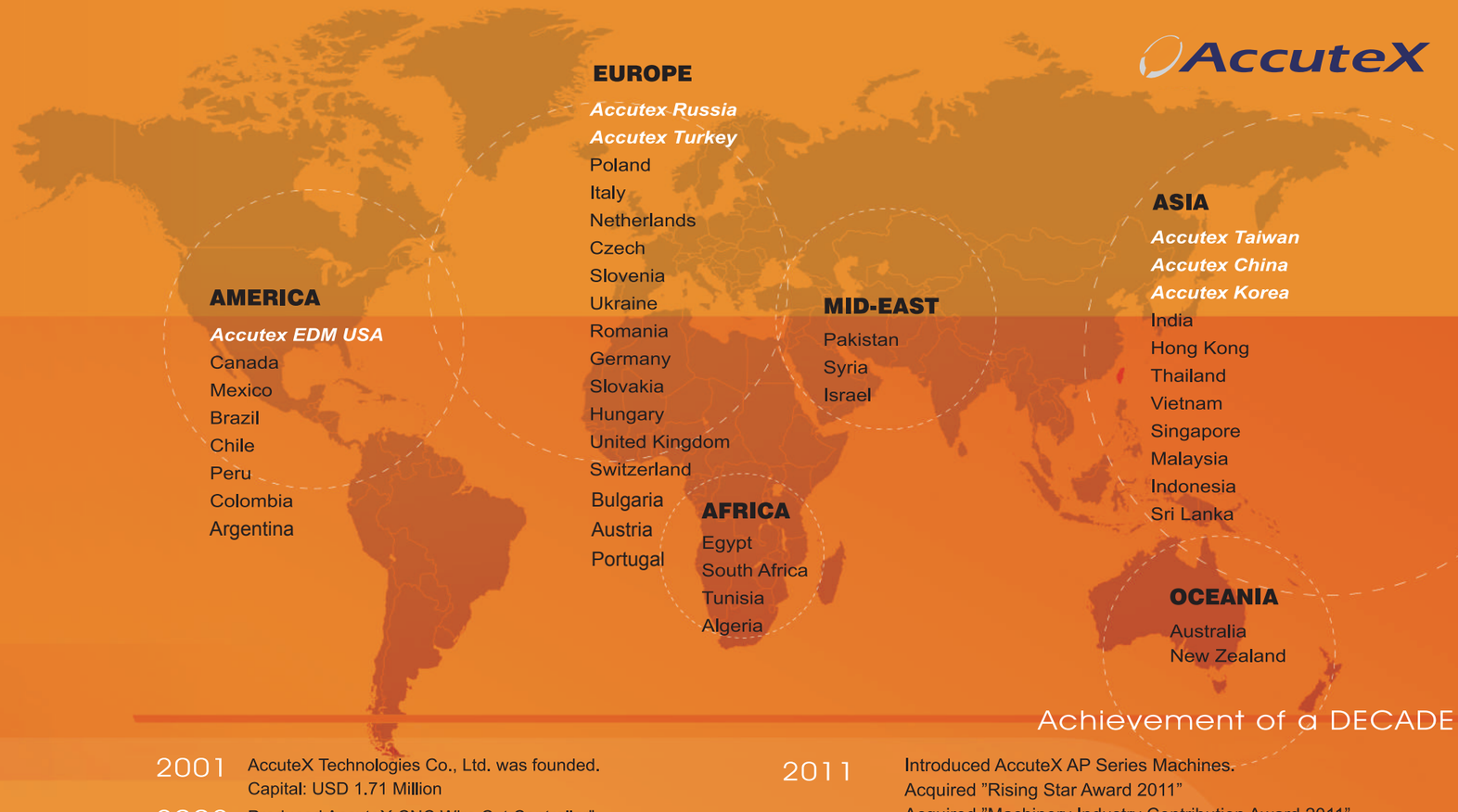
Service

AccuteX customer service is world class. From the initial cutting analysis before purchase, through training and machine installation; our professional sales and support staffs will ensure a smooth implementaion of all AccuteX products. This all-aspect service support reflects AccuteX's business concept: Service is part of our products.

ACCURACY...

IS NOT JUST MERELY A MEASURING VALUE,

IT IS OUR **ATTITUDE**.



Achievement of a DECADE

2001	AccuteX Technologies Co., Ltd. was founded. Capital: USD 1.71 Million
2002	Produced AccuteX CNC Wire Cut Controller" Introduced AccuteX AU Series Machines Sales to TAIWAN, CHINA
2003	First debut at TIMTOS 2003 Sales to ASIA, EUROPE, AMERICA Strategic partner AccuteX Korea established
2004	Certified as ISO9000: 2000 Company Capital: USD 2.40 Million
2005	AccuteX China established in Kunshan, China
2006	Ground-breaking of new AccuteX Headquarters Strategic partner AccuteX EDM USA established
2007	Introduced "AccuteX 6-Axis total Solution"
2008	Moved to brand new 10000 m^2 factory
2009	Introduced "SD Master Function"
2010	Certified as ISO9000: 2008 Company Introduced GE Series Machines Acquired "Taiwan Excellence Award 2010" Completed the research project from Ministry of Economic Affairs in name of "A+ Wire EDM Project"
2011	Introduced AccuteX AP Series Machines. Acquired "Rising Star Award 2011" Acquired "Machinery Industry Contribution Award 2011"
2012	Acquired "Taiwan Excellence Silver Award 2012" Introduced AccuteX EZ Series Machines AccuteX China moves to brand new 20,000m^2 factory in Kunshan. Acquired "National Award of Outstanding SMEs 2012"
2013	Introduced AccuteX AL Series Machines.
2014	General Manager Ray Liang has been awarded the Model of Taiwan and Overseas Entrepreneurs
2015	Acquired the Certificate of Potential Taiwan Mittelstand Award
2016	AL-400SA acquired "Taiwan Excellence Award 2016" Certified as ISO 9001:2015 Company
2017	Chiller AW-12 acquired "Taiwan Excellence Award 2017"
2018	Acquired Taiwan Excellent Trademark Award 2018 - AccuteX Brand Acquired 25th National Quality Awards - The Best Practice Award for Operations Technology
2019	GA-43AL accuired " Taiwan Excellence Award 2019 "

AccuteX Headquarter

AccuteX China


AccuteX USA

AU series

T-Base Design

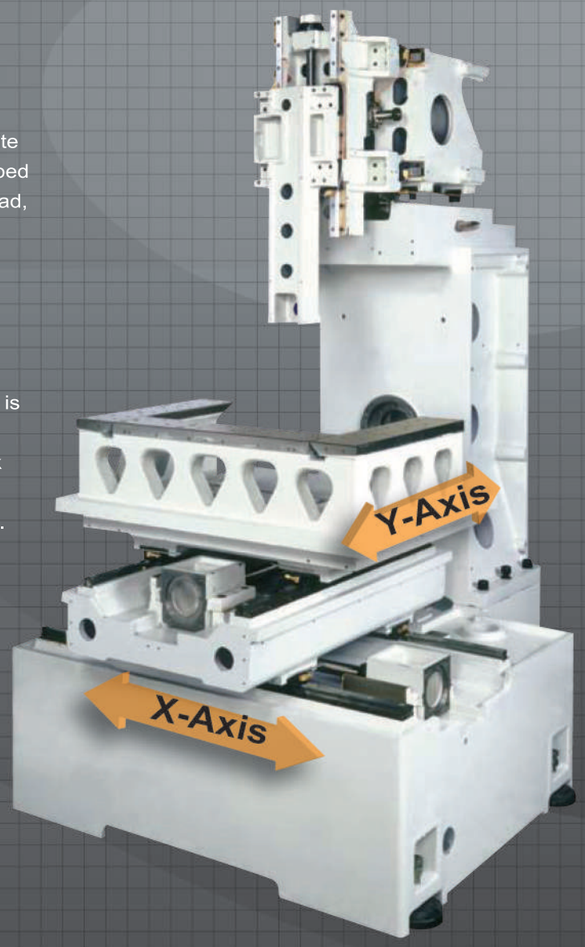
Complex High-Rigidity Structure

C-Frame construction was designed via Finite Element Analysis (FEA) along with multi-ribbed structure features high rigidity, large table load, and low mechanical deformation.

T-Base Design

All AccuteX AU Series models are designed with T-Base construction. The longer X-Axis is located on the base, the shorter Y-Axis is located on top of X-Axis. Wherever the work table moves, it is fully supported by the construction without overhang phenomenon.

Direct transmission features high servo response

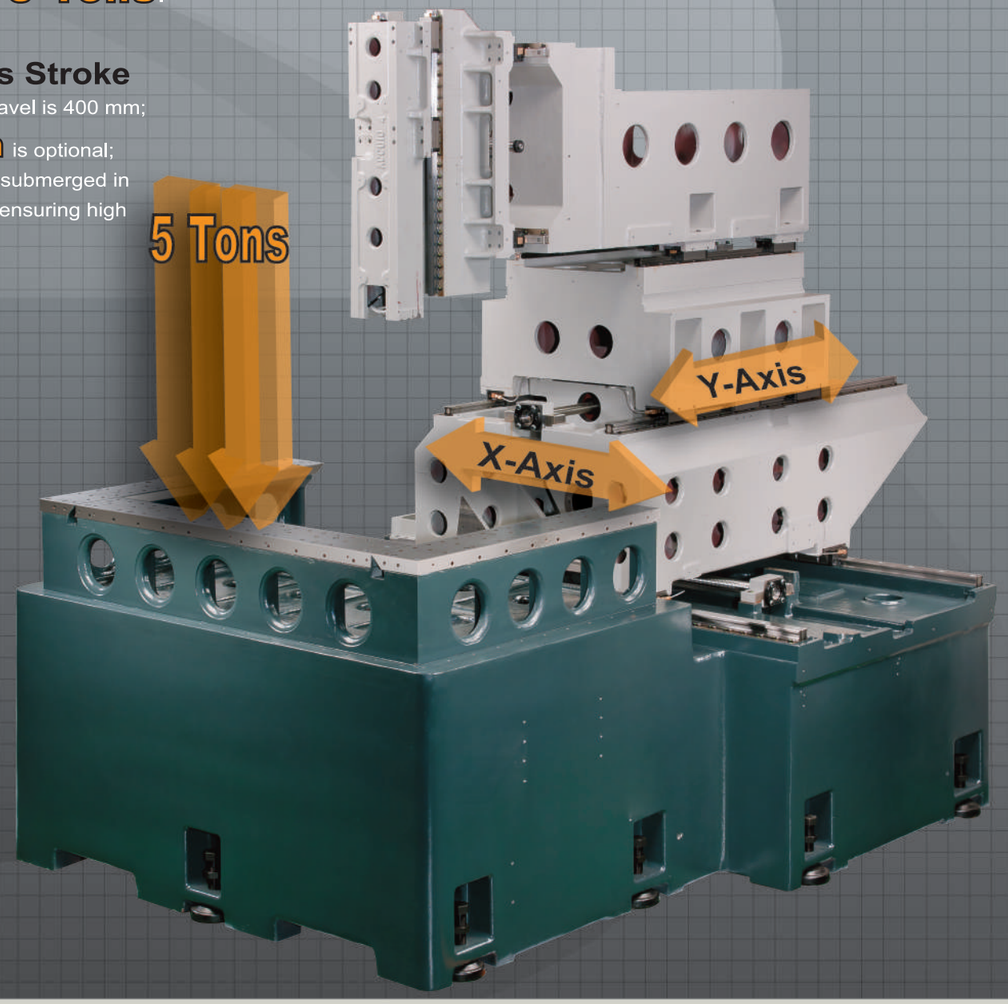


Moving Column Design

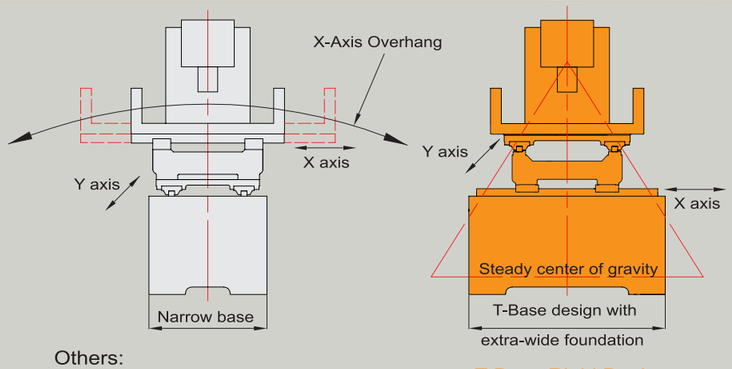
Table size and base supporting area features 1:1 ratio, suitable for extra large working piece jobs, maximum loading capacity is up to **5 Tons**.

High Z Axis Stroke

Standard Z axis travel is 400 mm; **600 mm** is optional; workpiece can be submerged in water completely, ensuring high sparking quality.



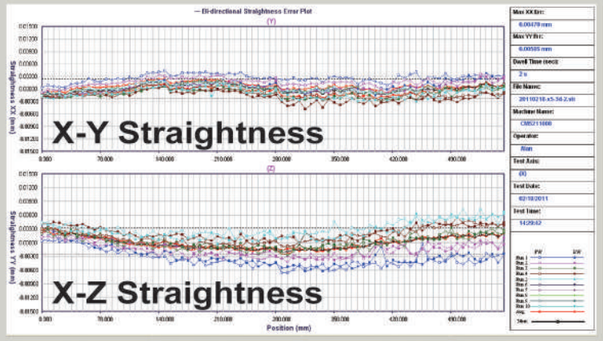
Finite Element Analysis



Others:
Common Design with Overhang

T-Base Rigid Design

Comparison of Table Support



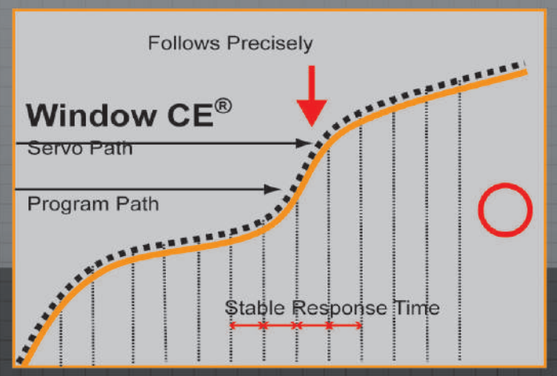
3D Laser Measuring Technique

The machine's actual position error is 3 dimensional. AccuteX employs a US API 3D Laser measuring calibrator to acquire Pitch and Yaw linear tolerance values, while checking each axis's linear tolerance to conform with ISO 230-6 standards.

AccuteX Controller

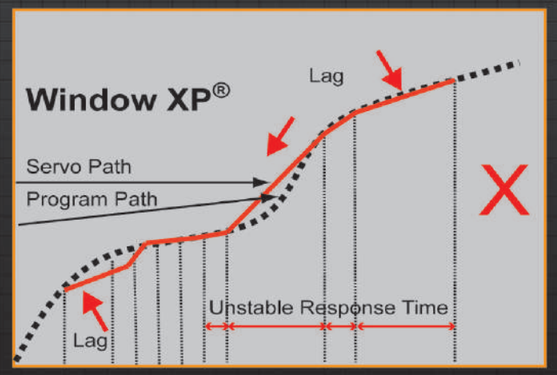
100% In-House Developed AccuteX Controller

AccuteX's core competitive power is the in-house developed AccuteX controller; this controller sets us apart from the rest of the machine tool industry that rely on using controllers from Europe and Japan. The AccuteX R&D Team has fully mastered the controller's key technologies, which allows us to provide best service and support to world wide customers.



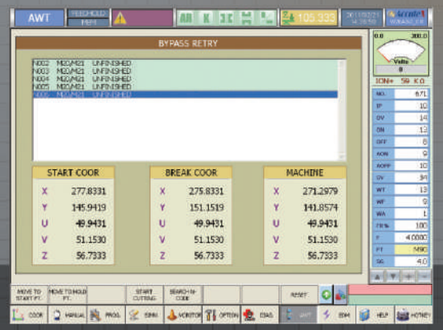
AccuteX High Response

Window CE® for DIRECT Precise Motion Control The Servo response's path follows the program precisely.



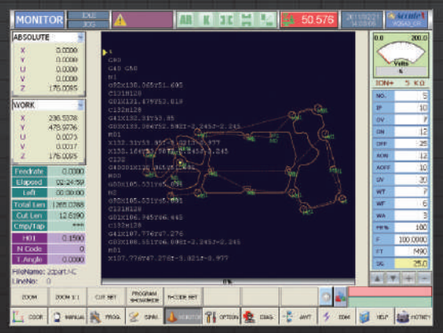
Others : Low Response

Window XP® plus external software for Motion Control. Servo speed is even slower than the controller. The Servo Path failed to follow the program.



BYPASS Function

While executing multi-hole cutting, in the case of threading failure or any unknown reason that the mold holes cannot be cut during the operation, the controller automatically memorizes the uncut mold holes and will skip to the next one.

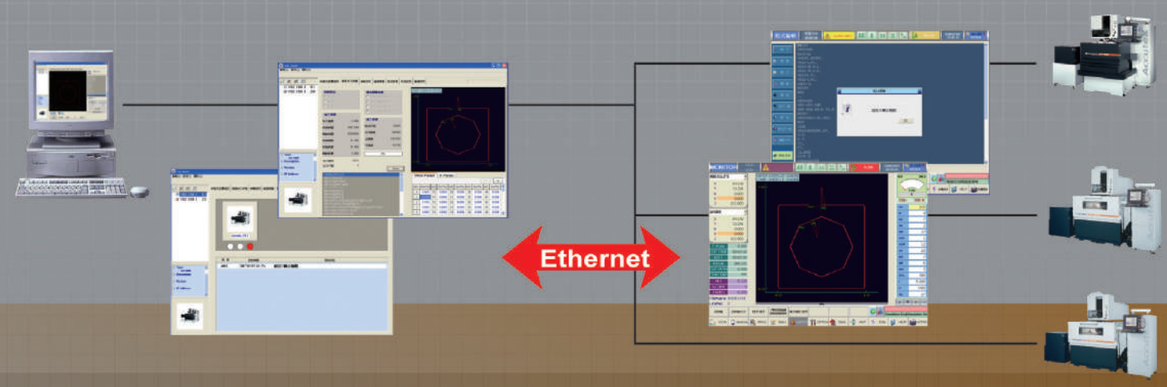


High Accuracy with Easy Functions Automation

- Corner control Function
- Automatic Power Recovery Function
- Approach Cutting Function
- Multi-Blocks Skip Function

AccuteX Remote Master

Monitor AccuteX Machines AT THE OFFICE.



Remote Master at the office **Machine in the factory**

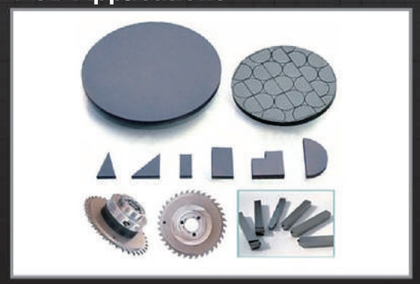
Remote master is a software for Windows system, and it is installed in PC through internet to connect with Accutex Wire EDM machine for remote monitoring. In the office, you can understand the situation of the machine, simulate NC program, arrange job for each machine and upload or download NC file.

PCD Cutting & Graphite Machining Power Supply

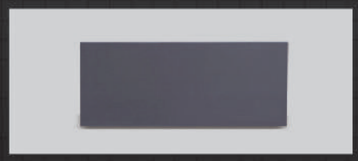
(*) Optional Function

- The exclusive ignition circuit and stabilized discharging power supply which are the most suitable design for PCD and graphite cutting, also with quality assurance even 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.
- By applying 6th Axis rotary table, any rotating workpiece can be cut.

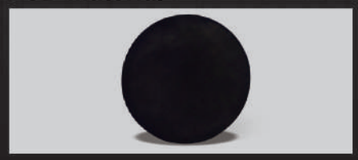
PCD Applications



Finished Graphite Cutting with 1.5mm Slice



PCD Material



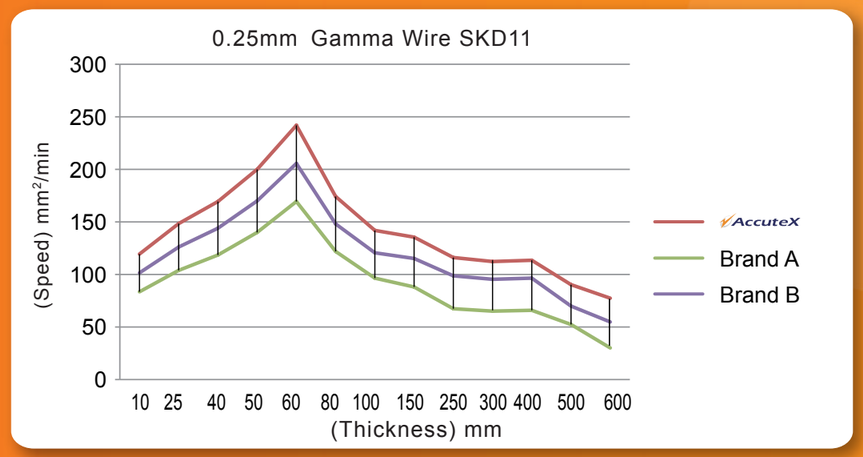
Finished PCD Cutting

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



ENERGY DURABILITY

Integrated AccuteX power algorithm into FPGA chip. This approach completely eliminates unnecessary power loss. It can remain cutting efficiency after years. (*)

Six-Axis Operation

Medical – Class Performance

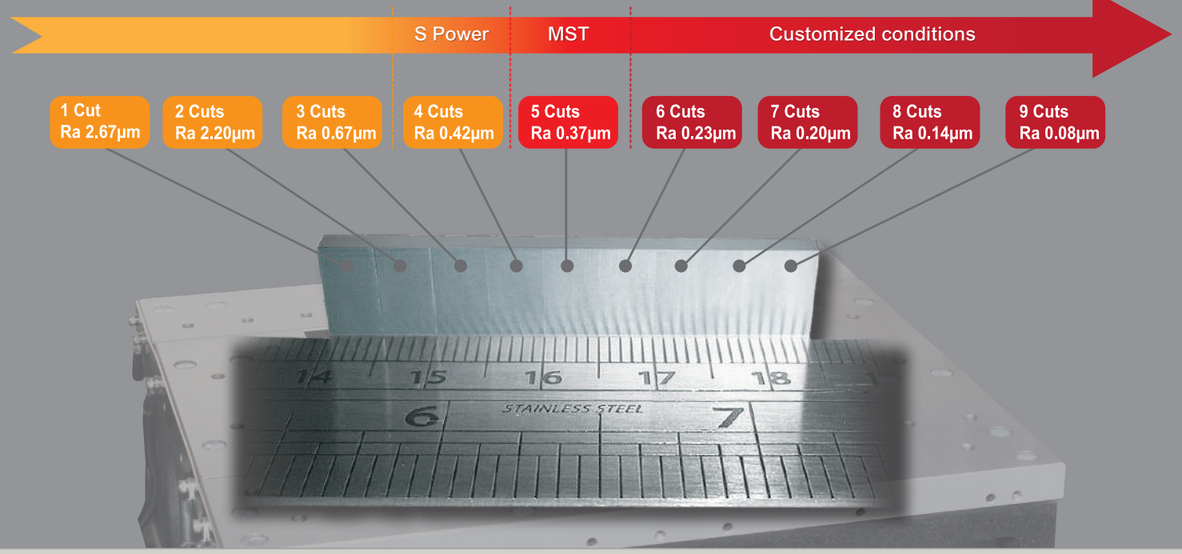
Turn & Burn

- 6 Axes (X/Y/U/V/Z/W) control.
  5 Axes simultaneous interpolation.
- Applicable with flushing or submerged operation subject to the suitable rotary table applied.
- Suitable for production of Medical Equipment and Aerospace Components.
- Rotary table features Japan-made built-in motor, 720,000 pulses resolution, top class IP68 isolation level.

*Optional Function

MST

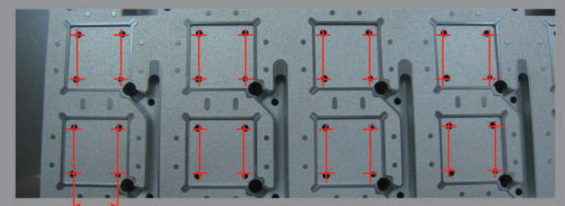
Micro Sparking Technology (MST),this unique technology can reach the best Fine Finish to Ra 0.08μm on 40mm thickness Tungsten carbide material.(Submerged Types AU-300i, AU-500i, AU-600i only)



(*) The cutting condition and other related settings are based on AccuteX service information.

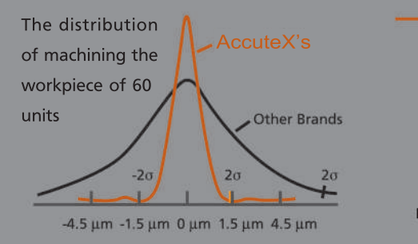
SD MASTER Stable Discharge Board

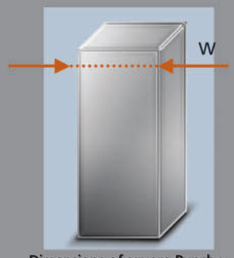
- The SD Master powers the servo control system. We have designed it smarter and with more stability to achieve our low wire breaking rate.
- Stable discharge performance enhances the accuracy of workpieces and raises machining repeatability.
- One cut accuracy for ±2σ, which is within ±1.5μm. (95.45% of all 60 workpieces' accuracy are within 3μm variation, all 60 workpieces were cut in different time periods over two months.)



Repeatability 2μm

WAFER BUMPING MOLD





Dimensions of square Punch : 8 x 8 x 50 mm.

One Cut Only

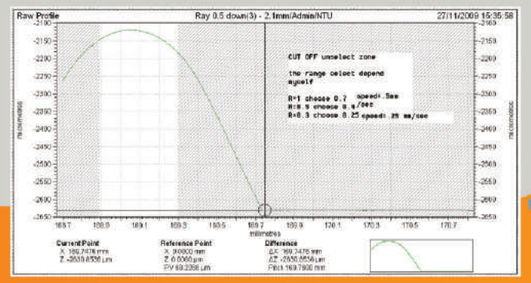
Measuring accuracy chart for 60 work pieces

WITHOUT SD MASTER		WITH SD MASTER	
Work Piece No.	Value "W"	Work Piece No.	Value "W"
1	7.995	1	7.999
2	7.998	2	7.999
3	8.002	3	8.001
4	8.004	4	8.002
⋮	⋮	⋮	⋮
57	8.007	57	8.001
58	8.005	58	8.000
59	8.002	59	8.000
60	7.998	60	8.001
2σ Max. Variation	0.010	2σ Max. Variation	0.003

Corner Control

Depending on different cutting data, wire diameter, angle and work piece thickness, the AccuteX Controller automatically sets the best parameters to maintain the best corner cutting performance with high accuracy, as well as cutting speed.

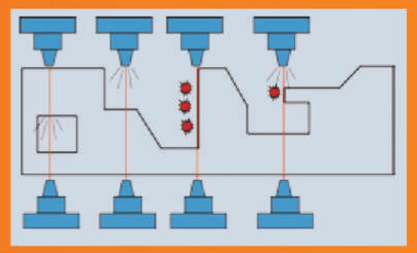
30° interior / exterior corner control
Wire diameter 0.2mm

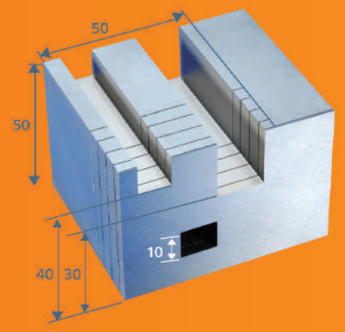


Taylor Hobson Profiler
Drawing from phase Trajectory

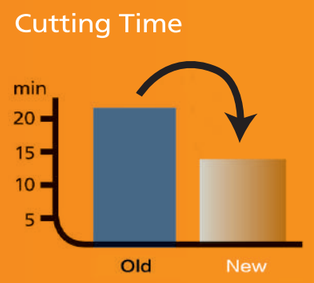
Irregular Thickness Cutting

The AccuteX intelligent discharge unit is capable of dealing with the changing conditions in workpiece thickness and water flushing situations, featuring high cutting speed, and free from wire breaking problems.





With a single workpiece of different thickness, the maximum cutting speed can be 3.3 mm per minutes.



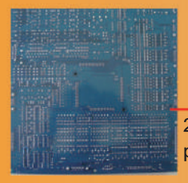
Efficiency Increased by 34%

Irregular Thickness Cutting Time:
New : 15 min.
Old : 23 min.

I.C.T. Technology

AccuteX's R&D team has designed Jig Fixtures to perform "In Circuit Test", which can examine each soldering point, ensuring all voltages / currents are correct, and eventually guarantee the quality of PCB.

845 electrical components



2582 soldering points

ALL CHECKED

AWT (Auto Wire Threading) HIGHEST THREADING RELIABILITY

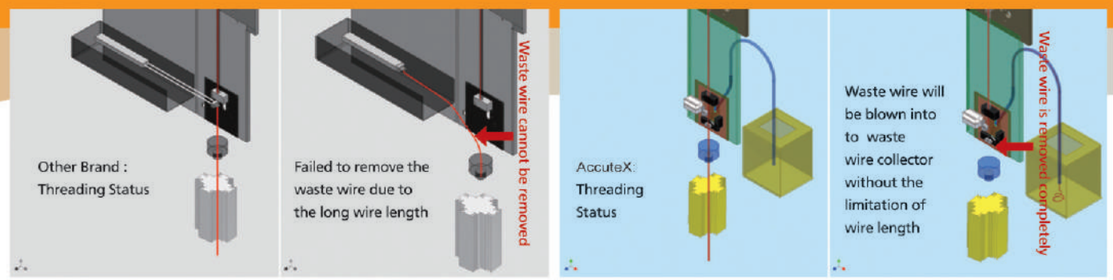
AC Servo Tension Wheel
Tension control during cutting.
Featuring REVERSE TENSION when wire breaks.
"AC servo Tension Wheel", Taiwan Patent No. I257887.

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 Removal
Air blow system to removes waste wire to the collection cabinet; quick and easily.
"Waste Wire Auto Removing Device", Taiwan Patent No. 210295, China Patent No.03261258.3

The Unique Waste Wire Removing Device

No matter how long the waste wire is, it can be completely removed by AccuteX AWT system(*). Compared to other brands using mechanical cylinder arm, which limits the waste wire length and detection sensitivity, causing a failure to remove waste wire automatically, AccuteX's unique AWT device can remove broken wire without length limitations.



Other Brand

By using a mechanical cylinder arm, the waste wire cannot be removed if the wasted wire length is longer than the cylinder arm's travel.

*Optional

AccuteX

AccuteX Waste Wire Removal Device can remove waste wire with its air blowing design, no matter the length of waste wire, or the position of wire breaking. It can be rapidly removed to the waste wire collector within the shortest time.

Special Parts for Military Purposes

Material	SKD-11	Thickness	20 mm
Passes	4	Roughness	Ra 0.55 μm
Wire Diameter	Ø0.15	Cutting Time	4 hrs
Cutting Length	831.952 mm		
Features	Irregular thickness cutting		

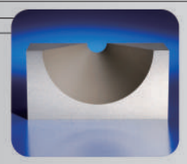
Medical Parts

Material	Titan.	Thickness	3 mm
Passes	1	Roughness	Ra 2.5 μm
Wire Diameter	Ø0.2	Cutting Time	23 min.
Cutting Length	76.324 mm		
Features	6-Axis cutting for Medical Equip.		

Punch & Die Molds

Material	SKD-11	Thickness	30 mm
Passes	3	Roughness	Ra 0.62 μm
Wire Diameter	Ø0.2mm	Cutting Time	6 hr 37 min.
Cutting Length	871.559 mm (Die)		
Features	Punch and Die Fitness with 5 mm Blade		

40 Degree Taper Cutting



Material	SKD-11	Thickness	50 mm
Passes	5	Roughness	Ra 0.65 μm
Wire Diameter	Ø0.25	Cutting Time	5 hr 30 min.
Cutting Length	396.3135 mm		
Features	Wide Taper Cutting		

Wafer Bumping Molds

Material	SKD-11	Thickness	20 mm
Passes	3	Roughness	Ra 0.65 μm
Wire Diameter	Ø0.2	Cutting Time	4 hr 45 min.
Cutting Length	963.135 mm		
Features	Repeatability is less than 2 μm in each chip injection mold		

Matrix type Electrodes

Material	SKD-11	Thickness	50 mm
Passes	4	Roughness	Ra 0.7 μm
Wire Diameter	Ø0.2	Cutting Time	13 hr 7 min.
Cutting Length	4372.496 mm		
Features	6-Axis cutting		

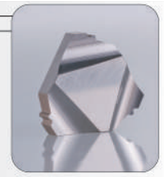
PCD Tools Cutting

Material	PCD, WC	Thickness	5 mm
Passes	3	Roughness	
Wire Diameter	Ø0.25	Cutting Time	4 hrs 25 min.
Cutting Length	3284.4884 mm		
Features	Special Material Cutting by 6 axis		

Taper Assembly

Material	SKD-11	Thickness	50 mm
Passes	3	Roughness	Ra 0.67 μm
Wire Diameter	Ø0.25	Cutting Time	10hrs 37min.
Cutting Length	1293.693 mm		
Features	Taper workpieces assembly set (12º)		

Cutting Tools



Material	Boron Carbide	Thickness	7 mm
Passes	5	Roughness	Ra 0.4 μm
Wire Diameter	Ø0.15	Cutting Time	45 min.
Cutting Length	343.2 mm (3 faces)		
Features	Corner control		

IRDA Optical Component Molds

Material	SKD-11	Thickness	0.3 mm
Passes	3	Roughness	Ra 0.85 μm
Wire Diameter	Ø0.2	Cutting Time	2 hrs 25 min.
Cutting Length	2900.468 mm		
Features	Repeatability is less than 2 μm in thin plate cutting case		

Machine Specifications

Flushing Types

Model		AU-3i (A)	AU-5i (A)	AU-6i (A)	AU-75i (A)	AU-9i (A)	AU-96i (A)
Max. Workpiece Size (L x W x H)	mm	800 x 535 x 215	965 x 555 x 295	965 x 620 x 295	1190 x 655 x 295	1375 x 760 x 295	1435 x 860 x 295
Max. Workpiece Weight	kg	400	500	800	1000	1300	1300
X/Y Stroke	mm	350 x 250	500 x 300	600 x 400	750 x 500	900 x 500	960 x 600
U/V Stroke	mm	80 x 80	100 x 100	100 x 100	100 x 100	100 x 100	100 x 100
Z Stroke	mm	220	300	300	300	300	300
Wire Spool Weight	kg	10	10	10	10	10	10
Footprint (W x D x H)	mm	2650 x 2150 x 2120	2850 x 2300 x 2210	2680 x 2600 x 2210	3050 x 3210 x 2300	3260 x 3180 x 2300	3260 x 3280 x 2300
Water System Capacity	L	360	360	360	360	360	360
Machine Weight	kg	2900	3400	3500	4000	5400	5600

Submerged Types

Model		AU-300i (A)	AU-500i (A)	AU-560i (A)	AU-600i (A)	AU-750i (A)	AU-900i (A)
Max. Workpiece Size (L x W x H)	mm	765 x 535 x 215	990 x 560 x 295	990 x 560 x 295	990 x 620 x 295	1190 x 720 x 295	1335 x 760 x 295
Max. Workpiece Weight	kg	400	500	500	600	800	800
X / Y Stroke	mm	350 x 250	500 x 300	560 x 360	600 x 400	750 x 500	900 x 500
U / V Stroke	mm	80 x 80	100 x 100	100 x 100	100 x 100	100 x 100	100 x 100
Z Stroke	mm	220	300	300	300 (Opt. Z400)	300	300
Max. Water Level in Working Tank	mm	220	270	270	270 (Opt. Z400)	265	205
Wire Spool Weight	kg	10	10	10	10	10	10
Footprint (W x D x H)	mm	2750 x 2560 x 2120	2950 x 2560 x 2210	2950 x 2560 x 2210	2950 x 2560 x 2210	3260 x 3210 x 2300	3560 x 3050 x 2300
Water System Capacity	L	850	850	850	850	1240	1240
Machine Weight	kg	3000	3600	3600	3700	4300	5600

Moving Column Submerged Type

Model		AU- 860iA	AU-1000iA	AU-1400iA	AU-1400iA(Z800)
Max. Workpiece Size (L x W x H)	mm	1330 x 990 x 395 (Opt. H595)	1620 x 990 x 395 (Opt. H595)	1740 x 1080 x 195	1790 x 1080 x 795
Max. Workpiece Weight	kg	5000	5000	4000	10000
X / Y Stroke	mm	800 x 600	1100 x 650	1400 x 800	1400 x 800
U / V Stroke	mm	150 x 150	150 x 150	150 x 150	150 x 150
Z Stroke	mm	400 (Opt. Z600)	400 (Opt. Z600)	200	800
Max. Water Level in Working Tank	mm	400 (Opt. Z600)	400 (Opt. Z600)	200	800
Wire Spool Weight	kg	16	16	16	16
Footprint (W x D x H)	mm	3900 x 3600 x 2740	4350 x 3600 x 2740	4250 x 3750 x 2450	5120 x 4050 x 3400
Water System Capacity	L	Main Tank / 2420 (Z400) Main+Sub Tank/1630+1280(Z600)	Main Tank / 2420 (Z400) Main+Sub Tank/1630+1280(Z600)	2420	Main+Sub Tank/2000+1466
Machine Weight	kg	8500	8500	8600	9500

*(A) is the option of AWT function.

Machine Specifications

Controller Specifications

Controller System	**Windows CE**
Control Device	64-bit Industrial PC
Memory Device	1GB CF Card
Screen Display Device	15"Color TFT Touch Screen
Data Input	Keyboard, 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
Max. Cutting Speed	250 mm^2/min
On Time	24 Steps
Off Time	43 Steps
Discharge Mode	Rough Cut / Skim Cut / Fine Cut

Jumbo Wire Feeder

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	2nd 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 comsumption	Lead-in / Lead-Out Control

Standard Specifications

Wire Dia. Applied	0.15~0.33 mm (0.10 Optional)
Simultaneous Axis	XYUV 4 axes / Optional on W axis
Transmission	5 axes AC servo transmission
Max. Cutting Taper	±21° (Wide-Angle Nozzle / H=100, H=80 for AU-3i /300i)
Water Resistance	AUTO 5~200 KΩ-cm
Water Temperature	AUTO Control ± 1°C

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

Optional Accessories

Auto Wire Threading (AWT)	Safety Door Interlock	Alarm Messenger
SD Master	Clean Water Tank (Under AU-750i)	Rotary Table Package (W axis)
MST (AU-300i/500i/560i)	Remote Master	Pilot Lamp
X/Y Linear Scale	0.1mm Wire Application	PCD / Graphite Cutting
Anti-Collision on Z Axis	Auto Voltage Stabilizer	45kg Wire Jumbo Feeder
Transformer	High Pressure Water Jet Threading (Not Available with Anti-Collision on Z Axis)	

*All the specifications are subject to change without prior notice.

Accutex Series Machines

AU-3i / AU-5i / AU-6i

AU-75i / AU-9i / AU-96i

AU-300i/AU-500i/AU-560i/AU-600i

AU-860iA / AU-1000iA

AU-750i / AU-900i

AU-1400iA