



VG Plus SERIES

WIRE EDM FOR ULTRA PRECISE MACHINING

EXCETEK

FUTURE ADVANCED TECHNOLOGY

SMART & EASY

- ▶ Plentiful cutting technologies
- ▶ Friendly interface
- ▶ Remote monitor
- ▶ Convenient features

HIGH SPEED RELIABLE AWT

- ▶ High speed reliable AWT
- ▶ Threading in the slot
- ▶ Threading under water
- ▶ Reduce human resource cost when machining multi molds

ENHANCE MACHINING PERFORMANCE

- ▶ DPM Module
- ▶ Discharging Stabilizer
- ▶ New strategy for corner control
- ▶ Manual radius size machining
- ▶ Reduce wire marks from approach cutting
- ▶ New micron finish circuit

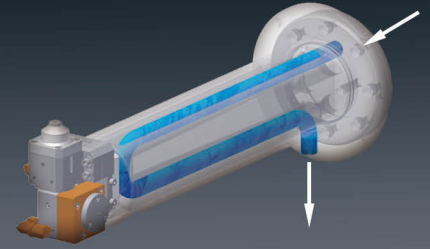
POWER SAVING AND LOW COST OPERATION

- ▶ Intelligent power management
- ▶ Compensation of wire consumption
- ▶ Easy to maintain and reduce cost for service

TO ENSURE THERMAL BALANCE, RIB LOCATION IS DESIGNED BY FINITE ELEMENT ANALYSIS (FEA) ASSURING AN OPTIMIZED RIGID STRUCTURE.

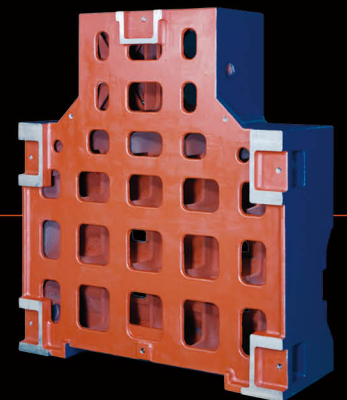
▶ Rigid U, V truss design.

▶ Stainless steel work table with hardness HRC50°.



▶ Water cooled lower arm prevents thermal expansion caused by heat buildup. Therefore the accuracy will be improved.

▶ High response AC servo motor for guaranteed accuracy.



▶ Extra wide machine base.

▶ A rugged cast iron machine structure is the foundation of precision.

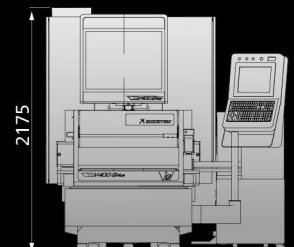
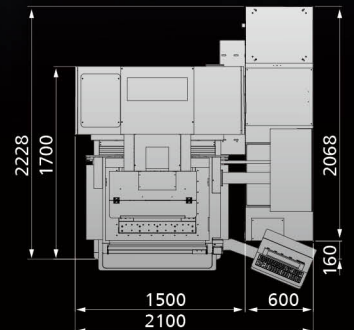




V400G Plus

COMPACT SIZE

Maximum workpiece (mm)	750 x 550 x 215 mm	29.6" x 21.7" x 8.5"
Maximum workpiece weight	500 kg	1102 lb
Travel of X/Y axes	400 x 300 mm	15.8" x 11.8"
Travel of U/V axes	80 x 80 mm	3.1" x 3.1"
Travel of Z axis	220 mm (Submerged height 210 mm)	8.7" (Submerged height 8.3")
Wire diameter	0.15 ~ 0.3 mm	0.006" ~ 0.012"
Number of axes controlled	5 Axis AC servo motor	
Max taper angle (with wide diamond guide & nozzle)	±22° / 80mm	±22° / 3.1"
Machine size	2100 x 2230 x 2175 mm	82.7" x 87.8" x 85.6"
Machine weight	2700 kg	5952 lb
Water tank capacity	650 L	

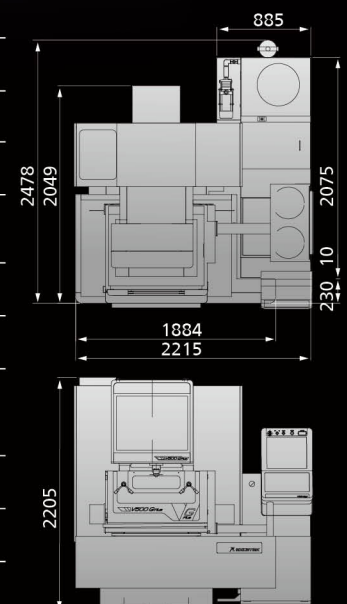




V500G Plus

OUR MOST POPULAR MACHINE SIZE

Maximum workpiece (mm)	850 x 600 x 255 mm	33.5" x 23.6" x 10"
Maximum workpiece weight	600 kg	1323 lb
Travel of X/Y axes	500 x 300 mm	19.7" x 11.8"
Travel of U/V axes	120 x 120 mm	4.7" x 4.7"
Travel of Z axis	260 mm (Submerged height 220 mm)	10.2" (Submerged height 8.7")
Wire diameter	0.15 ~ 0.3 mm	0.006" ~ 0.012"
Number of axes controlled	5 Axis AC servo motor	
Max taper angle (with wide diamond guide & nozzle)	±26° / 100 mm	±26° / 3.9"
Machine size	2215 x 2480 x 2205 mm	87.2" x 97.6" x 86.8"
Machine weight	3500 kg	7716 lb
Water tank capacity	750 L	

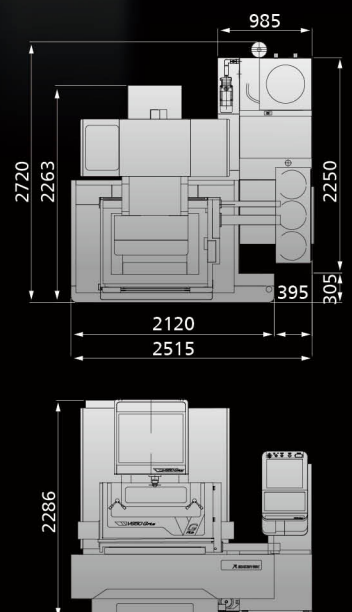




V650G Plus

OPTIMUM FLEXIBILITY

Maximum workpiece (mm)	1000 x 700 x 345 mm	39.4" x 27.6" x 13.6"
Maximum workpiece weight	800 kg	1764 lb
Travel of X/Y axes	650 x 400 mm	25.6" x 15.7"
Travel of U/V axes	160 x 160 mm	6.3" x 6.3"
Travel of Z axis	350 mm (Submerged height 310 mm)	13.8" (Submerged height 12.2")
Wire diameter	0.15 ~ 0.3 mm	0.006" ~ 0.012"
Number of axes controlled	5 Axis AC servo motor	
Max taper angle (with wide diamond guide & nozzle)	±30° / 100 mm	±30° / 3.9"
Machine size	2520 x 2720 x 2290 mm	99.2" x 107.1" x 90.2"
Machine weight	4450 kg	9810 lb
Water tank capacity	850 L	



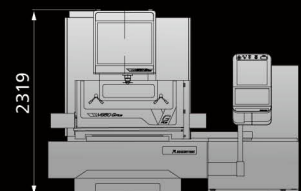
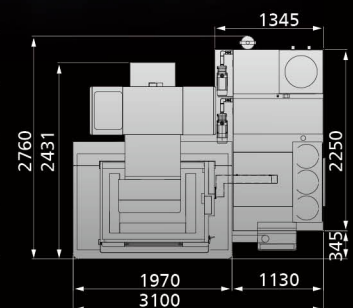
*Travel of Z axis (Option): 410 mm 16.1" (Submerged height 410 mm 16.1")



V850G Plus

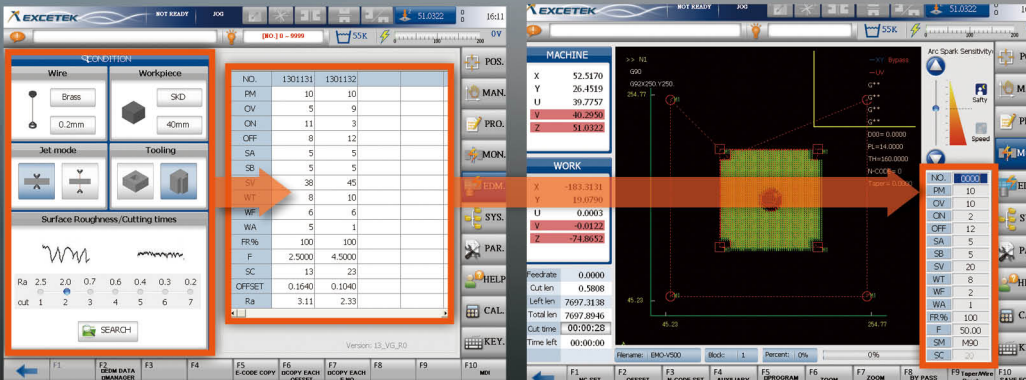
COST-EFFECTIVE EXTENDED TRAVELS

Maximum workpiece (mm)	1100 x 850 x 345 mm	43.3" x 33.5" x 13.6"
Maximum workpiece weight	1100 kg	2425 lb
Travel of X/Y axes	800 x 500 mm	13.5" x 19.7"
Travel of U/V axes	160 x 160 mm	6.3" x 6.3"
Travel of Z axis	350 mm (Submerged height 310 mm)	13.8" (Submerged height 12.2")
Wire diameter	0.15 ~ 0.3 mm	0.006" ~ 0.012"
Number of axes controlled	5 Axis AC servo motor	
Max taper angle (with wide diamond guide & nozzle)	±30° / 100 mm	±30° / 3.9"
Machine size	2840 x 2900 x 2290 mm	111.8" x 114.2" x 90.2"
Machine weight	4900 kg	10802 lb
Water tank capacity	1050 L	

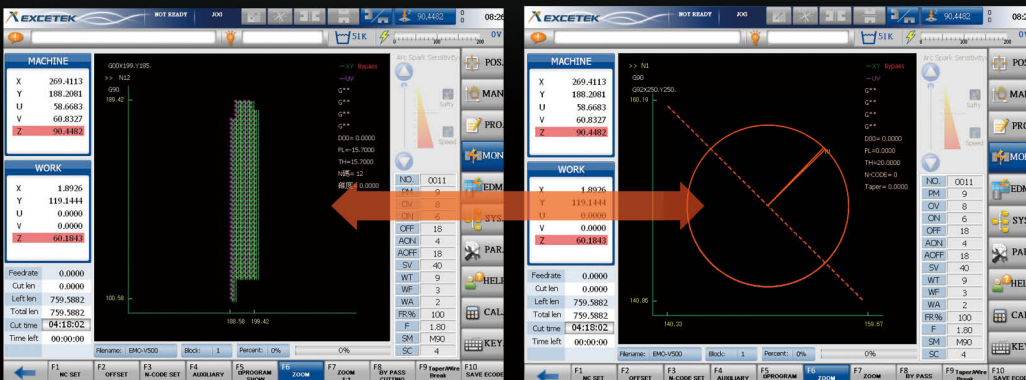


*Travel of Z axis (Option): 410 mm 16.1" (Submerged height 410 mm 16.1")

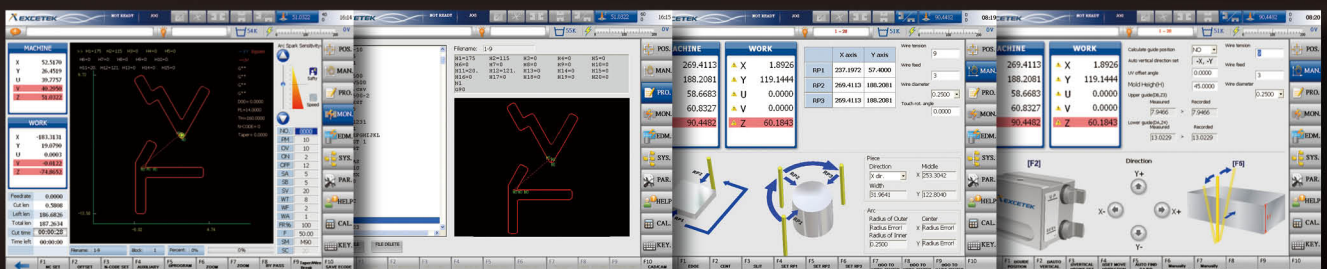
GRAPHICAL INTERFACE



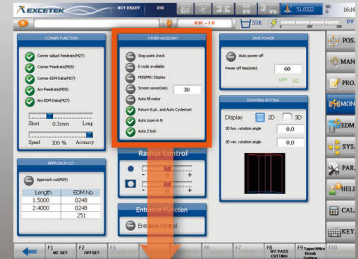
- ▶ A suitable cutting can be generated by selecting wire diameter, material thickness, cutting mode and surface roughness.



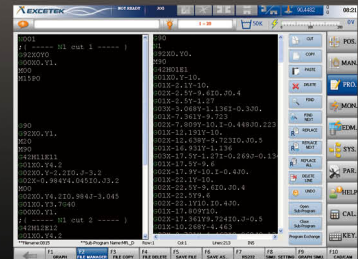
- ▶ Auto Zoom-In On The Single-Hole Machining



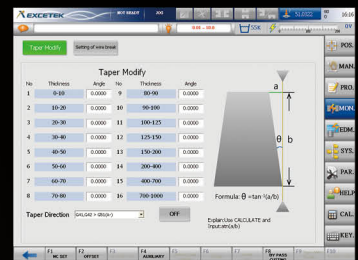
- ▶ The New HMI Operation



- ▶ Return B.pt, and Auto Cycle start
- ▶ Auto zoom in N
- ▶ Auto Z lock



- ▶ Main/Subroutine simultaneously edit, simulation



- ▶ Compensation of wire consumption

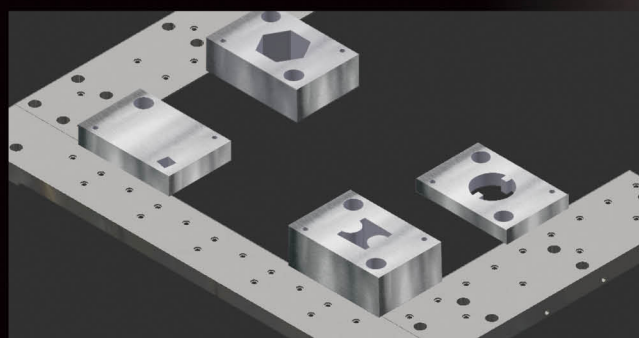
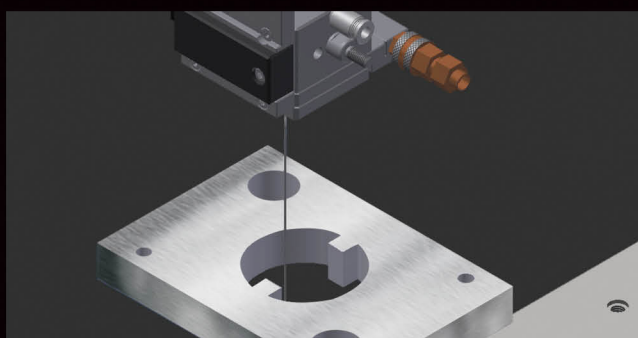
$s_2 = 13.572$ mm
 $x_1 = 10.014$ mm
 $H = 20.214$ mm
 Calculate
 Measured $\theta = 9.9628^\circ$
 Angle = 10°
 $DA = 13.4088$ mm
 $DB = 10.4772$ mm
 Height of Z axis = 22.3147 mm
 Width of workpiece = 10 mm
 Calculate
 $DA = 13.5119$ mm
 $DB = 10.4553$ mm

- ▶ Taper Calibration

	Standard	Modified
DA	13.4088	13.512
DB	10.4772	10.455
Machining result (degree)	9.983	10.002
Tolerance scope (degree)	± 0.02	± 0.002

AUTOMATIC WIRE THREADING

CONTINUOUS UNMANNED OPERATION DAY AND NIGHT
NONSTOP MACHINING WITH IDEAL BREAK POINT AUTOMATIC WIRE THREADING



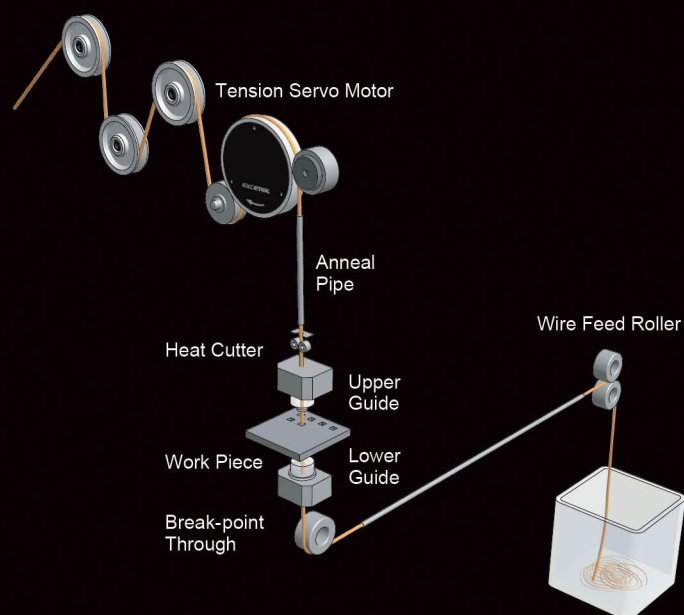
FEATURES WITH AWT

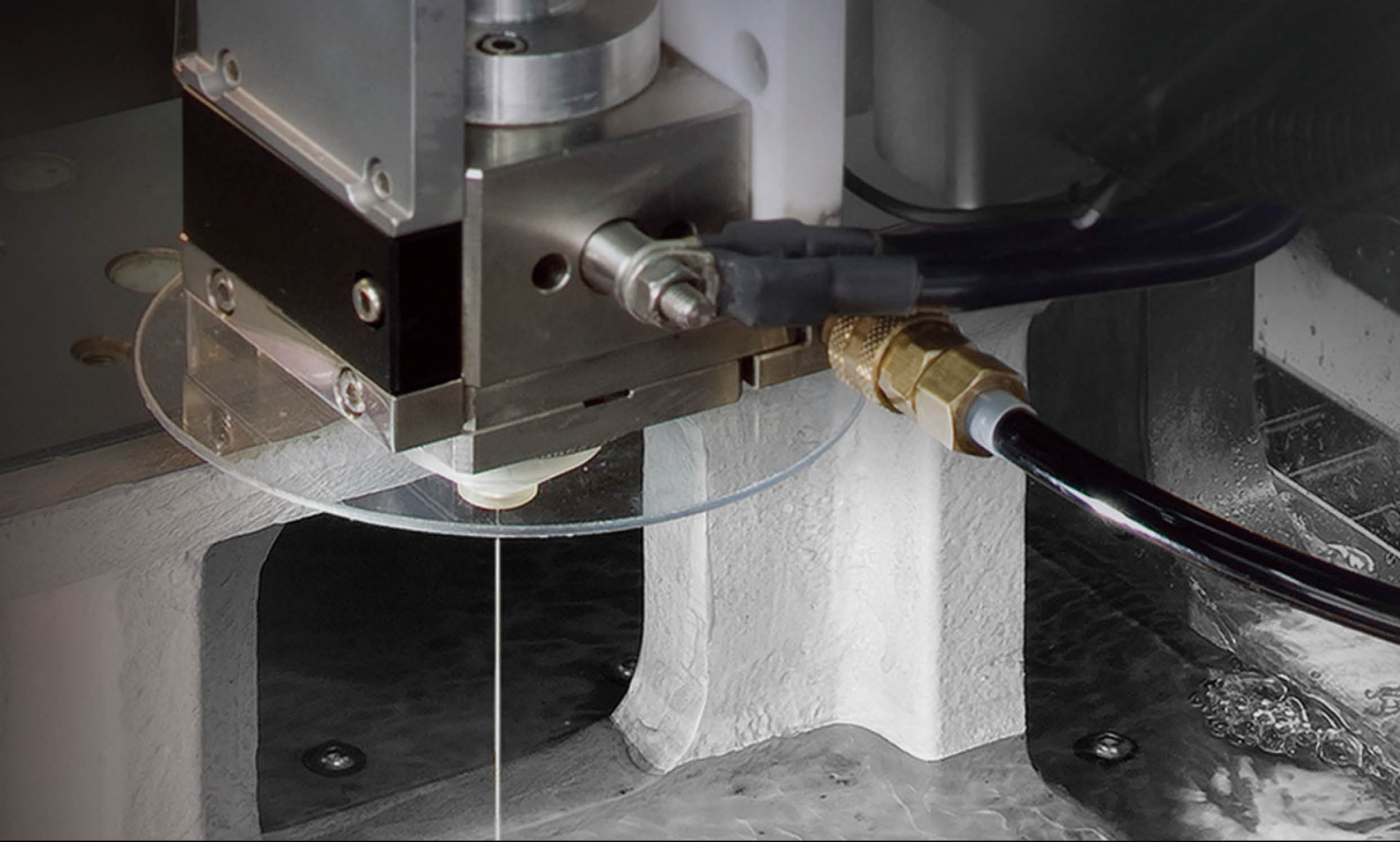
- ▶ Unnecessary to pay attention to wire break; reduction of the operation cost.
- ▶ The multi-jobs machining would be much easier since the machining will be automatically finished without manual command.
- ▶ G54 ~ G59 coordinate can be utilized for automatic work-piece change.

RELIABLE AUTO WIRE THREADING SYSTEM

- ▶ The EXCETEK AWT is very sophisticated design that provides continuous unmanned operation day and night. Unlike other systems, it can thread at where the wire break.

A water jet function enables the machine to thread workpieces up to 500 mm.



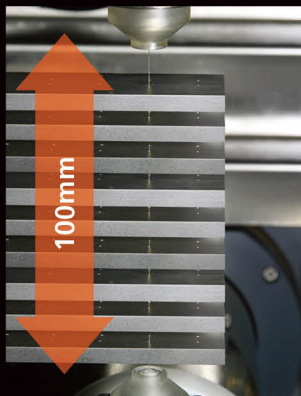


ANNEALING WIRE THREADING

- ▶ Threading at the wire break point. Annealing is used to improve the straightness of the wire. The wire can be threaded at the break point during machining, with virtually 100% reliability and without the need to return to the start hole.
- ▶ Submerged Wire Threading: Wire threading is also easy to execute during submerged machining, saves time to drain and refill the work tank.
- ▶ Multi-hole machining function: On the rare occasion events when the machine fails to rethread during multi-hole machining, the system will skip to the next hole. The location of the skipped hole is automatically stored in memory and can be recalled later to complete the machining.

HIGH SPEED AUTO WIRE THREADING SYSTEM

- ▶ Multi-hole operation: Finish Cutting ➔ Cut Wire ➔ Re-threading ➔ Machining



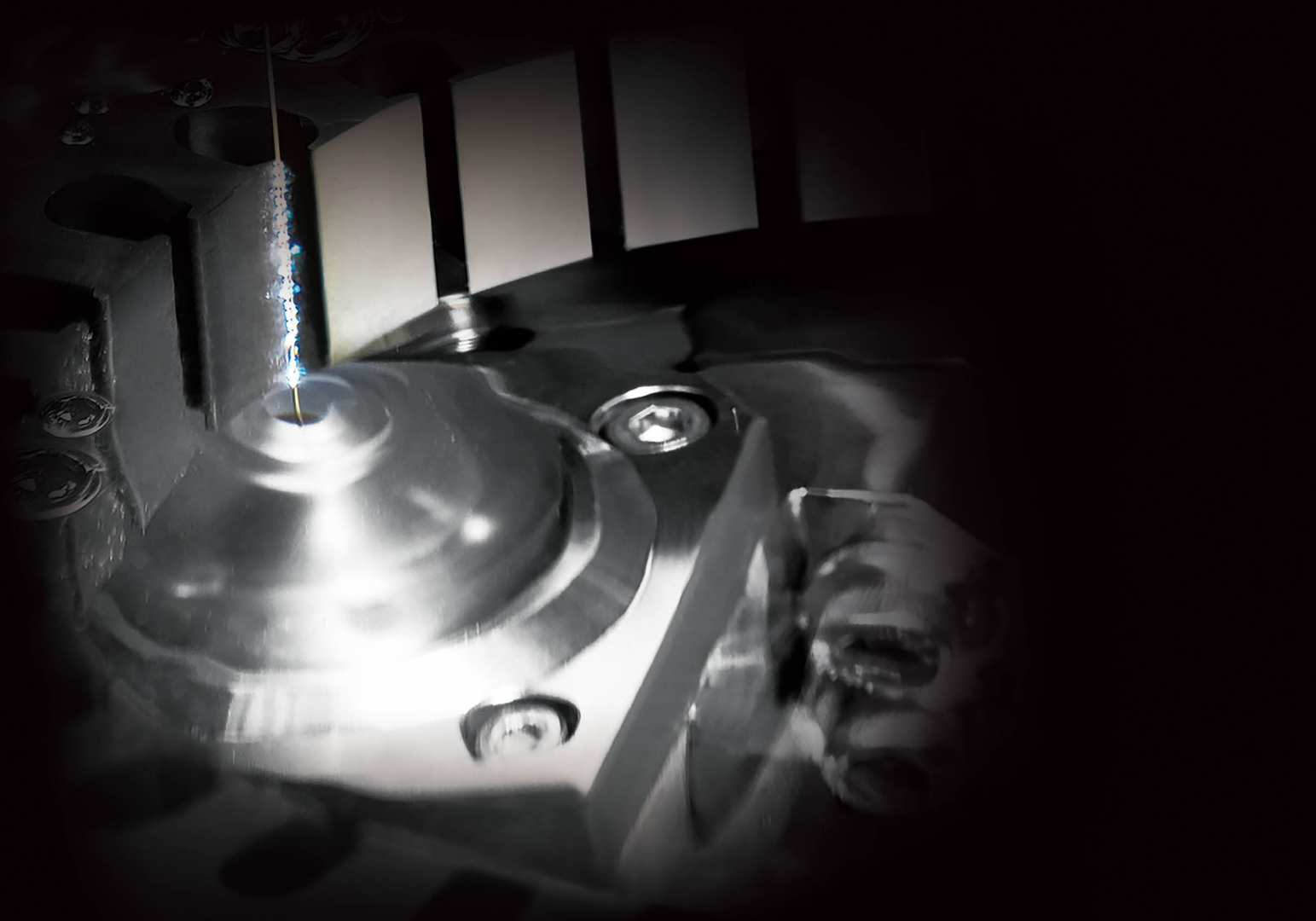
- ▶ Workpiece Thickness 100mm
Wire annealing and cutting: 10 sec
Threading: 10 sec



- ▶ Workpiece Thickness 800mm
Threading under the water at break point

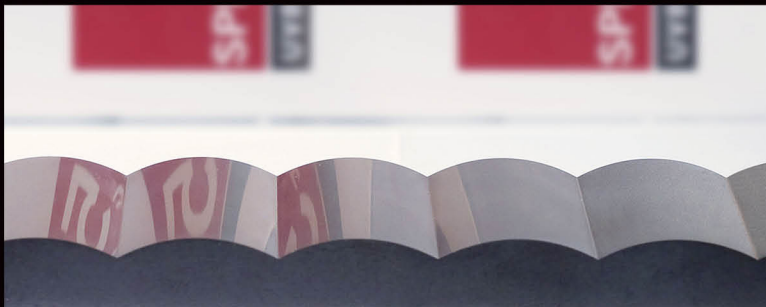
EXCETEK	Yes
Other	?

INTELLIGENT MACHINING MODE



SFC - SUPER FINISH CIRCUIT

- ▶ Standard surface roughness Ra 0.3 μ m, option Ra 0.15 μ m



- ▶ Material: tungsten carbide
- ▶ Thickness: 30 mm (1.2") best surface roughness Ra 0.14 μ m



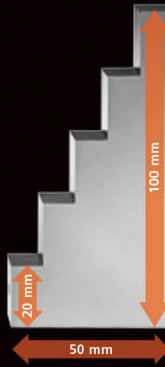
Ra 0.18 μ m

- ▶ Material: tungsten carbide
- ▶ Thickness: 50 mm (2")

DPM

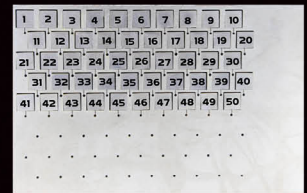
- ▶ DPM is capable of detecting digital signals of sparking density, providing feedback to the CNC system and calculating the sparking size.

Comparison using DPM technology	Mode	Enable	Disable
	Speed mode	39 Min.	58 Min.
	Accuracy mode	$\pm 3\mu\text{m}$	$\pm 15\mu\text{m}$



STABLE DISCHARGE MODULE

- ▶ Voltage Loading Rate: $\pm 1\%$
- ▶ Voltage Ripple Rate: $\pm 1\text{V}$
- ▶ Local Voltage Line-in Permission: $\pm 10\%$
- ▶ 50 holes, one cut, and shape accuracy within 4 micron



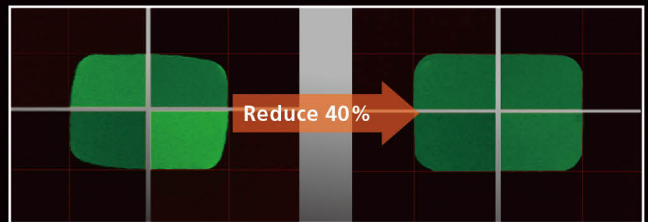
- ▶ 50 holes, one main cut and shape accuracy

- ▶ SGS Verification Workpiece IMG

NEW STRATEGY FOR CORNER CONTROL

- ▶ A new strategy on the wire before and after the corner respectively, and roughness as well. Significantly improve the corner erode, and reduce residues when inner corner machining.

- ▶ By means of the new corner control technology, the die and punch mold can smoothly compound each other to meet the sophisticated requirements.

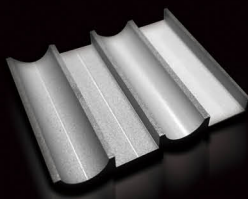


- ▶ Main Cutting
Corner eroded reduce 50%

- ▶ Radius 0.3 Main Cutting
Shape error reduce 40%

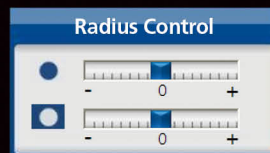
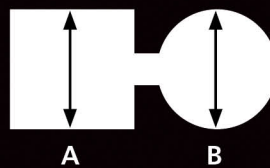
REDUCE WIRE MARKS FROM APPROACH CUTTING

- ▶ When approach cutting, the new parameters combination to reduce wire mark from 6 micron to 3 micron.



- ▶ 50mm: $< 3\mu\text{m}$
- ▶ 100mm: $< 5\mu\text{m}$
- ▶ Great reduce polishing process.

FEATURE OF SHAPE CONTROL



	No control	Radius control
A	5.001 mm	5.001 mm
B	4.994 mm	4.999 mm
Error	7 μm	2 μm

CUTTING TECHNOLOGY



HIGH EFFICIENCY

High energy saving system meets the premium pump efficiency standard (IE3).



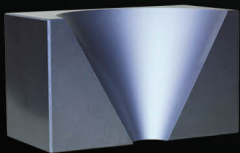
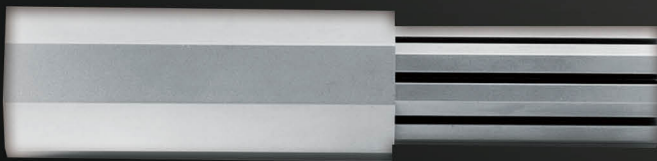
AUTO SHUT DOWN

Machine will be auto shut down when the machining is complete.

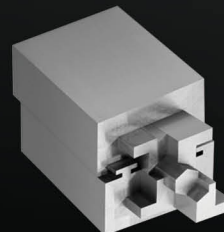


REDUCING OPERATION COST

An intelligent compensation system will reduce wire consumption and reduce operation cost.



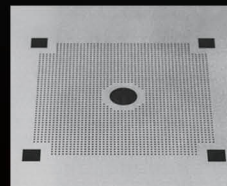
Workpiece	SKD-11
Wire	0.25mm / brass
Angle of taper	30°
Thickness	50mm
No. of cut	1 cut 3 skim



Workpiece	SKD-11
Angle of taper	0.2mm / brass
Thickness	Punch 50mm
No. of cut	1 cut 2 skim



Workpiece	SKD-11
Wire	0.2mm / brass
Thickness	50mm
No. of cut	1 cut 2 skim



Workpiece	SKD-11
Wire	0.2mm / brass
Start hole	0.7mm
Thickness	15mm
No. of cut	No cone cut

ACCESSORIES

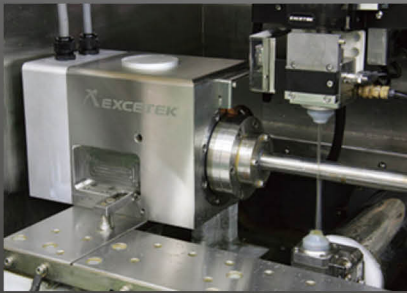
STANDARD ACCESSORIES

- ▶ Ion exchange resin x 10L
- ▶ Paper filter x 2 pcs
- ▶ Diamond guide x 2 pcs
- ▶ Upper and lower flushing nozzle x 2 sets
- ▶ Energizing plates x 2 pcs
- ▶ Brass wire x 1 spool
- ▶ Clamping tool x 1 set
- ▶ Vertical alignment jig x 1 set

OPTION ACCESSORIES

- ▶ XY axis linear scale
- ▶ Clamping Beam
- ▶ AWT
- ▶ AVR 15KVA
- ▶ Transformer 15KVA
- ▶ Short Message Service (SMS)
- ▶ Remote Monitor System
- ▶ Super Finish Circuit
- ▶ W-Axis
- ▶ Jumbo Feeder L-50A
- ▶ Double Door
- ▶ Power Slide Door (Only V650G & V850G)
- ▶ Signal Tower

OPTION



▶ W-Axis



▶ Double Door



▶ Power Slide Door



▶ Jumbo Feeder



▶ Short Message Service (SMS)



▶ Clamping Beam



▶ Remote Monitor System

www.excetek.com

EXCETEK TECHNOLOGIES CO., LTD.

No.10, Fenggong 3rd Rd., Shengang Dist.,
Taichung City 42942, Taiwan

TEL: 886-4-2520-0688 | FAX: 886-4-2520-0111

E-mail: info@excetek.com.tw

Dealer:

No. S1030B
201609