



# NP

## SERIES

High precision wire EDM with  
class leading technologies

*Linear Motor Drive*





## World Class EDM Machine Tool Manufacturer

Founded in 2006, EXCETEK specializes in the technical research, development and manufacturing on CNC wire-cut EDM, die-sinking EDM and hole-drilling EDM, and has been globally well-known by the advanced technology, prominent production capacity and outstanding product design.

Since EXCETEK's establishment, we concentrated on the superb machine quality, premium performance and accuracy. Through the global marketing, EXCETEK Products have been well-acknowledged by all universal clients who care about the machine quality.



## Quality, Performance, Reliability

The NP Series is specially designed for challenging wire EDM applications and are built to high quality standards providing industry leading performance and long-term reliability. Applications include a wide range of materials and components serving multiple industries.

### Rigid Design

During the design process, Finite Element Method (FEM) is used to ensure the best placement of mass and rib structures to provide continuous stability under varying thermal and mechanical dynamics. This commitment to quality starts at Our Group foundry where components are perfectly cast resulting in a rigid Meehanite structure.

### Accuracy and Precision

Advanced high thrust linear motors deliver fast, accurate, and repeatable cutting. The combination of a rigid structure, linear motors and glass scales provide uncompromising precision and accuracy to single digit micron levels and surface finishes down to Ra 0.14  $\mu\text{m}$ .

### Control and Generator System

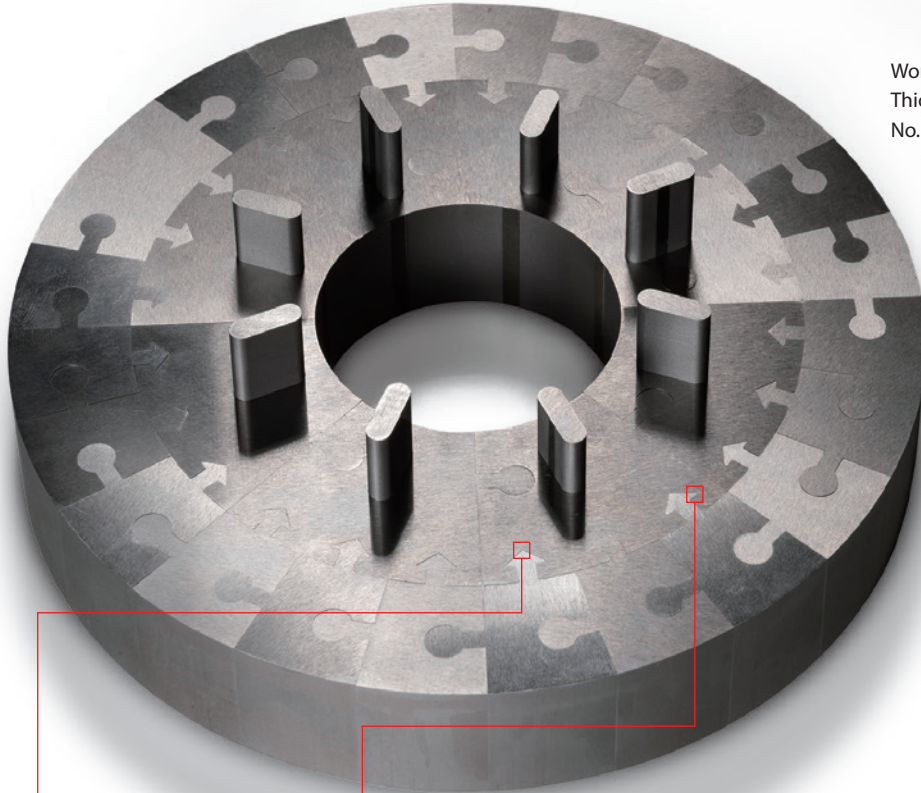
A robust industrial designed PC at the front end delivers an intuitive user friendly interface that provides the flexibility for any level operator to perform the most challenging and complex parts machining with ease.

The latest advancements in digital power generation include the ability to manage cutting conditions and automatically adjust power, wire tension, and flushing parameters to reach optimum speed, accuracy and overall performance.

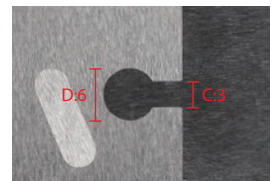
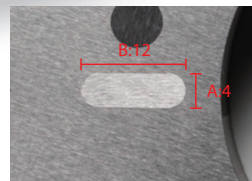
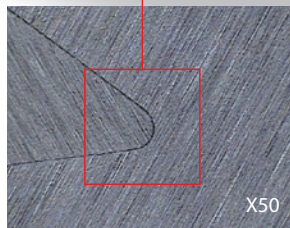
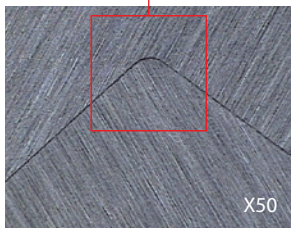


**NP** *series*

# Cutting Technology



Workpiece: SKD-11  
 Thickness: 20 mm  
 No. of cut: 1 cut 2 skim

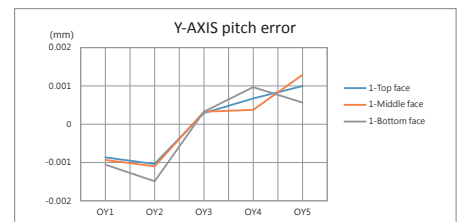
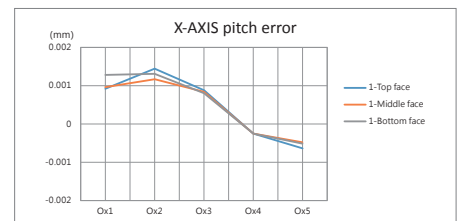
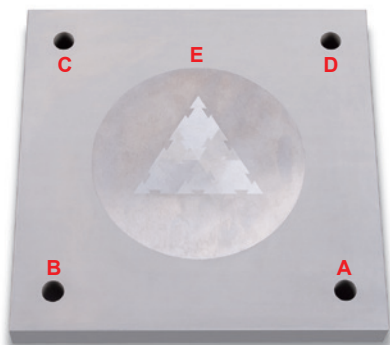


	A	B	C	D
With control	0	0 ~ -2 μ	0	0 ~ -2 μ
Without control	0	-8 ~ -10 μ	0	-8 ~ -10 μ

## Precision



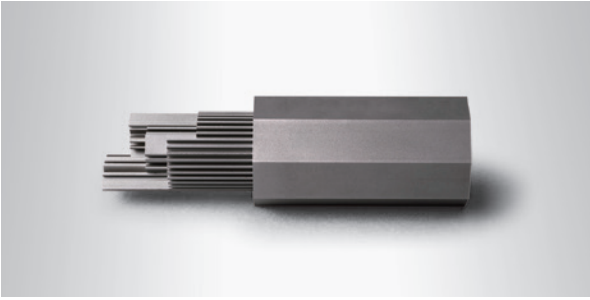
Workpiece: SKD-11  
 Thickness: 30 mm  
 No. of cut: 4 cut



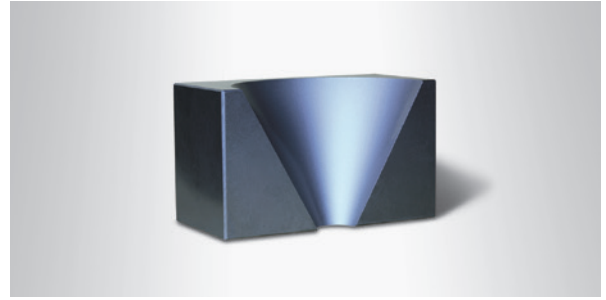
## SGS Inspection

	A	B	C	D	E
Diameter	Ø14.9930	Ø14.9927	Ø14.9922	Ø14.9928	Ø149.9917
Roundness	0.0011	0.0013	0.0013	0.0014	0.0021

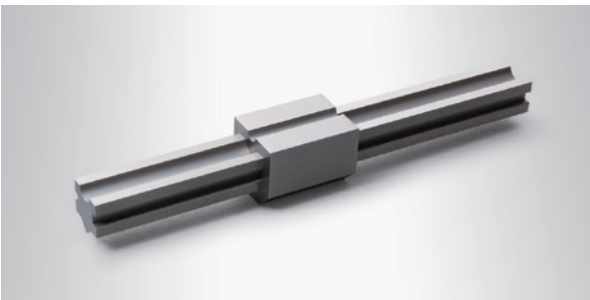
unit: mm



Material	SKD-11
Wire diameter / type	0.2 mm / Brass
Thickness	50 mm
No. of cut	1 rough cut 2 skims



Material	SKD-11
Wire diameter / type	0.25 mm / Brass
Angle of taper	30°
Thickness	50 mm
No. of cut	1 rough cut 3 skims



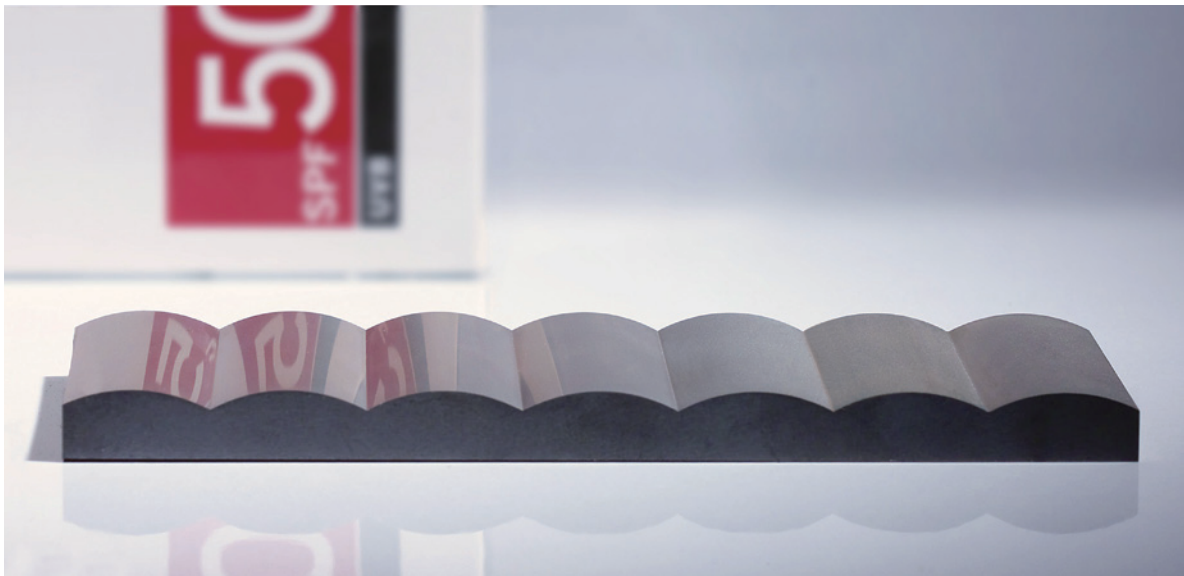
Material	SKD-11
Wire diameter / type	0.25 mm / Brass
Thickness	200 mm
No. of cut	1 rough cut 2 skims



Material	Tungsten carbide
Wire diameter / type	0.2 mm / Brass
Thickness	50 mm
No. of cut	1 rough cut 4 skim / Ra 0.18 μm

## SFC - Super Finish Circuit

Standard surface roughness Ra 0.3 μm, optional Ra 0.14 μm



Material: Tungsten carbide  
 Thickness: 30 mm (best surface roughness Ra 0.14 μm)

# NP series

## High Precision

- High Rigid Mechanical Structure
- Rigid Linear Motor Drives
- Smart Corner Control
- Stable Discharge Module
- SFC Super Finish Circuit

## Efficiency

- DPM module
- Entrance mark control
- EF Electrolysis Free generator system

## Cost Saving

- Intelligent Power Management
- Save Wire Consumption
- Low running cost

## Intelligent Networking

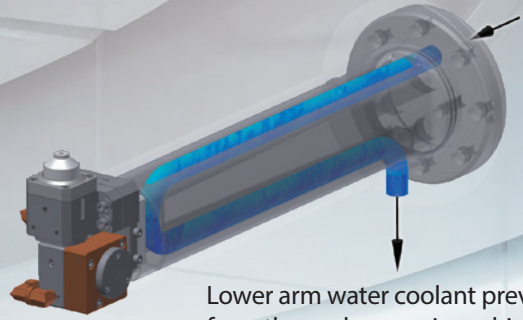
- Remote monitor and management
- Connects to all your controllers
- Portable device monitor

## Automation

- High speed Auto Wire Threading
- Auto Workpiece Transfer by Robo-arm
- Auto Measurement and Correction

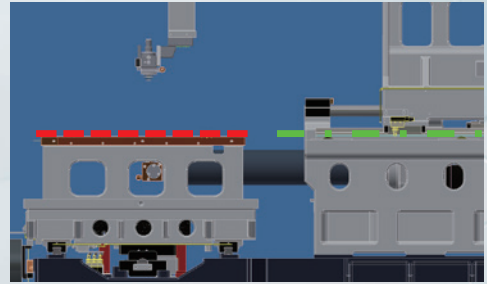


Rigid U, V truss design.



Lower arm water coolant prevents from thermal expansion which are caused by heat build-up during machining process

Stainless steel work table with hardness HRC 50°.



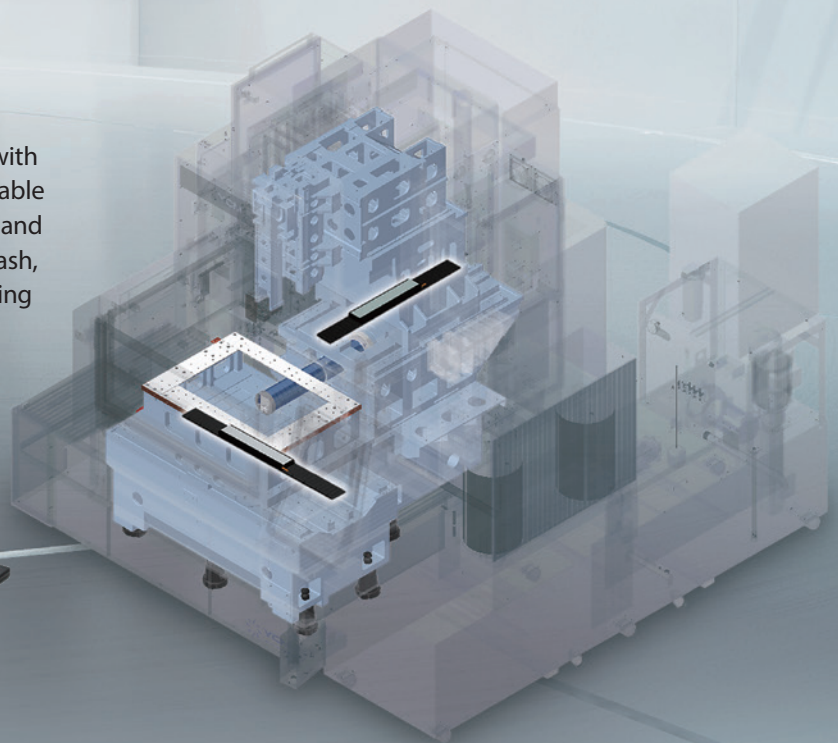
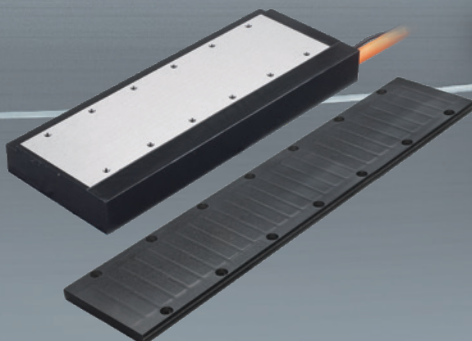
Cast machine base designed using FEA to achieve high rigidity.



Extra wide machine base.

## Advanced High-Thrust Linear Motors

- Advanced High-Thrust Linear Motors and scales with direct feedback provides smooth, vibration-free table movement, which ensures improved positioning and cutting accuracy. Compared to ball-screws, backlash, lost motion and wear issues are eliminated, assuring long-term high precision performance.
- Minimum resolution of the linear scales is  $0.01\mu\text{m}$  (0.00004 inch) contributing to ultra smooth and accurate finishes.



# Auto Wire Threading

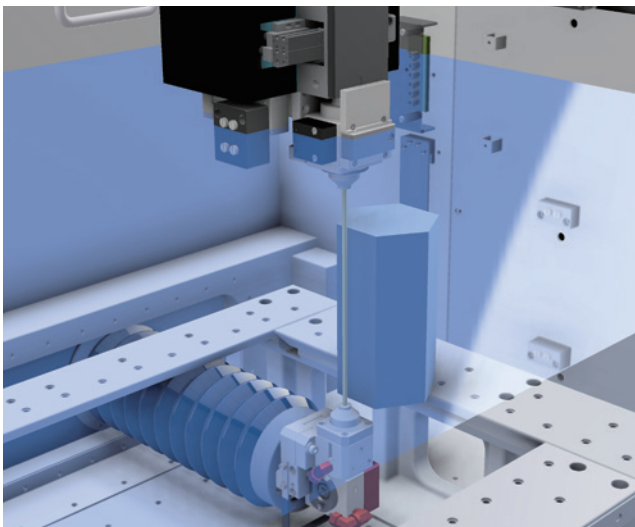
## Reliable Auto Wire Threading System

- The EXCETEK AWT is a simple, proven and reliable design that provides continuous unmanned operation day and night. This advanced technology enables re-threading within the kerf.
- Wire is annealed and guided by means of a water jet which can thread through workpieces up to 400mm.

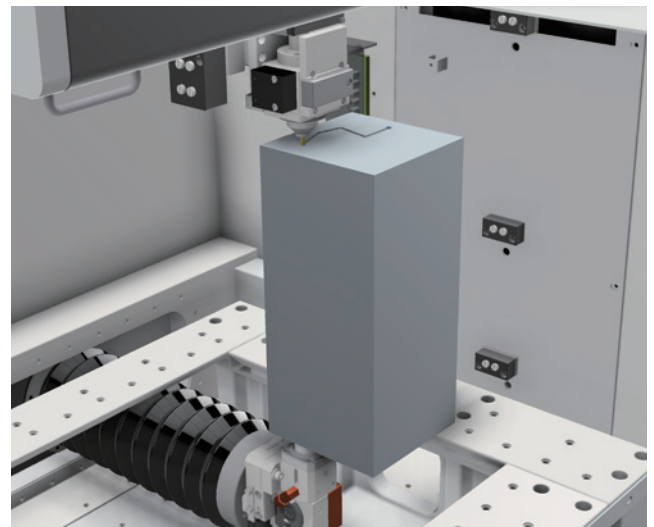


## High speed Auto Wire Threading System

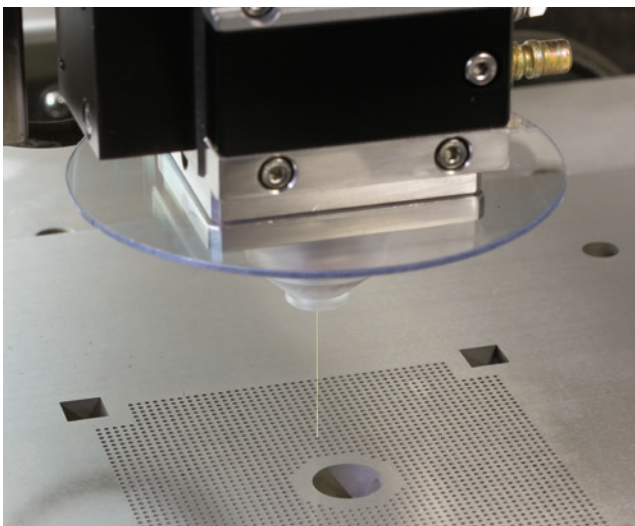
- Workpiece thickness 100mm
- Annealing and cutting the wire takes 10 seconds.
- Threading the wire takes 10 seconds.



200mm submerged threading



400mm thickness can re-thread within the kerf



Material	SKD-11 Hardened Steel
Wire diameter / type	0.2 mm / Brass
Thickness	38 mm
Hole diameter	2.5 mm
Number of holes pre-drilled	3000
Dimensional accuracy	Within 5 µm
Wire threading success rate	100%



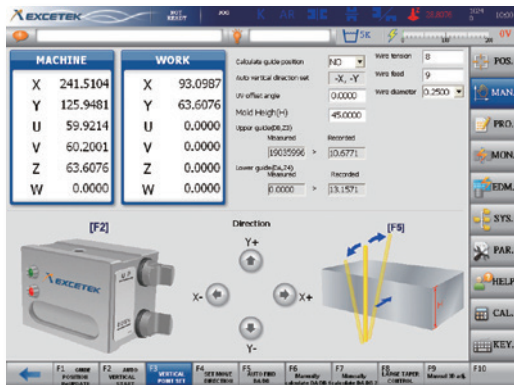
# Controller and Generator System

The W6 controller is designed to deliver

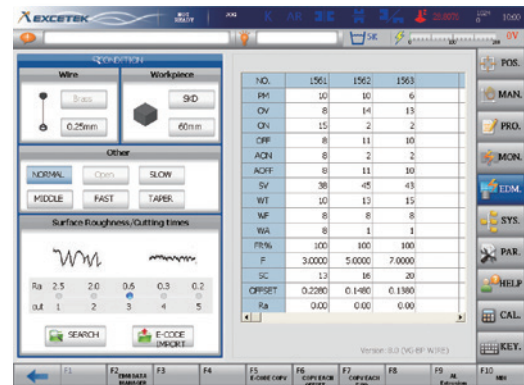
- CNC Device: Industrial PC
- CPU: 64-bit high speed CPU
- Operation Interface: 19" LCD touch-screen, Keyboard, Mouse
- Input Interface: LAN, USB driver, RS-232
- Memory capacity: 32 GB SSD
- Min. command unit: 0.0001 mm (0.000004")
- Max. programmable dimension: ±9999.9999 mm
- Unit: Metric/Inch switchable



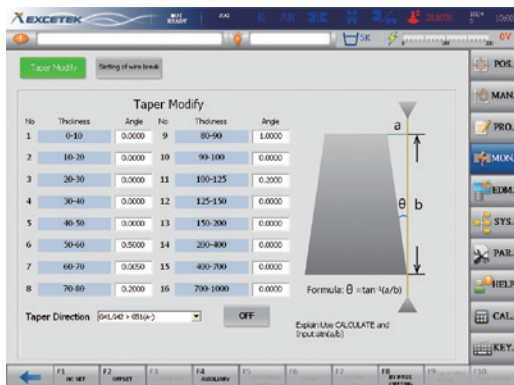
## User-friendly GUI



## Workpiece set-up



## Convenient feature function



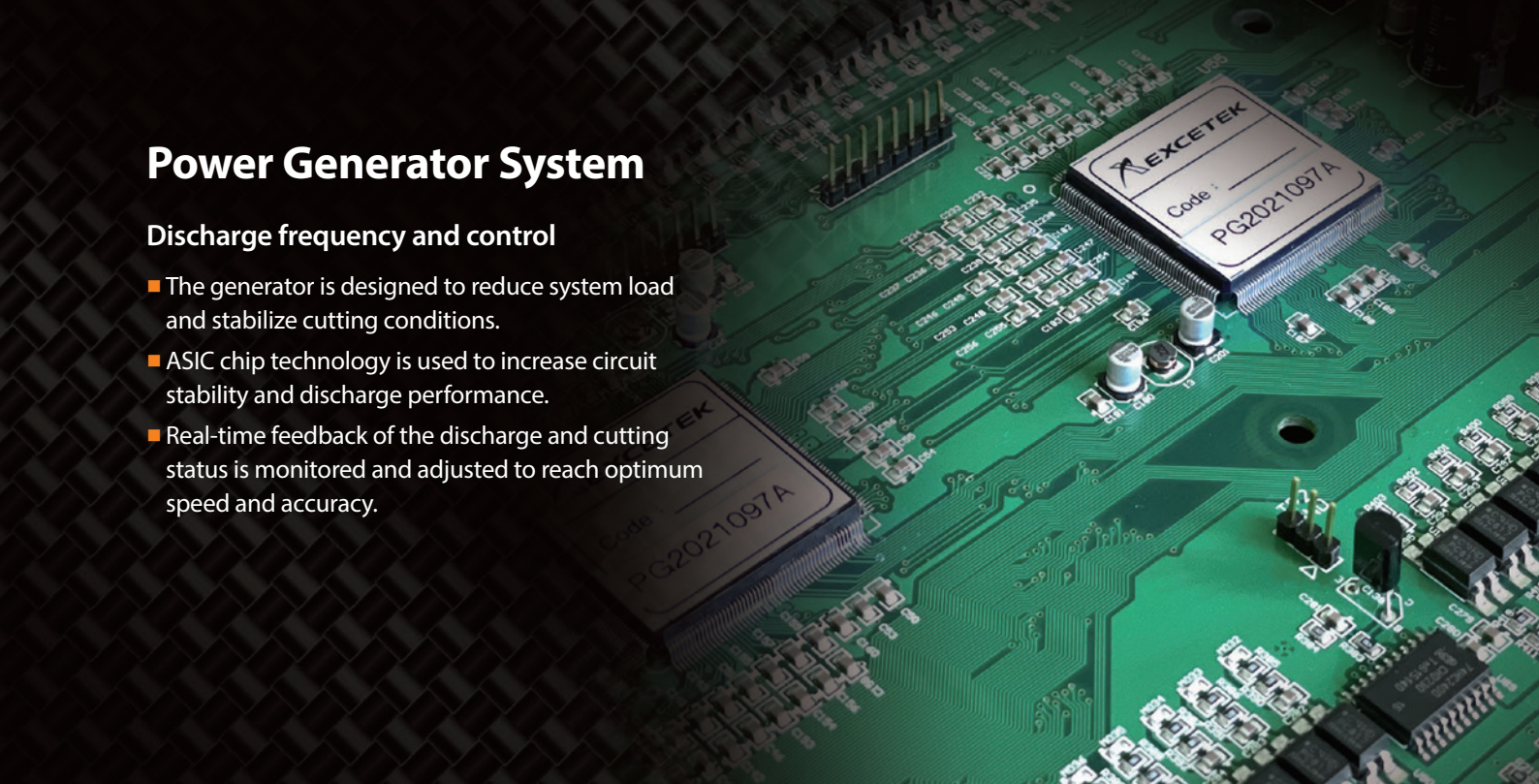
## Maintenance and diagnosis



# Power Generator System

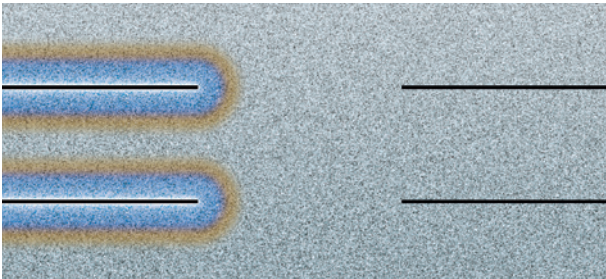
## Discharge frequency and control

- The generator is designed to reduce system load and stabilize cutting conditions.
- ASIC chip technology is used to increase circuit stability and discharge performance.
- Real-time feedback of the discharge and cutting status is monitored and adjusted to reach optimum speed and accuracy.



## Electrolysis free cutting

The Power Generator is equipped with EF Technology which enhances cutting efficiency and speed, while nearly eliminating the effects of electrolysis during discharge.

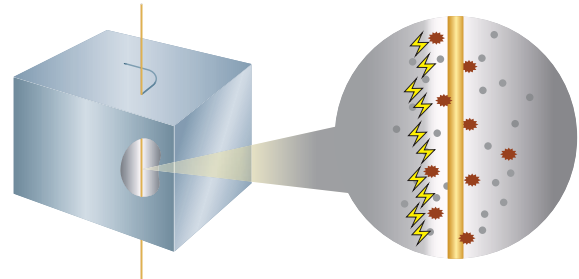


DC discharge

EF Technology - non-electrolysis discharge

## RTS (Real Time Sparking)

Short response time provides feedback to ineffective discharges and adjusts conditions to improve cutting efficiency.



⚡ Effective discharging    ⚡ Ineffective discharging    • Chips



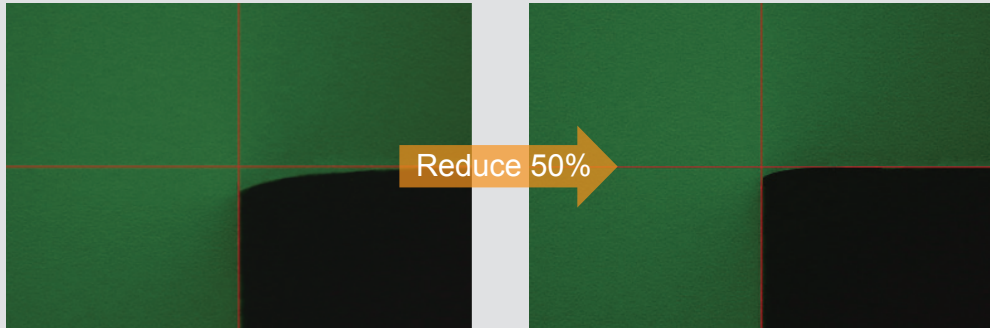
## Digital Power Management (DPM)

The Digital Power Management (DPM) system detects the discharge density, area, and capacity and automatically adjusts the power, wire tension and flushing to improve cutting speed while maintaining consistent accuracy through varying workpiece thicknesses.

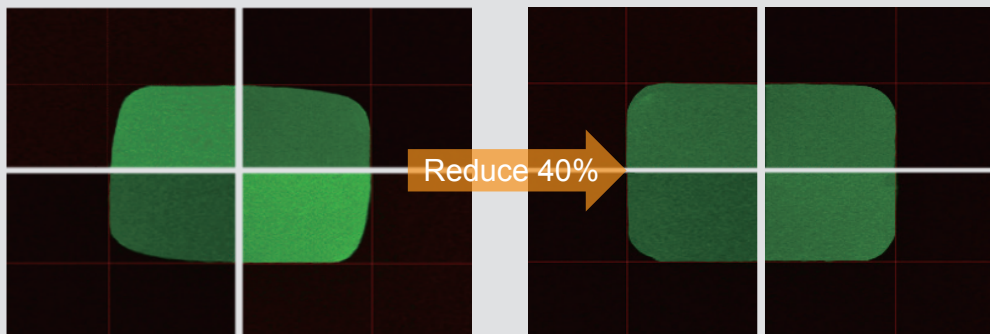
DPM Technology Comparison Chart	Mode	With	without
	Speed condition	39 min	58 min
Accuracy condition	$\pm 3 \mu\text{m}$	$\pm 15 \mu\text{m}$	

# Power Generator Corner Technology

## Smart corner control



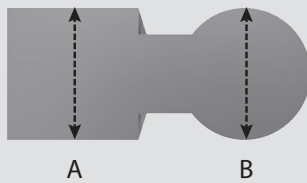
50% reduction in corner erosion



40% reduction in Shape error

## Corner arc control

The square and circle shape error is controlled within 3 $\mu$ m



	Without control	With control
A	5.001 mm	5.001 mm
B	4.994 mm	4.999 mm
error	7 $\mu$ m	2 $\mu$ m

## Corner break prevention

Wire breakage is reduced by 90% and cutting speed increased by 35%.

Discharge protection technology effectively prevents wire breakage during corner cutting.



Workpiece material: SKD -11 steel

- thickness: 100 mm
- wire type: 0.25 mm brass wire
- cutting speed: 150 mm<sup>2</sup>/ min

- thickness: 50~80 mm
- wire type: 0.3 mm brass wire
- cutting speed: 250 mm<sup>2</sup>/ min



# NP 400 L

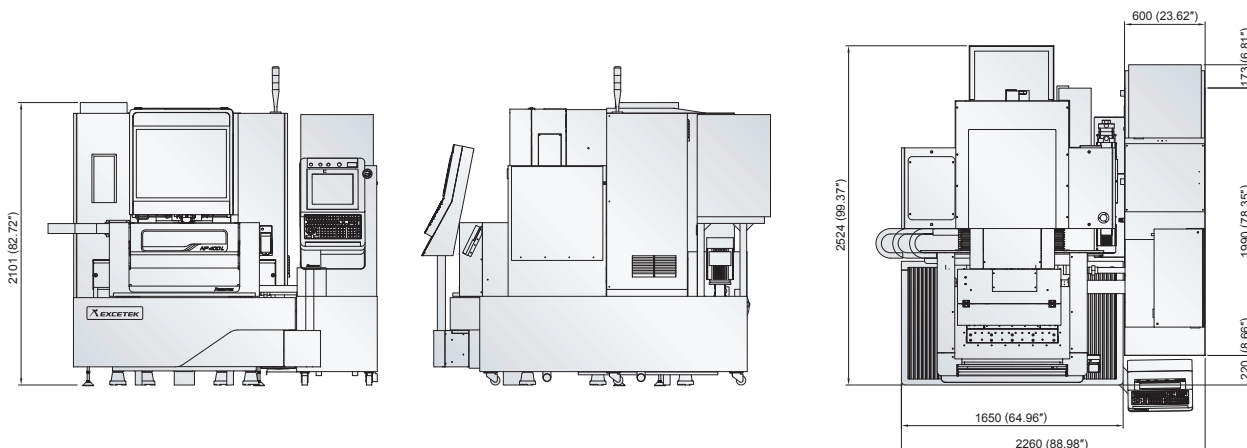


## SUBMERGED TYPE

Machine	NP400L
Max.work piece Size	750 x 550 x 215 mm (29.5" x 21.7" x 8.5")
Max.work piece wight	500 kg (1102.3 lb)
Table travel of XY	400 x 300 mm (15.7" x 11.8")
U&V axis travel	80 x 80 mm (3.1" x 3.1")
Z axis travel	220 mm (8.7")
Wire diameter	0.15 - 0.3 mm (0.006" - 0.012")
Number of axes controlled	XY axis linear motor, UVZ axis AC servo motor
Maximum taper angle	±22°/80 mm (3.1") (wide diamond guide and nozzle)
Maximum cutting speed (option)	SKD 11 Hardened steel / 63.5 mm (2.5") thickness / 0.3 mm (0.012") Bedra Topas wire / 320 mm <sup>2</sup> /min
Machine dimensions	2260 x 2525 x 2100 mm (89.0" x 99.4" x 82.7")
Machine weight	3050 kg (6724.1 lb)

## Dielectric Tank

Tank capacity	650 L
Paper filter	2/pcs
Deionizer	AUTO
Chiller unit	AUTO



Specifications

# NP 500 L

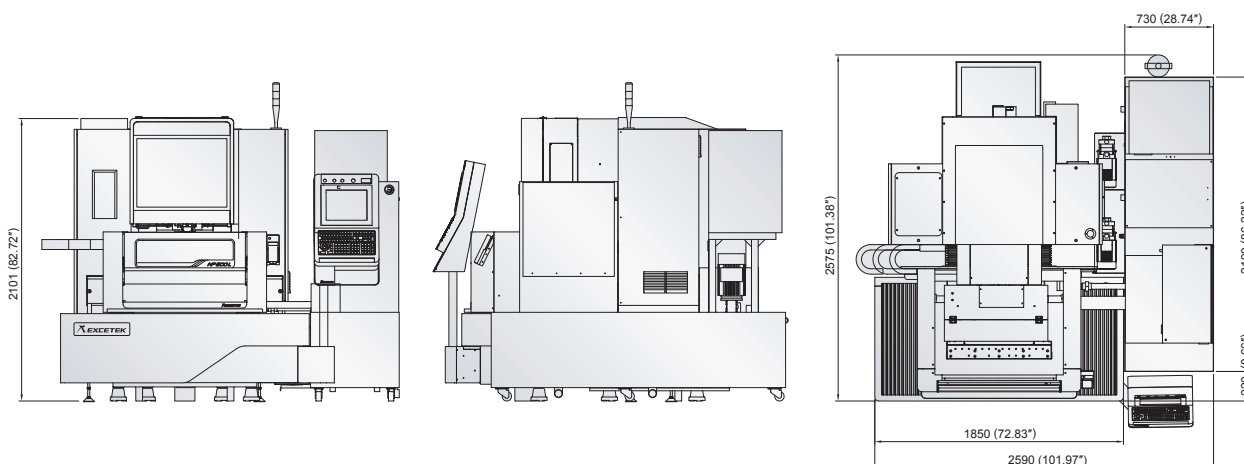


## SUBMERGED TYPE

Machine	NP500L
Max.work piece Size	850x550x300 mm (33.5"x21.7"x11.8")
Max.work piece wight	600 kg (1322.8 lb)
Table travel of XY	500x300 mm (19.7"x11.8")
U&V axis travel	120x120 mm (4.7"x4.7")
Z axis travel	310 mm (12.2")
Wire diameter	0.15 - 0.3 mm (0.006" - 0.012")
Number of axes controlled	XY axis linear motor, UVZ axis AC servo motor
Maximum taper angle	±26°/100 mm (3.9") (wide diamond guide and nozzle)
Maximum cutting speed (option)	SKD 11 Hardened steel / 63.5 mm (2.5") thickness / 0.3 mm (0.012") Bedra Topas wire / 320mm <sup>2</sup> /min
Machine dimensions	2590x2575x2165 mm (102.0"x101.4"x85.2")
Machine weight	3350 kg (7385.5 lb)

## Dielectric Tank

Tank capacity	750 L
Paper filter	2/pcs
Deionizer	AUTO
Chiller unit	AUTO



# NP 600 L

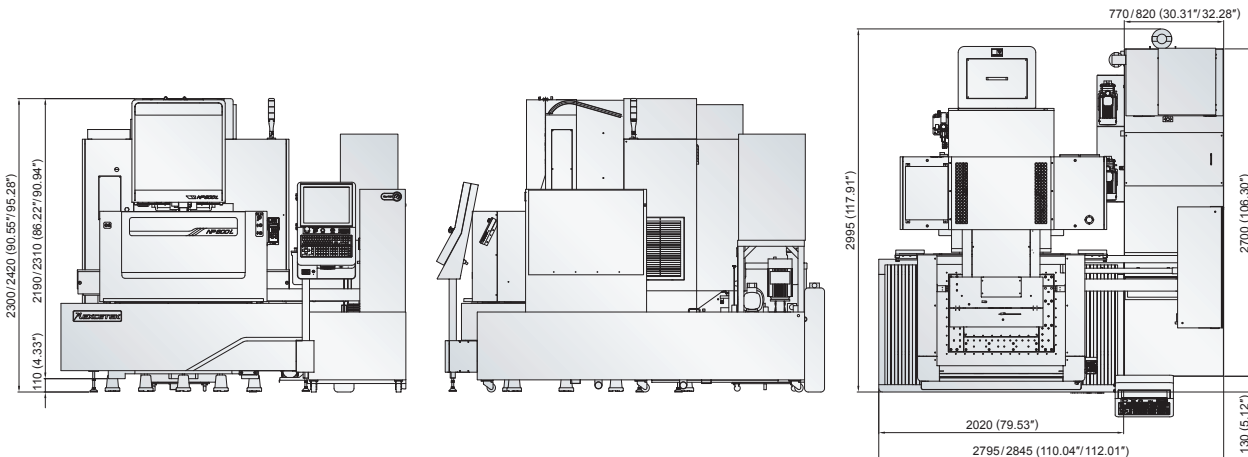


## SUBMERGED TYPE

Machine	NP600L
Max.work piece Size	1000x700x345/405 mm (39.4"x27.6"x13.6/15.9")
Max.work piece wight	800/850 kg (1763.7/1873.9 lb)
Table travel of XY	600x400 mm (23.6"x15.7")
U&V axis travel	160x160 mm (6.3"x6.3")
Z axis travel	350/410 mm (13.8/16.1") (option)
Wire diameter	0.15 - 0.3 mm (0.006" - 0.012")
Number of axes controlled	XY axis linear motor, UVZ axis AC servo motor
Maximum taper angle	±30°/100 mm (3.9") (wide diamond guide and nozzle)
Maximum cutting speed (option)	SKD 11 Hardened steel / 63.5 mm (2.5") thickness / 0.3 mm (0.012") Bedra Topas wire / 320 mm <sup>2</sup> /min
Machine dimensions	2795/2845 x 2995 x 2300/2420 mm (110/112" x 117.9" x 90.6/95.3")
Machine weight	4700/4850 kg (10362/10692 lb)

## Dielectric Tank

Tank capacity	900/1000 L
Paper filter	2/pcs
Deionizer	AUTO
Chiller unit	AUTO



# NP 1060 L



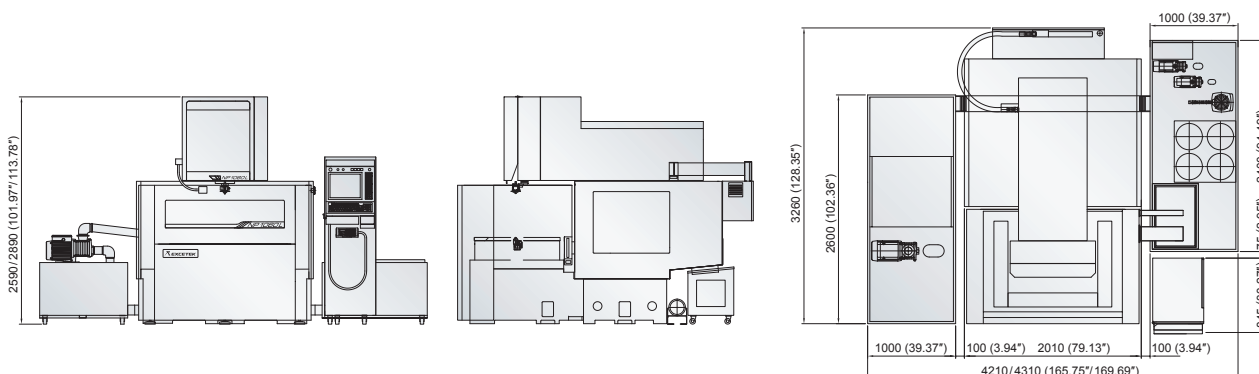
Specifications

## SUBMERGED TYPE

Machine	NP1060L-Z500/Z600
Max.work piece Size	1500x1000x495/595 mm (59.1"x39.4"x19.5/23.4")
Max.work piece wight	3500/4000 kg (7716/8818 lb)
Table travel of XY	1000x600 mm (39.4"x23.6")
U&V axis travel	260x260 mm (10.2"x10.2")
Z axis travel	500/610 mm (19.7/24")
Wire diameter	0.15 - 0.33 mm (0.006" - 0.013")
Number of axes controlled	XY axis linear motor, UVZ axis AC servo motor
Maximum taper angle	±30°/100 mm (3.9") (wide diamond guide and nozzle)
Maximum cutting speed (option)	SKD 11 Hardened steel / 63.5 mm (2.5") thickness / 0.3 mm (0.012") Bedra Topas wire / 320 mm <sup>2</sup> /min
Machine dimensions	4210/4310x3260x2590/2890 mm (165.7/169.7"x128.3"x102/113.8")
Machine weight	7650/8050 kg (16865/17747 lb)

## Dielectric Tank

Tank capacity	2500/3200 L
Paper filter	4/pcs
Deionizer	AUTO
Chiller unit	AUTO





# NP 1280 L

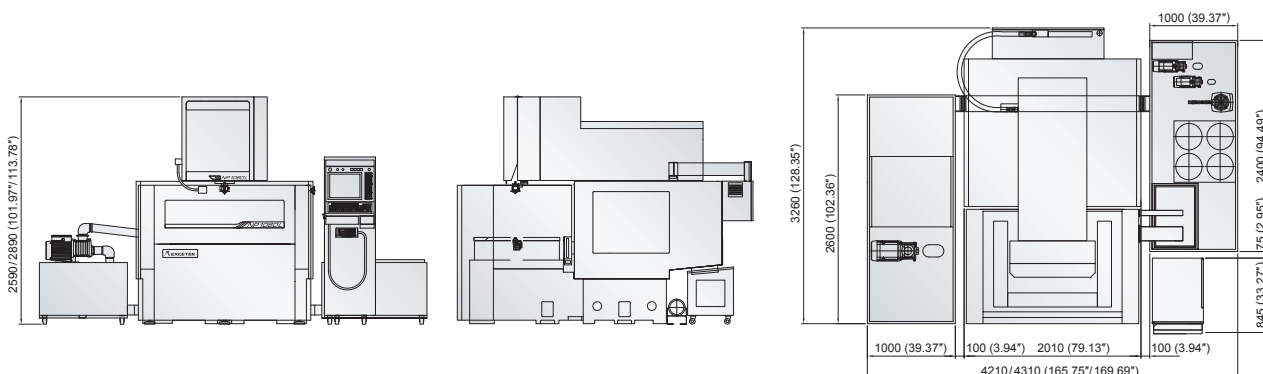


## SUBMERGED TYPE

Machine	NP1280L-Z500/Z600
Max.work piece Size	1650 x 1200 x 495/595 mm (65.0" x 47.2" x 19.5/23.4")
Max.work piece wight	4000/4500 kg (8818/9920 lb)
Table travel of XY	1200 x 800 mm (47.2" x 31.5")
U&V axis travel	260 x 260 mm (10.2" x 10.2")
Z axis travel	500/610 mm (19.7/24")
Wire diameter	0.2 - 0.33 mm (0.008" - 0.013")
Number of axes controlled	XY axis linear motor, UVZ axis AC servo motor
Maximum taper angle	±30°/100 mm (3.9") (wide diamond guide and nozzle)
Maximum cutting speed (option)	SKD 11 Hardened steel / 63.5 mm (2.5") thickness / 0.3 mm (0.012") Bedra Topas wire / 320 mm <sup>2</sup> /min
Machine dimensions	4400/4510 x 3765 x 2585/2890 mm (173.2/177.6" x 148.2" x 101.8/113.8")
Machine weight	10600/10850 kg (23369/23920 lb)

## Dielectric Tank

Tank capacity	3000/3300 L
Paper filter	4/pcs
Deionizer	AUTO
Chiller unit	AUTO





NP 400L €



NP 500L €



NP 600L €

Rotary Table



Auto Measurement System



Wire Chopper

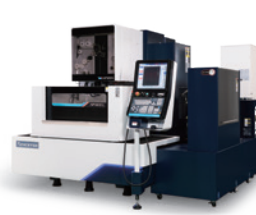


# EXCETEK's IOT Solutions

EXCETEK Hole Drilling EDM



EXCETEK Wire Cut EDM



EXCETEK Die Sinking EDM



## Design

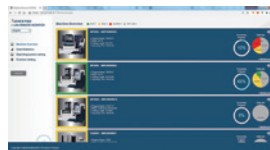


- Consumables monitoring



- NC transmission

## Factory Site



- Machine overview



- Utilization statistics rate chart



- Consumables monitoring

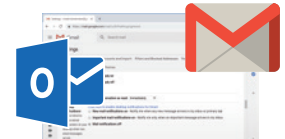


- Machine manufacturing execution

## Management



- View machine status via phone or tablet



- Send information through mail

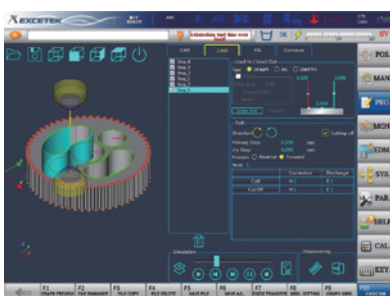
## Standard Accessories

- XY axis linear scale
- AWT
- Ion exchange resin x 10L
- Paper filter x 2~4 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

## Optional Accessories

- Clamping Beam
- Short Message Service (SMS)
- Remote Monitor System
- Super Finish Circuit (SFC)
- Auto Measurement System
- Jumbo Feeder L-50A
- Rotary Table
- Signal Tower
- Wire Chopper
- Scrap-removing Device

## Embedded CAD/CAM



## Jumbo Feeder



# OPTION

## Clamping Beam



# NP

## SERIES

High precision wire EDM with  
class leading technologies



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