EXCETEK

NP Plus series

High precision wire EDM with
class leading technologies

Linear Motor Drive

CIRCULAR ECONOMY
TMBA





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 pay attention 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 µm.

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 Plus series

NP Plus 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

- ISO 14955 Certificate
- Intelligent Power Management
- Save Wire Consumption
- GS Energy-saving Discharge Circuit to reduce machning power consumption

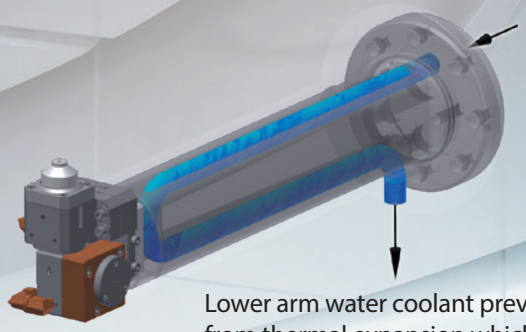
Intelligent Networking

- Remote monitor and management
- Connects to all your controllers
- Portable device monitor
- Machining power consumption Collection and Analysis

Automation

- High speed Auto Wire Threading
- Auto Workpeice Transfer by Robot
- Auto Measurement and Correction
- Intelligent Automated Machining System

Rigid U, V truss design.



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

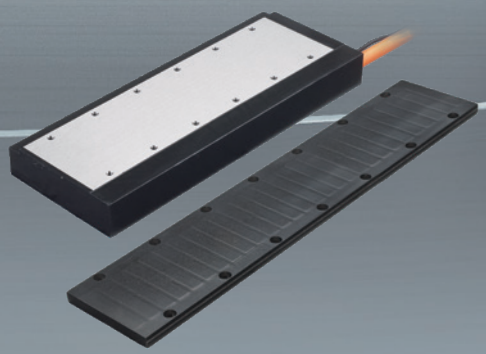
Stainless steel work table with hardness HRC 50°.

Machine base designed using FEA to achieve high rigidity.

Extra wide machine base.

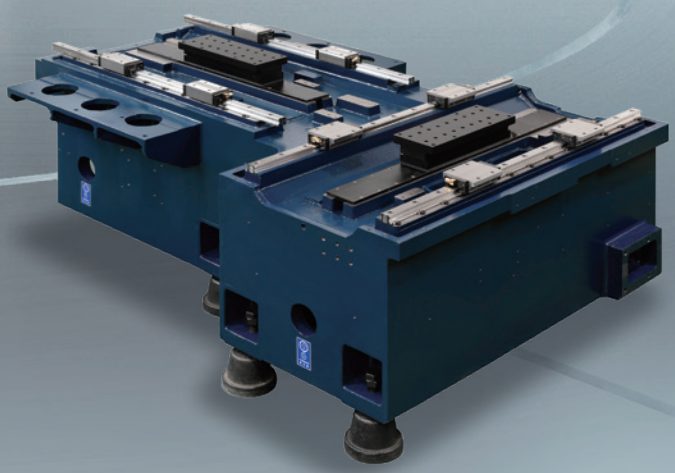
Advanced High-Thrust Linear Motors

- 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.



XY Axis with Ultra-High-Resolution Absolute Optical Scales

- The XY axis incorporates ultra-high-resolution absolute optical scales with a resolution of 0.01 µm. This contributes to achieving ultra-smooth and precise machining surfaces. Notably, the machine does not require homing during startup or shutdown, saving time and improving efficiency.

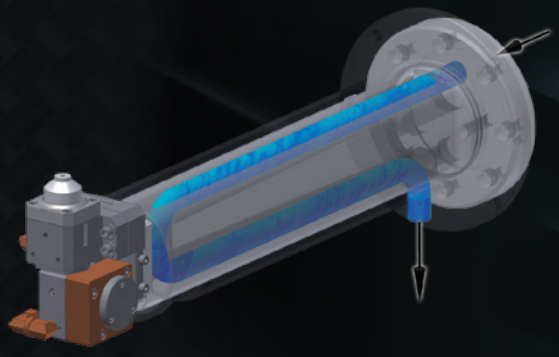


NP *Plus* series

Fixed-bed, travelling column design

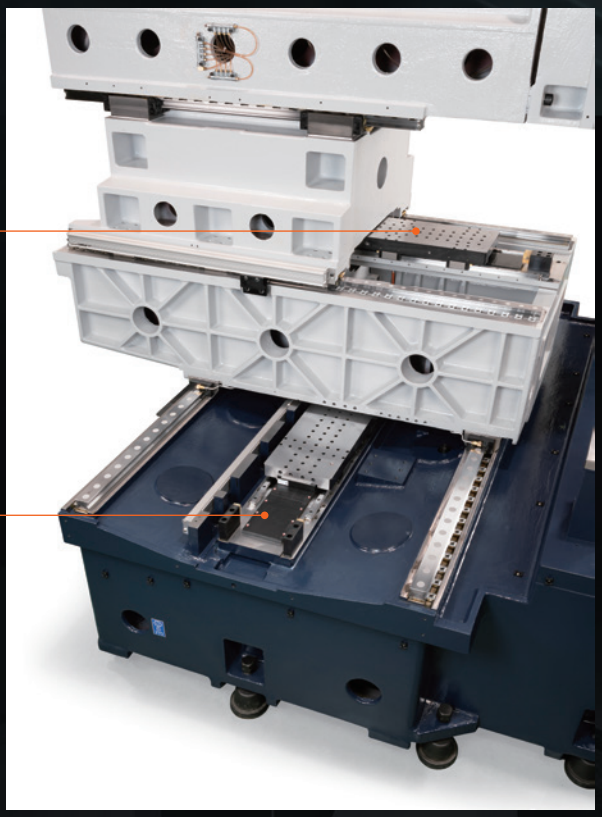
Two step drop door design, simplifies operation and in-process inspection, and streamlines workpiece loading and unloading.





Water cooled lower arm optimizes accuracy by minimizing thermal expansion caused by heat buildup.





Advanced High-Thrust Linear Motors

Machine base is designed using FEA to achieve maximum rigidity.

FEM MEEHANITE

New generation NP *Plus*
Smart and Energy-saving

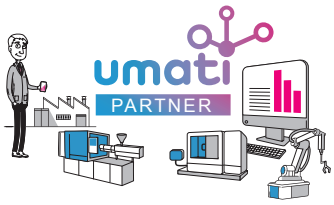
Green Sparking

New Generation
Energy-Saving Circuit











High-precision, inverter water chiller

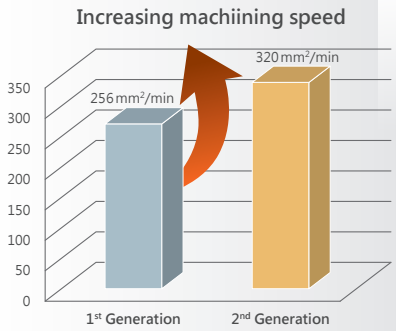


IE3 Pump

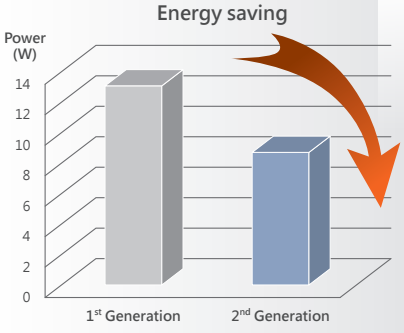
High-Efficiency Low-Energy Components

GS Energy-Saving Discharge Circuit

Utilizing a sink energy recovery circuit and high-speed discharge pulses, this feature reduces power consumption during machining by 35% while increasing machining speed by 25%.



Efficiency, increased by 25%



Total power consumption, decreased by 35%

ECO Mode

Optimizing fine finishing discharge performance, the ECO Mode reduces machining passes compared to previous machine models, resulting in improved surface accuracy. Additionally, automatic compensation for brass wire consumption minimizes wire usage. Peripheral system control is optimized to operate only when necessary, further reducing energy consumption.

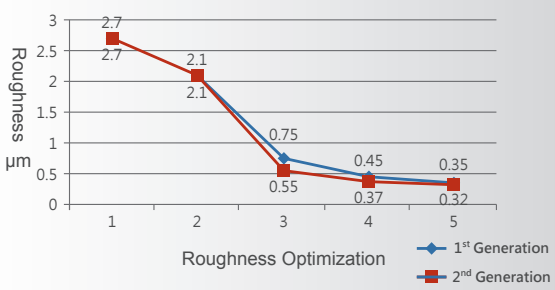
NEW GS-CUT

3 Cuts Ra0.5
5 Cuts Ra0.3



OLD

3 Cuts Ra0.7
5 Cuts Ra0.35





Safenet Certification Services Ltd.

Ducart Suite, Castletroy Park Commercial Campus, Limerick, V94 Y6FD, Ireland

Tel: +353 61 50 2046 e-mail: office@safenetcs.ie Website: www.safenetcs.ie

Attestation of Conformity

This is to certify that

Excetek Technologies Co., Ltd.

No.10, Fenggong 3rd Road, Shengang District, Taichung City 42942, Taiwan (R.O.C)

Has had a range of Electrical Discharge Machines tested to the requirements of ISO 14955-1:2017, ISO 14955-2:2018 and ISO 14955-3:2020.

With reference to models **NP400 and NP500**

Manufactured by:

Excetek Technologies Co., Ltd.

No.10, Fenggong 3rd Road, Shengang District, Taichung City 42942, Taiwan (R.O.C)

1. The test report and technical file contain all the relevant information and supporting documentation.
2. Safenet Certification Services have confirmed that the appropriate tests have been conducted.
3. In the opinion of Safenet Certification Services the standards ISO 14955-1:2017, ISO 14955-2:2018 and ISO 14955-3:2020 have been applied correctly.
4. The test reports show a significant acceptable reduction in energy consumption over the lifetime of the machine.

Number: 4325080524

Date: 30/05/2024 Expiry Date: 30/05/2027

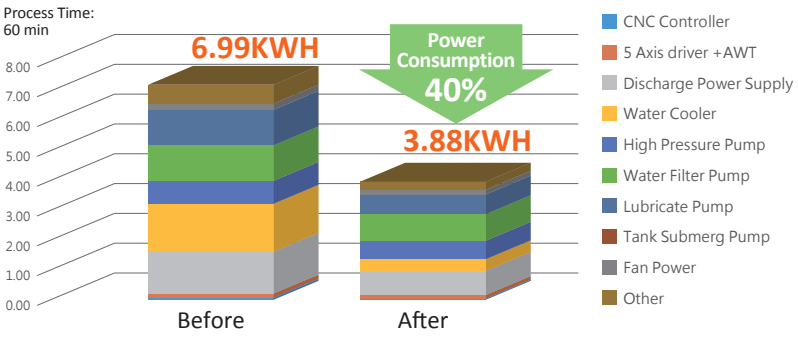
Signed for Safenet Certification Services Ltd.

Peter McNicol
Technical Manager

This Document remains the property of Safenet Certification Services Ltd. and will be returned to them if so requested. The client is required to request a review to ensure continued compliance of the machinery on a 3 yearly basis to check for changes in the state of the art and validity of the certificate.

ISO 14955 Certificate

Reduces machning power consumption



Annual Carbon Emission Reduction: 4310 kg
Electricity Saving: 8708 kWh

These figures are based on EXCETEK's internal processing experience. Actual values may vary depending on different processing conditions. The simulation scenario is as follows: working 250 days a year / 2 work shifts per day / 8 hours per shift / 70% utilization rate.

Onboard Energy Consumption Monitoring System

Designed for energy efficiency and carbon reduction, this system provides real-time energy monitoring, historical data analysis, and parameter management to optimize energy usage.



Key Features

- **Real-Time Monitoring**

  Tracks voltage, current, power, power factor, machine status, and three-phase power consumption with second-by-second updates.

- **Energy Data Analysis**

  Offers daily and monthly consumption tracking, automatic carbon emission calculations, and clear energy-saving insights.

- **ModBus Address Configuration**

  Ensures seamless data mapping even when replacing power meters.

- **Consumption Insights**

  - Daily & Monthly Analysis – Pie and bar charts display energy distribution trends for up to 24 months.
  - Energy Trend Charts – Visualizes power consumption with customizable comparisons.
  - NC Machining History – Logs energy usage per NC process, converting it into cost for better financial planning.

This system empowers users with precise energy data, enabling effective energy-saving strategies.

Auto Wire Threading

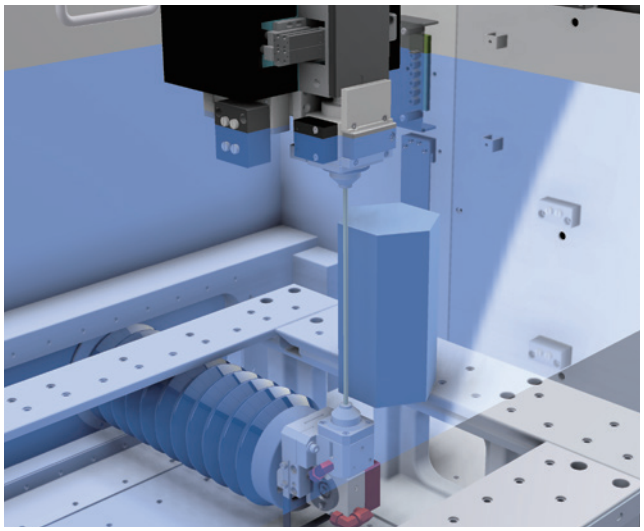
Reliable Auto Wire Threading System

- 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.

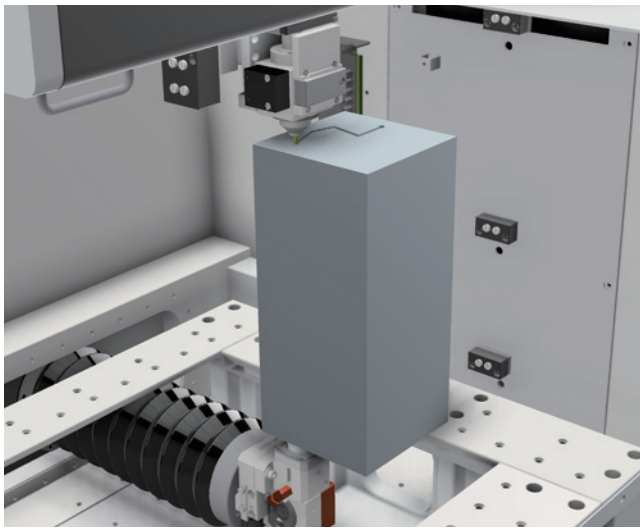


High speed Auto Wire Threading System

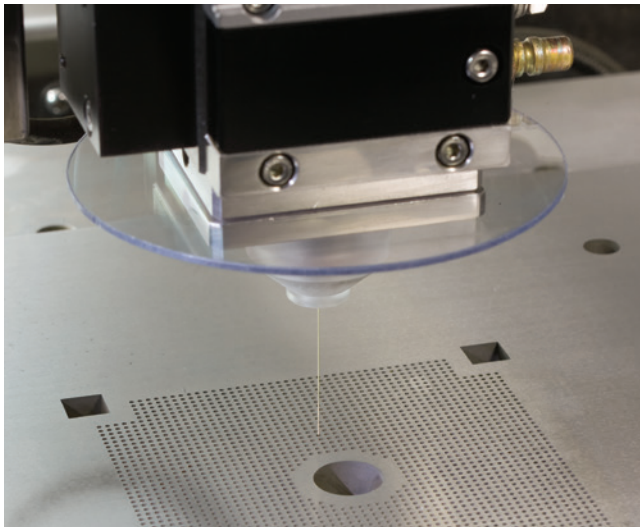
- Workpiece thickness 100mm
- Annealing and cutting the wire takes 10 seconds.
- Threading the wire takes 10 seconds.



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



Database of cutting technologies



Convenient feature function



Maintenance and diagnosis



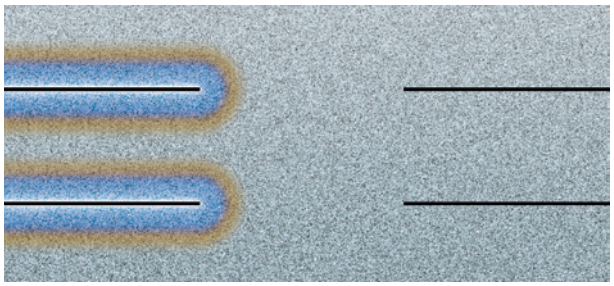
Power Generator System

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.

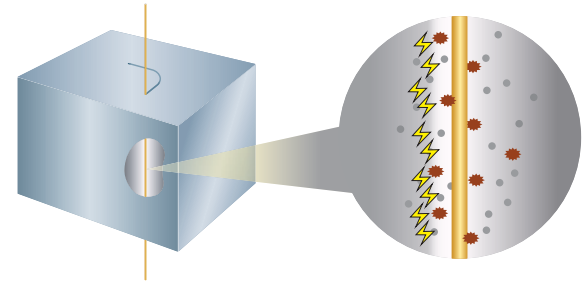


DC discharge

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



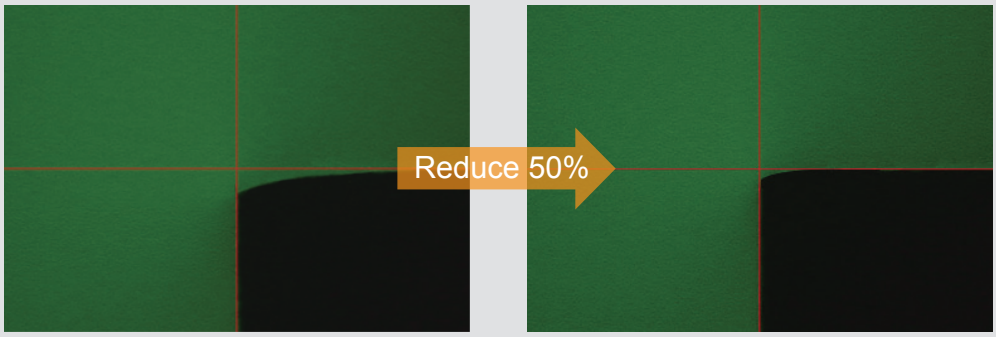
Digital Power Management (DPM)

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.

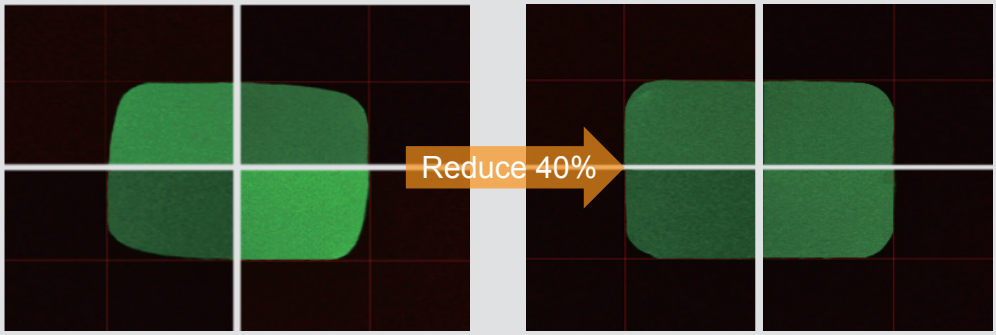
DPM Technology Comparison Chart	Mode	With	without
	Speed condition	39 min	58 min
	Accuracy condition	±3 μm	±15 μm

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 3μm





	Without control	With control
A	5.001 mm	5.001 mm
B	4.994 mm	4.999 mm
error	7 μm	2 μm

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.

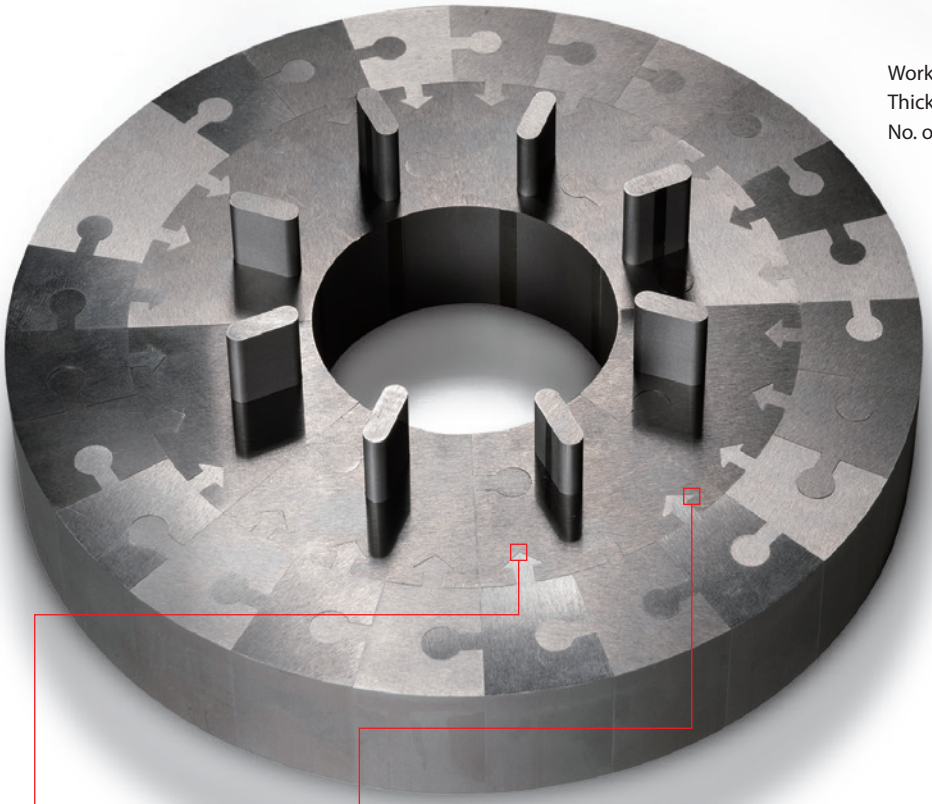


Workpiece material: SKD -11 steel

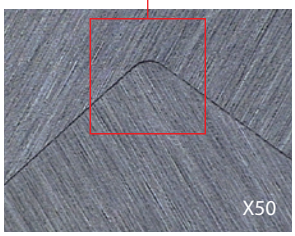
- thickness: 100 mm
  wire type: 0.25 mm brass wire
  cutting speed: 150 mm^2/ min

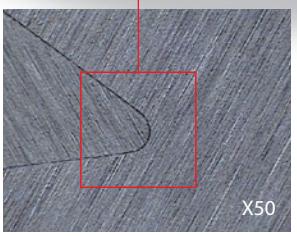
- thickness: 50~80 mm
  wire type: 0.3 mm brass wire
  cutting speed: 250 mm^2/ min

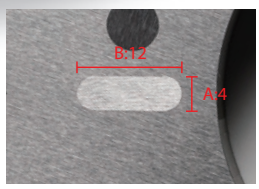
Cutting Technology

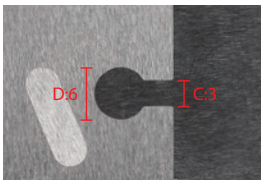


Workpiece: SKD-11
Thickness: 20 mm
No. of cut: 1 cut 2 skim



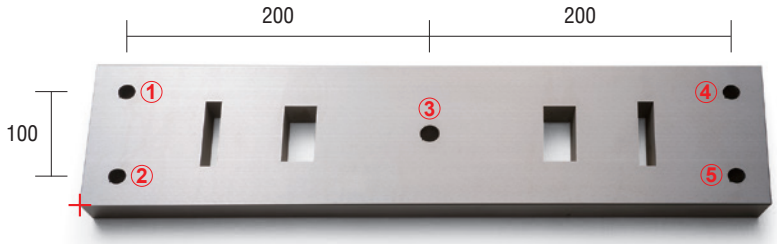




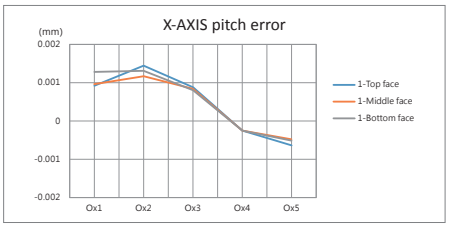


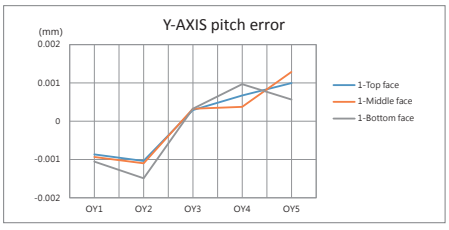
	A	B	C	D
With control	0	0~-2μ	0	0~-2μ
Without control	0	-8~-10μ	0	-8~-10μ

Precision



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



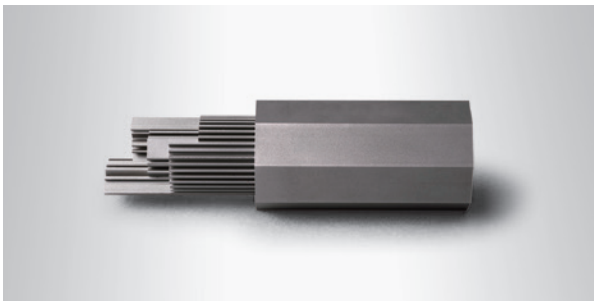




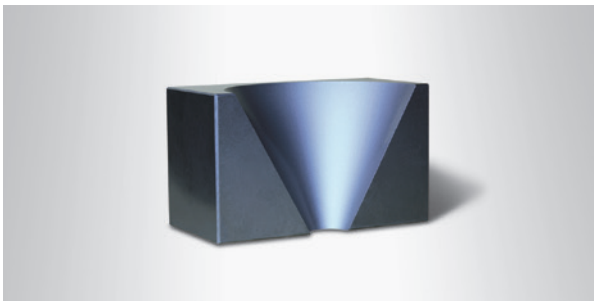
SGS Inspection

	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

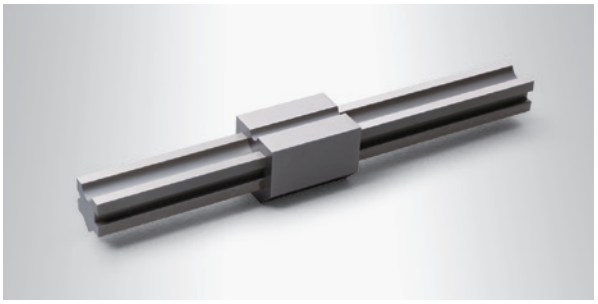
unit: mm



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



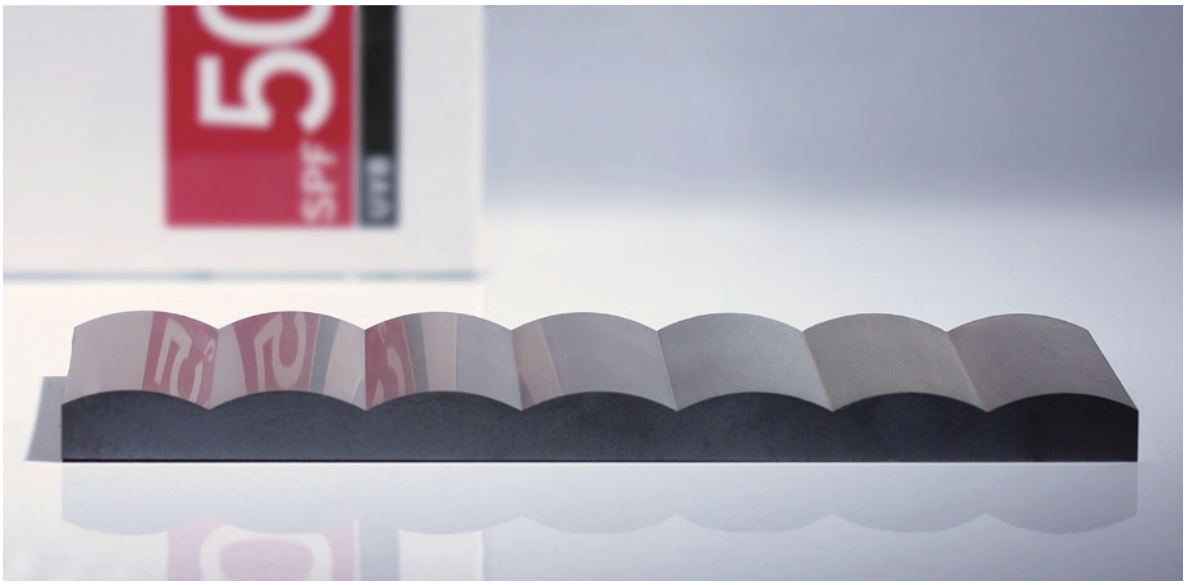
Material	SKD-11
Wire diameter / type	0.25 mm / Brass
Thickness	200 mm
No. of cut	1 rough cut 2 skims



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

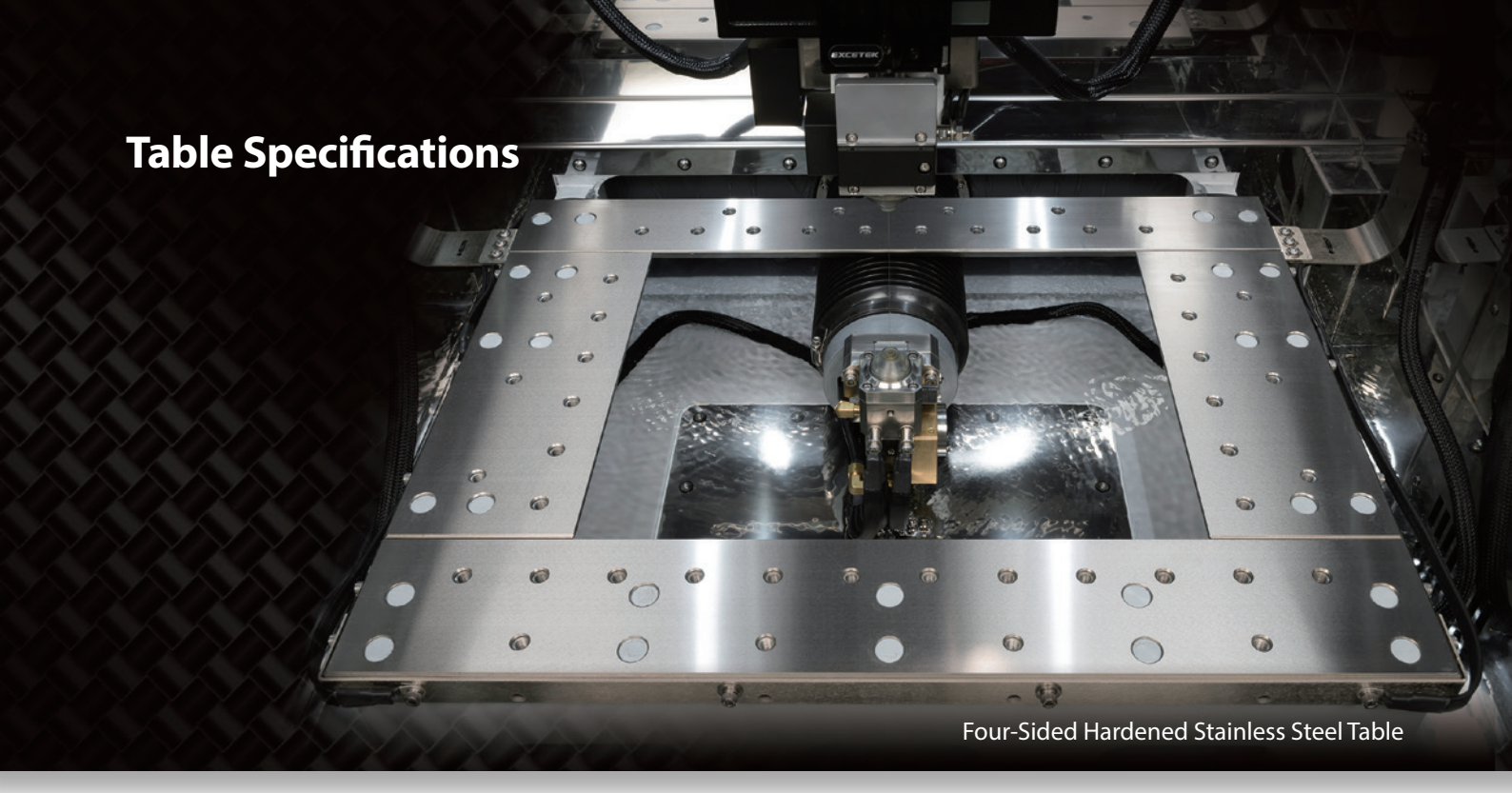
SFC - Super Finish Circuit

Standard surface roughness Ra 0.3 µm, optional Ra 0.14 µm



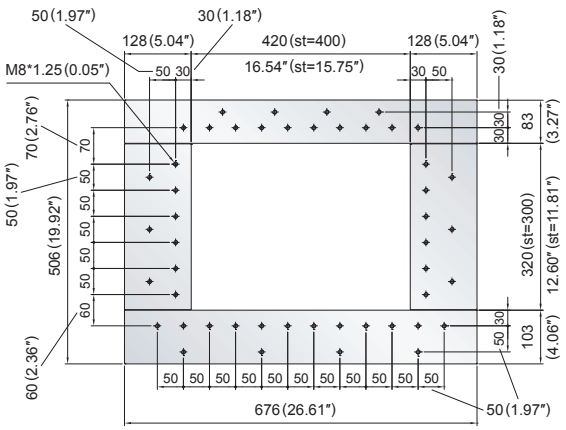
Material: Tungsten carbide
Thickness: 30 mm (best surface roughness Ra 0.14 µm)

Table Specifications

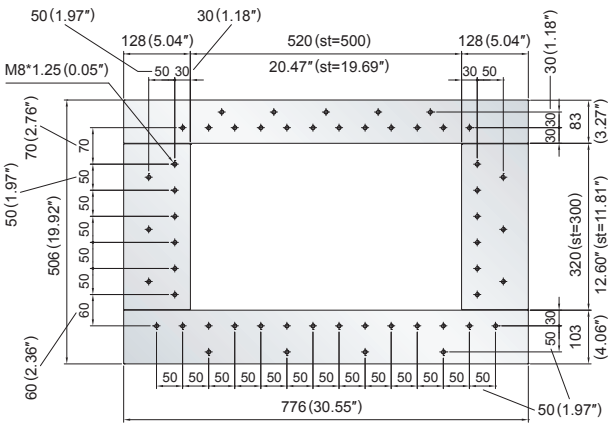


Four-Sided Hardened Stainless Steel Table

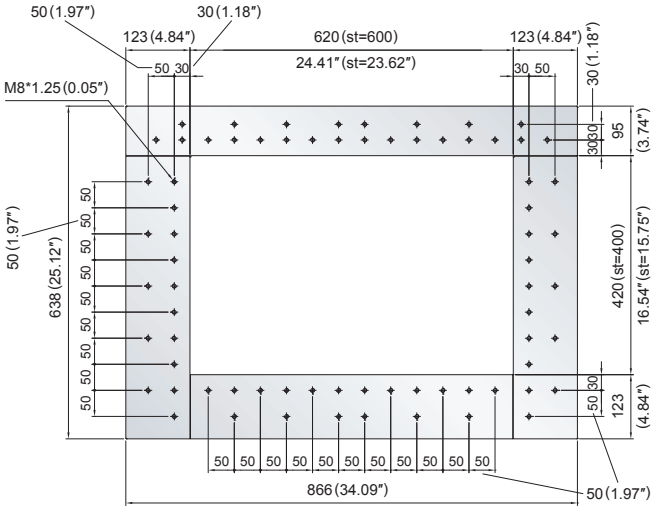
NP400L *Plus*



NP500L *Plus*



NP600L *Plus*



NP400L *Plus*

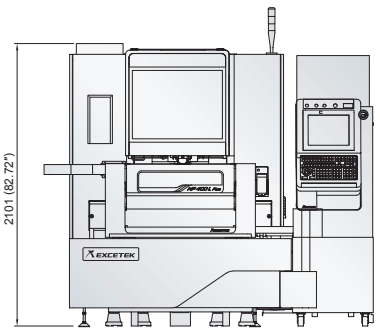


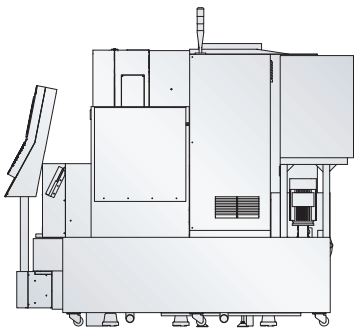
SUBMERGED TYPE

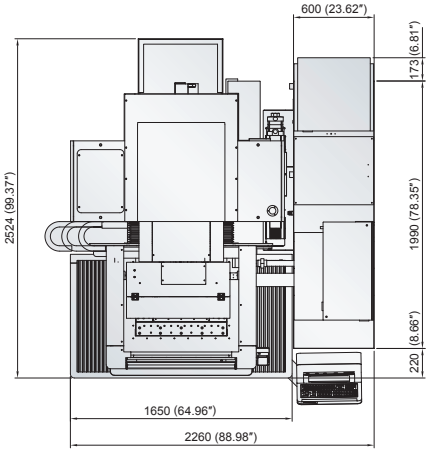
Machine	NP400L *Plus*
Max.work piece Size	750 x 550 x 215 mm (29.5" x 21.7" x 8.5")
Max.work piece wight	500 kg (1102.3 lb)
Table travel of XY	400 x 300 mm (15.7" x 11.8")
U&V axis travel	80 x 80 mm (3.1" x 3.1")
Z axis travel	220 mm (8.7")
Wire diameter	0.15 - 0.3 mm (0.006" - 0.012")
Number of axes 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^2/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

NP500L *Plus*



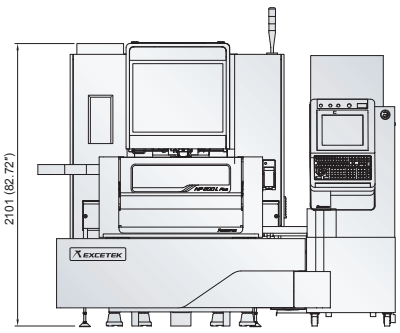
Specifications

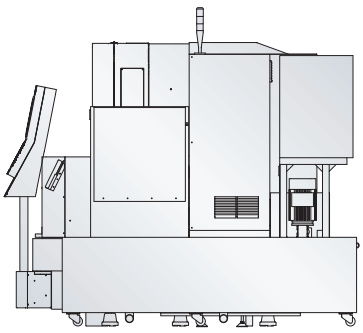
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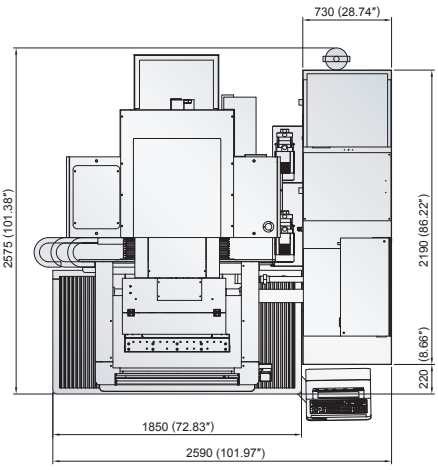
Machine	NP500L *Plus*
Max.work piece Size	850 x 550 x 300 mm (33.5" x 21.7" x 11.8")
Max.work piece wight	600 kg (1322.8 lb)
Table travel of XY	500 x 300 mm (19.7" x 11.8")
U&V axis travel	120 x 120 mm (4.7" x 4.7")
Z axis travel	310 mm (12.2")
Wire diameter	0.15 - 0.3 mm (0.006" - 0.012")
Number of 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 / 320 mm^2/min
Machine dimensions	2590 x 2575 x 2165 mm (102.0" x 101.4" x 85.2")
Machine weight	3350 kg (7385.5 lb)

Dielectric Tank

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







NP600L *Plus*

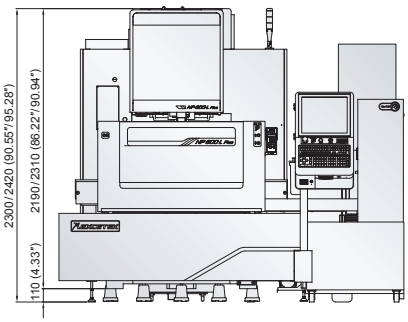


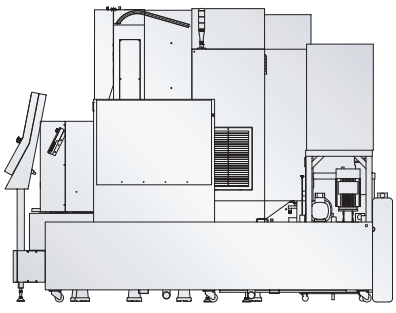
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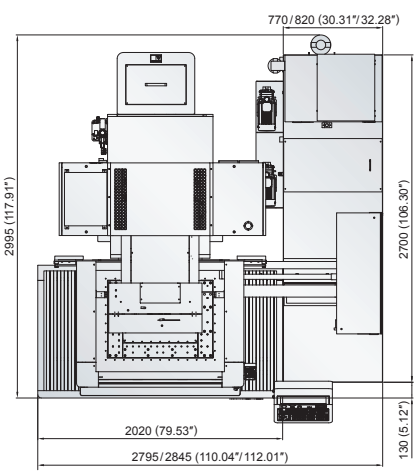
Machine	NP600L *Plus*
Max.work piece Size	1000 x 700 x 345/405 mm (39.4" x 27.6" x 13.6/15.9")
Max.work piece wight	800/850 kg (1763.7/1873.9 lb)
Table travel of XY	600 x 400 mm (23.6" x 15.7")
U&V axis travel	160 x 160 mm (6.3" x 6.3")
Z axis travel	350/410 mm (13.8/16.1") (option)
Wire diameter	0.15 - 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 mm²/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







Specifications

NP1060L *Plus*



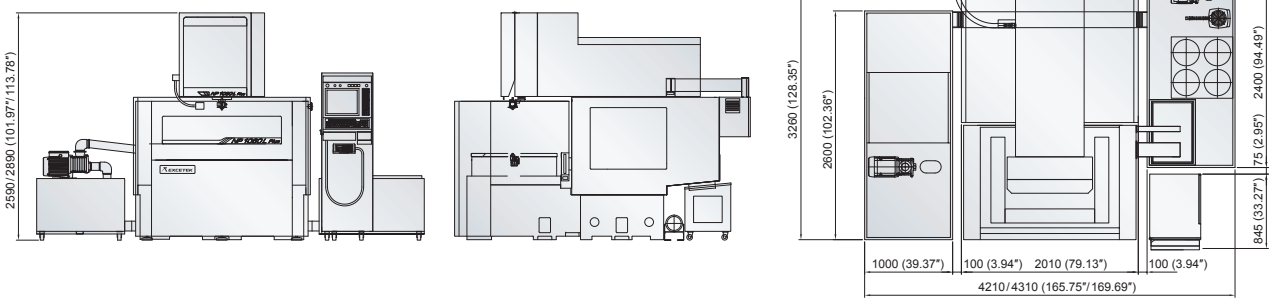
Specifications

SUBMERGED TYPE

Machine	NP1060L *Plus* - Z500/Z600
Max.work piece Size	1500 x 1000 x 495/595 mm (59.1" x 39.4" x 19.5/23.4")
Max.work piece wight	3500/4000 kg (7716/8818 lb)
Table travel of XY	1000 x 600 mm (39.4" x 23.6")
U&V axis travel	260 x 260 mm (10.2" x 10.2")
Z axis travel	500/610 mm (19.7/24")
Wire diameter	0.15 - 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^2/min
Machine dimensions	4210/4310 x 3260 x 2590/2890 mm (165.7/169.7" x 128.3" x 102/113.8")
Machine weight	7650/8050 kg (16865/17747 lb)

Dielectric Tank

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



NP1280L *Plus*

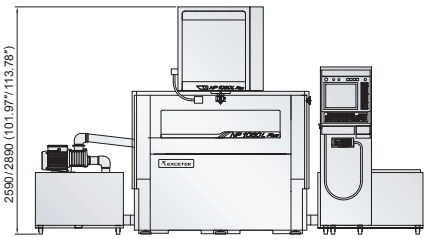


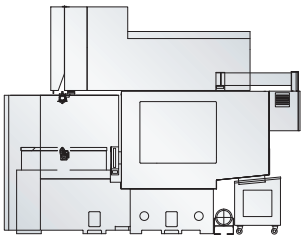
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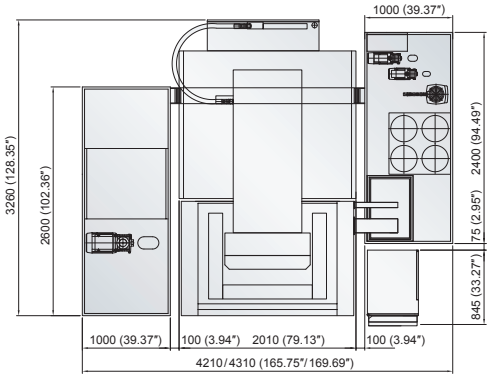
Machine	NP1280L *Plus* - Z500/Z600
Max.work piece Size	1650 x 1200 x 495/595 mm (65.0" x 47.2" x 19.5/23.4")
Max.work piece wight	4000/4500 kg (8818/9920 lb)
Table travel of XY	1200 x 800 mm (47.2" x 31.5")
U&V axis travel	260 x 260 mm (10.2" x 10.2")
Z axis travel	500/610 mm (19.7/24")
Wire diameter	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^2/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







Specifications



NP400L *Plus* CE



NP500L *Plus* CE

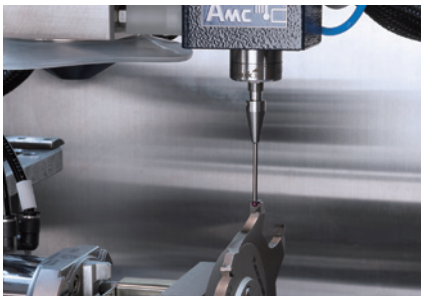


NP600L *Plus* CE

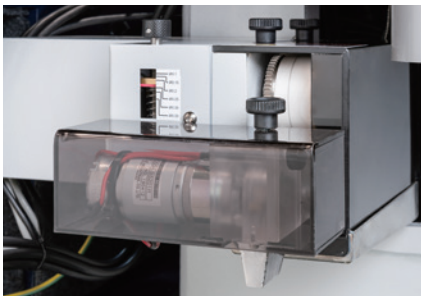
Rotary Table



Auto Measurement System



Wire Chopper



EXCETEK's IOT Solutions

EXCETEK Hole Drilling EDM



EXCETEK Wire Cut EDM





EXCETEK Die Sinking EDM





CNC machine tool



OPC UA



umati

DOT ZERO
Connecting Excellence

Design

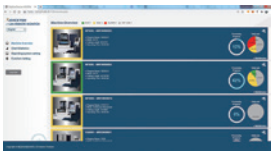


- Consumables monitoring



- NC transmission

Factory Site



- Machine overview



- Consumables monitoring



- Utilization statistics rate chart

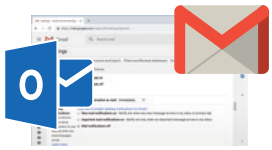


- Machine manufacturing execution

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

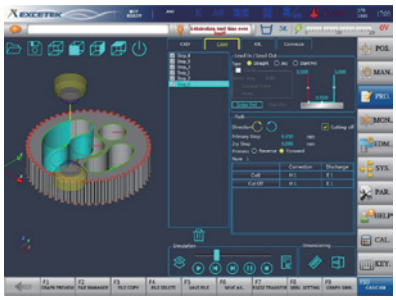
Optional Accessories

- 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

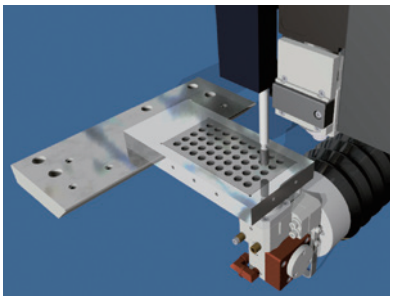
Jumbo Feeder



Embedded CAD/CAM



Scrap Removal Device



Clamping Beam



NP Plus series

High precision wire EDM with
class leading technologies

Linear Motor Drive



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