

# EW-450K3

## Best-selling Machine with Thermal Displacement Control and Proprietary Table Slide.

- This best-selling medium-size machine matches function and operability with Seibu's proprietary roller-pack guide mechanism for unsurpassed precision.
- Improved water-cooled thermal displacement control.
- AWF (automatic wire feeding device) dramatically enhances wire performance for fully-unattended operation (option).

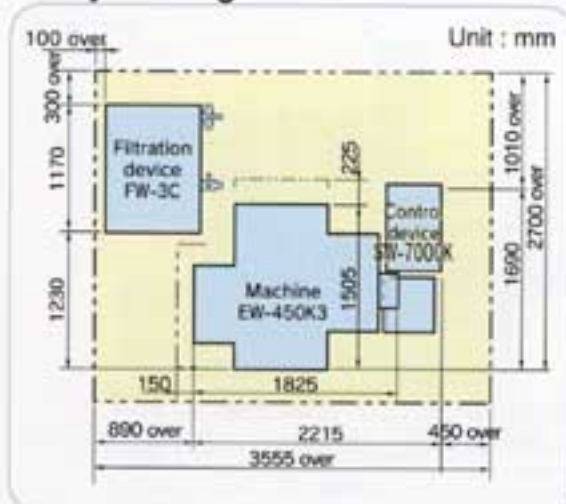


※ Automatic wire feeding device and plotting plate are optional.

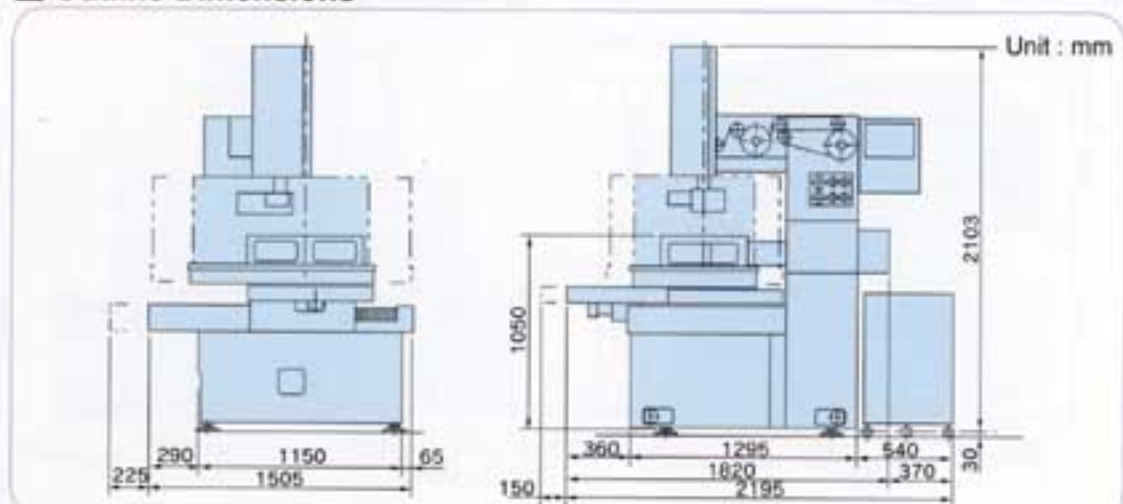
### Major Specifications

- Max. dimensions of workpiece  
450(17.7)×600(23.6)×250(9.8) mm (W×D×H)
  - Max. weight of workpiece : 500kg (1,100Lbs)
  - Table driving system : AC servo motor
  - Table travel  
Right & left (X axis) : 300 (11.8) mm  
Back & forth (Y axis) : 450 (17.7) mm
  - Z axis travel (up & down) : 265 (10.4) mm
- ※ With the automatic wire feeding device mounted, the Z stroke is 210mm, and maximum workpiece height 200mm.

### Layout Diagram



### Outline Dimensions



# All models feature LCD panels. Compact, one-box designs are easier to use than ever.

With two 32-bit onboard CPUs, this NC controller offers dramatically enhanced processing speed and the performance only possible with our new cutting circuitry. The user interface and machine control software have been improved to combine multi-function performance with simple operation. The NC controller can control the XY, UV and Z axes individually, and with simultaneous 4axis control can handle complex machining tasks like work-piece with differing upper and lower shapes, a wide range of tapers, and continuous cutting of work-pieces with varying heights through Z-axis control.



## Multi-window functions

Four powerful multiwindow functions instantly display needed information. The custom window can be freely sized and positioned by the user, and can show up to three diagnostic and maintenance screens. There are also the help window, menu window to display data parameters, and the alarm window to display alarm information.



## One-touch positioning

A special screen has been provided for positioning, adjusting wire perpendicularity and measuring guides span. Once parameters are set positioning can be executed automatically later with a single button. And because of the extensive automation used, positioning is simpler than ever.



## Memory and MDI operation

The machining screen now shows all essential information, including any four of the ten supported coordinate data systems, operating conditions, taper constants, cutting speed and circumference, cutting path, and soft limit switch set regions. All with instantaneous screen update. With the multi-window function, user-defined screen layout is simple.



## Mini-APT

Even while cutting, graphic editing is possible for the next shape to be machined. Simple shapes can be created inter-actively from lines and arcs, and the NC program automatically generated when complete. The controller will handle tedious intersection and contact point coordinate calculation, making it possible to design shapes just like using a pencil.



## Enhanced maintenance and diagnostic information

Alarms and warnings generated during cutting are instantly displayed on the screen, while consumables and maintenance points are managed on a special maintenance screen. Production information and operation history data provide statistical management of uptime ratios and wire feeding status and alarm log.



## Program load/save

Programs and cutting conditions can be read in from paper tape or floppy disks, and direct up and down loading with CAD systems is possible through the RS232C interface. Many programs written in formats from other vendors can also be converted to Seibu format.

## Powerful editing functions

Include cut and paste, search and replace, partial saving, and reference functions.

## Drawing check

Drawings can be checked quickly and accurately with functions like automatic scaling, partial magnification and 3D wire frame generation. And because the drawings for one program can be edited while cutting a different program, efficiency is better than ever.

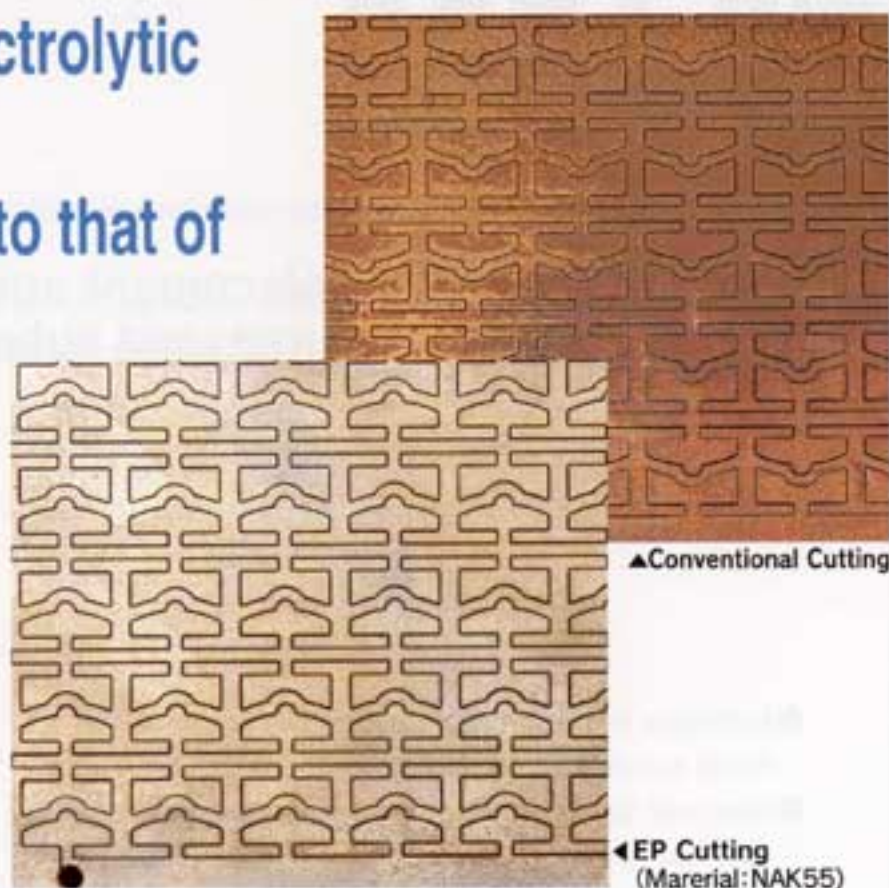
## Load/save for cutting conditions

14,000 items of 1,000 types cutting conditions can be saved to later use. automatic search of cutting condition is possible from keys like work material, thickness, finish surface roughness and wire type.

# High-grade, high-precision non-electrolytic cutting with the Seibu EP

supply : and a cutting speed close to that of conventional systems.

In non-electrolytic cutting, elution of cobalt as a binder used in tungsten carbides, can be prevented, maintaining material strength at the premachined level. Electrolytic degradation of machined titanium alloy and aluminum surfaces is prevented, and elimination of titanium alloy discoloration yields high-quality output.



## Corrosion - free effect

Non-electrolytic cutting controls oxidation of the anode, providing a dramatic rust suppression effect for ferrous materials.

## High-grade cutting

The non-electrolytic cutting method totally eliminates electrolytic corrosion, helping prevent hairline cracks and softening on the cutting surface, enhancing die life.

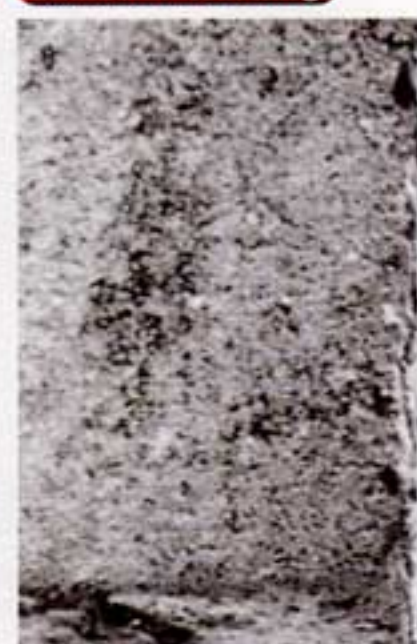
## High-speed non-electrolytic cutting

Non-electrolytic cutting is used for the complete process from rough cutting to finishing, with cutting speeds close to that of traditional designs.

### Tungsten carbide



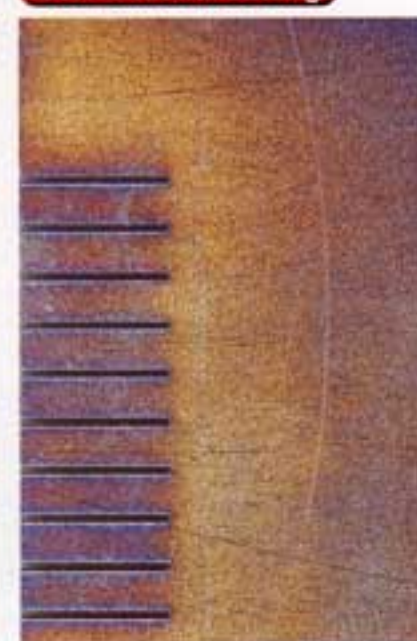
### Conventional cutting



### Titanium alloy



### Conventional cutting



# Newly-developed power supply with SC circuit enhances cutting precision (surface roughness, roundness) and speed.

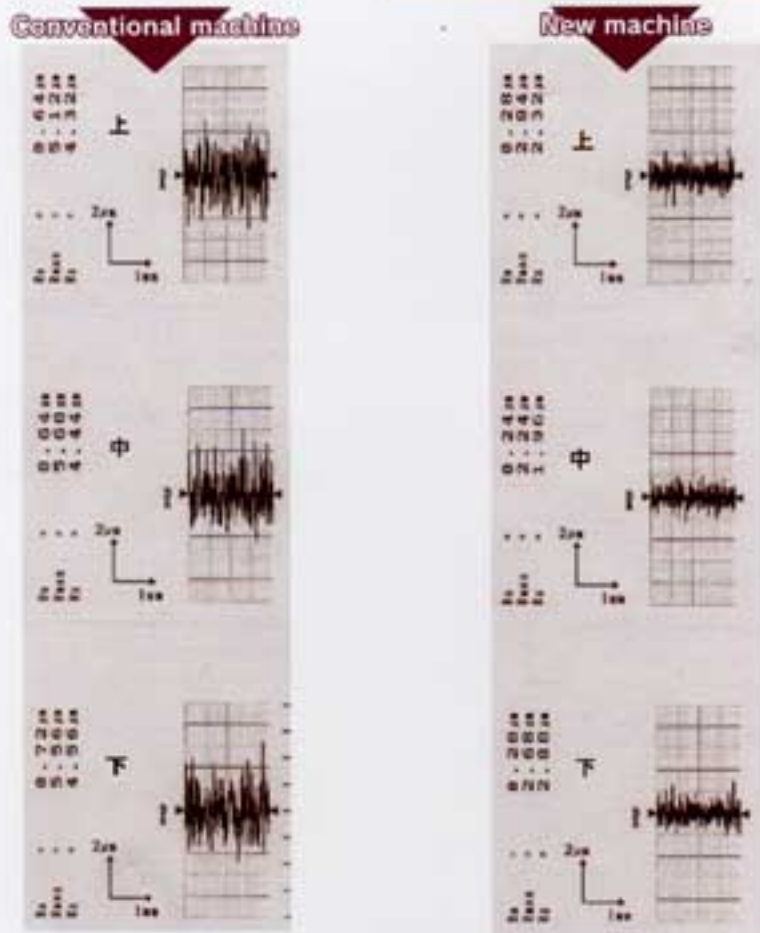
## Power supply with SC circuit

The newly-developed SC circuit makes it possible to boost the machining frequency to four times that of our conventional systems.

As a result, surface roughness of  $2.5\mu\text{mRy}$  or better is possible after 3rd cut cutting. And the responsiveness of the cutting servo has been improved to almost double cutting speed (in-house comparison, wire diameter 0.2, SKD11, 10mm).

### ◆ Comparison of surface roughness

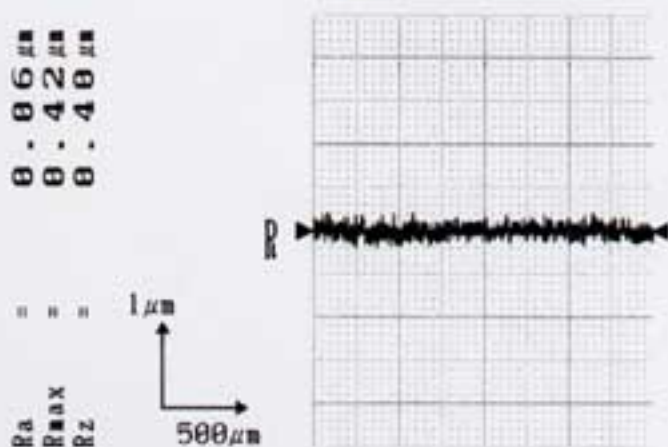
- Wire diameter..... $\phi 0.2$
- Workpiece material.....SKD11
- Workpiece thickness.....50mm
- Number of cuttings.....3



Measurement: SURFCOM, manf. by Tokyo Seimitsu

### ◆ The best cutting surface roughness

- Wire diameter..... $\phi 0.2$
- Workpiece material.....Tungsten carbide
- Workpiece thickness.....15mm

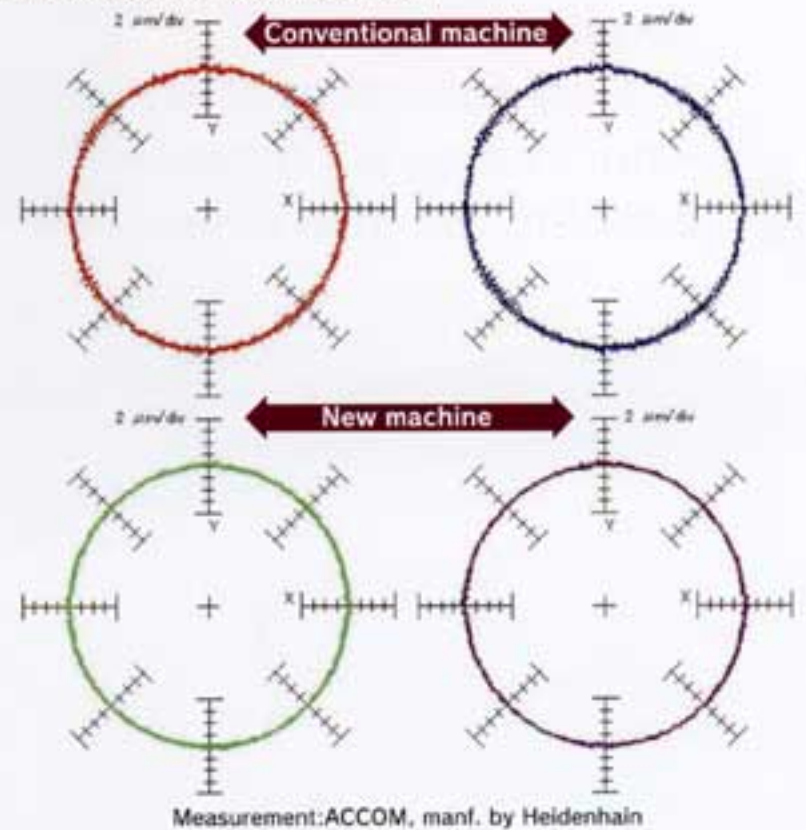


Measurement: SURFCOM, manf. by Tokyo Seimitsu

## Drive system

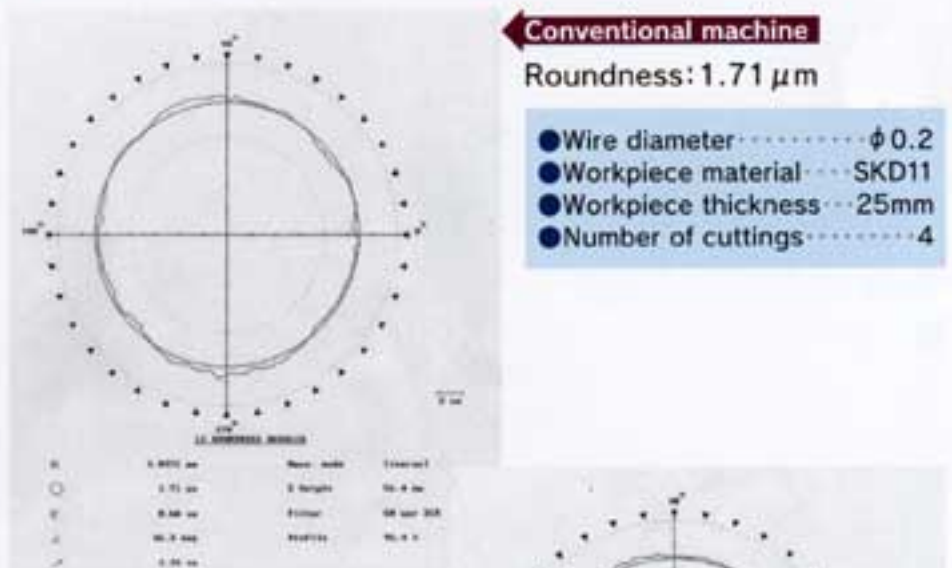
Modifications to the X, Y, U and V axis drive systems make possible even better precision and machining stability. Optional linear scales can be mounted on the U and V axes. Linear scales are standard on the X and Y axes (B3S3 only).

### ◆ Static precision comparison



Measurement: ACCOM, manf. by Heidenhain

### ◆ Comparison of machining roundness



- Wire diameter..... $\phi 0.2$
- Workpiece material.....SKD11
- Workpiece thickness.....25mm
- Number of cuttings.....4

- Wire diameter..... $\phi 0.2$
- Workpiece material.....SKD11
- Workpiece thickness.....25mm
- Number of cuttings.....4

Measurement: TR250, manf. by Rank Taylor Hobson

## EP power supply

Non-electrolytic cutting prevents the dissolution of cobalt, a key bonding agent in cemented carbides, thereby maintaining the same strength as the work has prior to fabrication.

It also prevents deterioration of the machined surface in titanium alloy and aluminum, helping improve machined quality.

### ● Corrosion-prevention effect

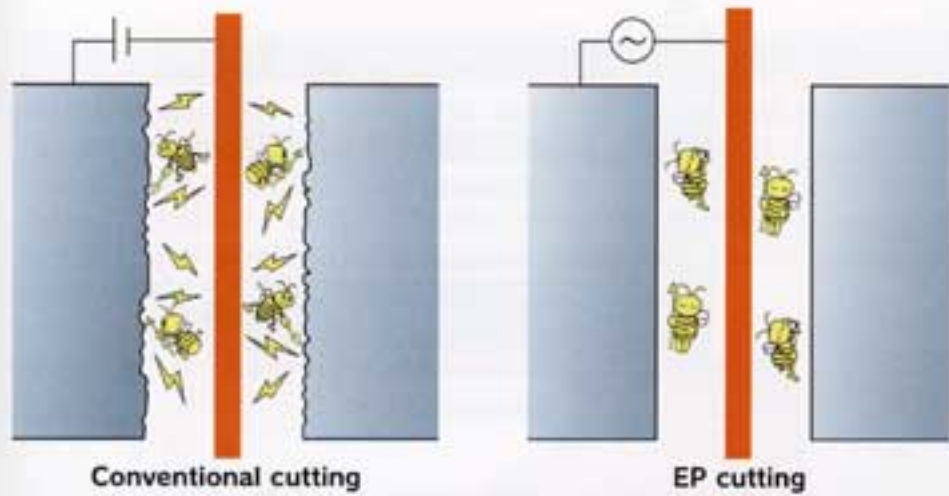
Non-electrolytic cutting reduces anode oxidation, helping prevent generation of rust on ferrous materials, and providing a superior corrosion-prevention effect.

### ● High-quality cutting

There is no electrolytic corrosion with non-electrolytic cutting, helping to prevent hairline cracks and softening on the cutting surface and enhancing die life.

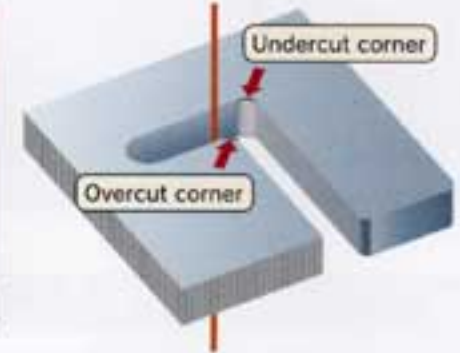
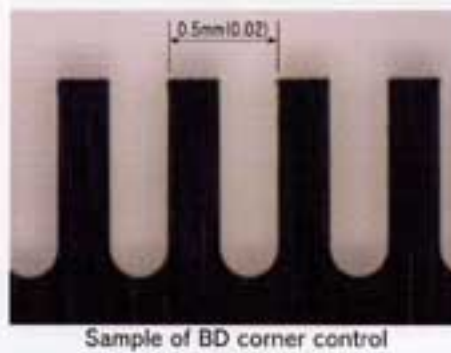
### ● High-speed non-electrolytic cutting

Can be used for the entire process from rough cutting to finishing, at speeds close to those of conventional designs.



## BD corner control

High-precision cutting of sharp or radial corner profiles. Wire flexion is minimized to significantly enhance precision of both inner and outer corners.



## Ultra-finishing power supply

The high-frequency pulsed power supply prevents electrolytic corrosion, yielding a top finishing surface roughness of  $0.5 \mu\text{mRy}$ . This ultra-finishing power supply can be used to significantly reduce time required for mold polishing.

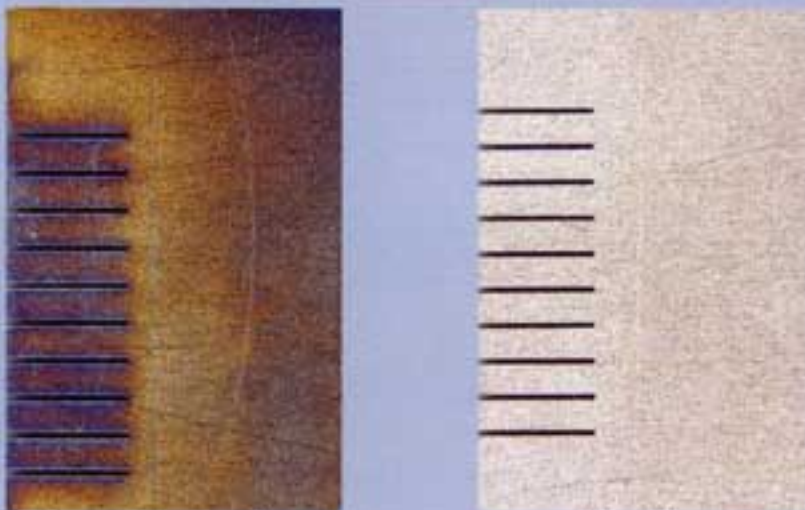


▲Machined surface (conventional power supply)



▲Machined surface (ultra-finishing power supply)

## Titanium alloy



Conventional cutting

EP cutting

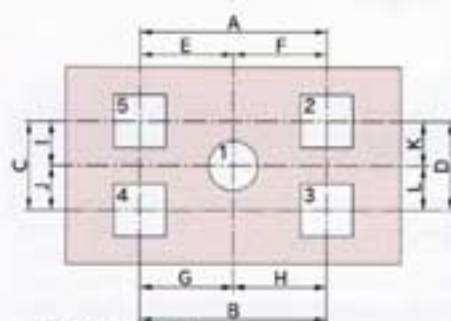
## Tungsten carbide



Conventional cutting

EP cutting

## Pitch shape cutting



Measurement: General measurement microscope ZKM01-250D

### ■ Pitch precision

(Units:mm)

Position	Dimension	Measured	Error
A	60.0000	60.0015	0.0015
B	60.0000	60.0018	0.0018
C	30.0000	29.9999	-0.0001
D	30.0000	30.0005	0.0005
E	30.0000	30.0018	0.0018
F	30.0000	29.9997	-0.0003
G	30.0000	30.0012	0.0012
H	30.0000	30.0006	0.0006
I	15.0000	15.0000	0.0000
J	15.0000	14.9999	-0.0001
K	15.0000	15.0002	0.0002
L	15.0000	15.0003	0.0003

### ■ Shape precision

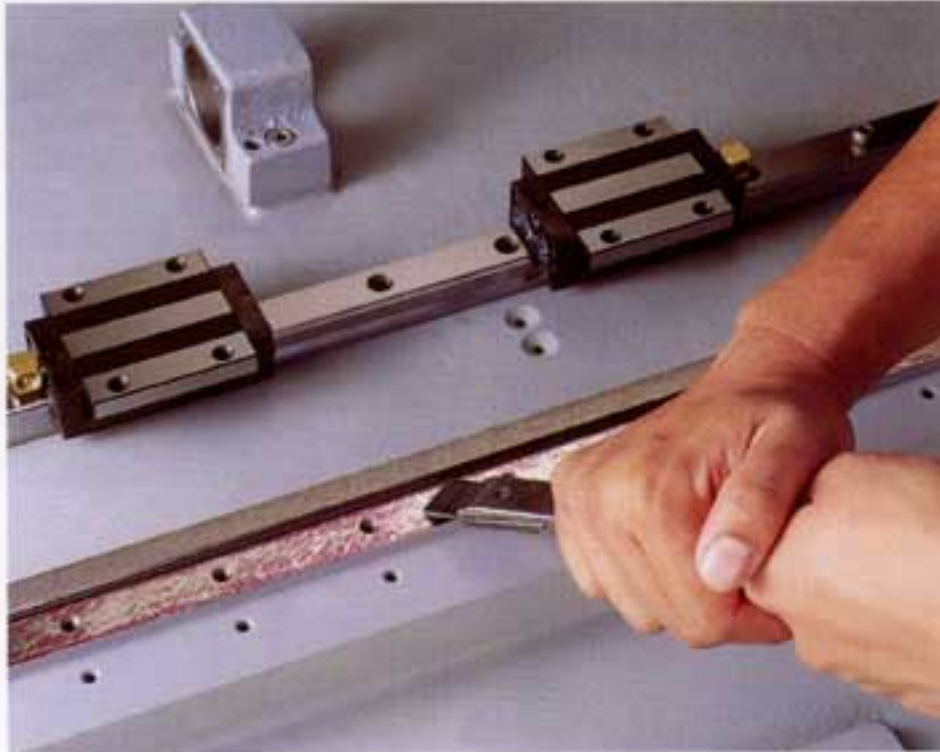
(Units:mm)

Shape	Dimension	Measured (μ)	Error	Measured (γ)	Error
1	10.0000	10.0003	0.0003	-	-
2	10.0000	10.0005	0.0005	10.0000	0.0000
3	10.0000	10.0006	0.0006	9.9998	-0.0002
4	10.0000	9.9987	-0.0013	9.9998	-0.0002
5	10.0000	9.9988	-0.0012	9.9996	-0.0004

※Reference values based on in-house testing only.

- Wire diameter .....  $\phi 0.2$
- Workpiece material ..... SKD11
- Workpiece thickness ..... 25mm
- Number of cuttings ..... 4

# Rigid Structure and Thermal Displacement Counter-Measures... A Machine Handmade by Craftsmen to Assure Long Life and Precision.



## Control of thermal displacement

### Thermal Insulation

Ceramic is used between the work table and the top slide for thermal insulation. It prevents the working heat generated by high speed cutting from being conducted to the X-Y travel section of the slide section and resulting in strain of the slide section and thermal expansion of ball screws.

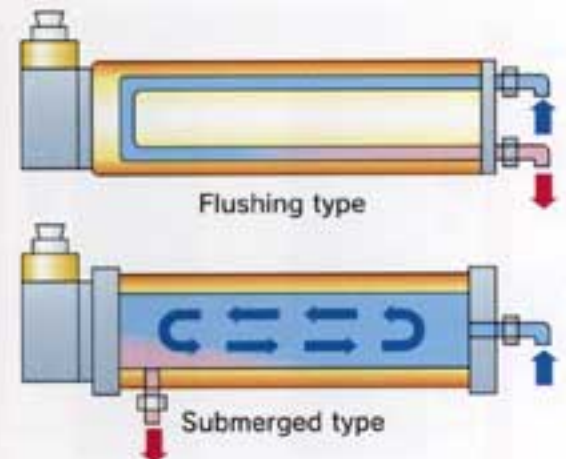


### Lower arm coolant temperature control

To maintain the thermal balance between mechanical parts, materials used in all major components are carefully selected for low thermal expansion, high strength and excellent corrosion resistance.

Temperature-controlled water is circulated through the lower arm and work table, maintaining a constant temperature through water cooling and minimizing thermal displacement.

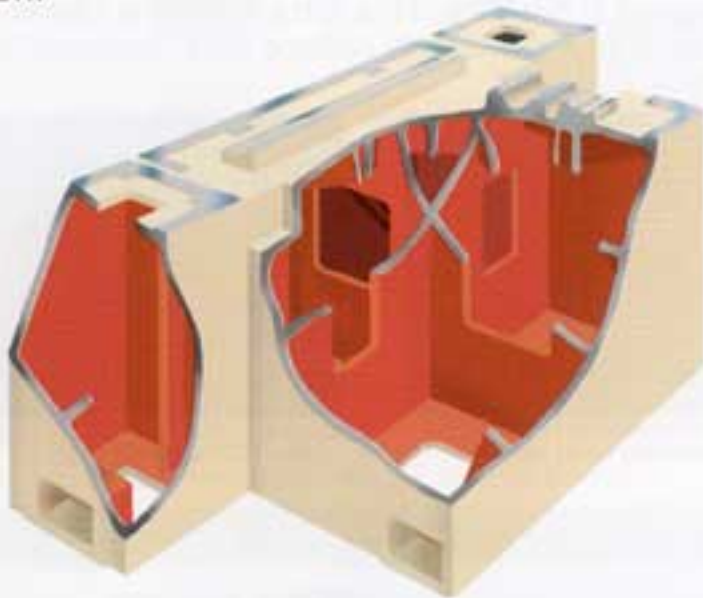
The lower arm is protected from cutting fluid splash with a stainless steel cover, designed to maintain an air gap between the cover and the arm. This air gap also prevents thermal transfer from the cover.



## Complete box-type base construction

Base is cast of high-carbon Meehanite, with ample wall thickness and crossrib supports to assure incredible rigidity.

The result is assurance of stable temperature characteristics and vibration absorption, and long-term precision.



## High-rigidity work table

The work table is designed for ease of work, delivering high rigidity and high-precision performance.



Submerged type



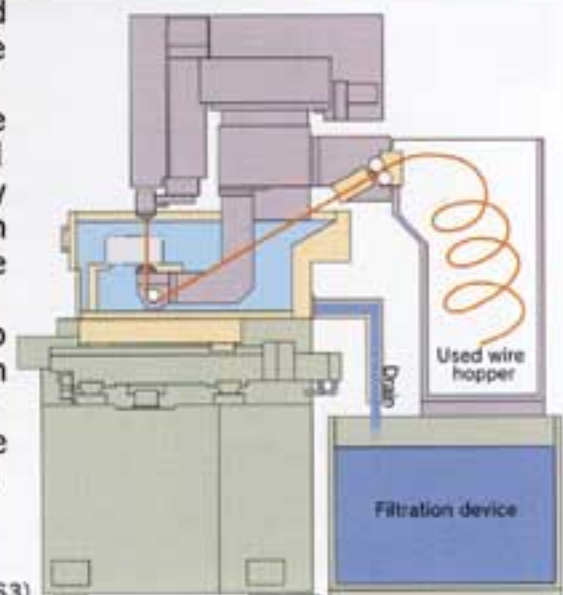
Flushing type

## Seal-less structure prevents sludge adhesion

The lower arm is secured in place with a bridge in the middle portion, removing the used wire at an upward angle to eliminate any need for a seal between the work tank and the lower arm.

As a result, there are no precision-degradation problems caused by sludge buildup on the seal. (EWP-B3S3 only)

As a result, there are no precision-degradation problems caused by sludge buildup on the seal. (EWP-B3S3 only)



(Diagram: EWP-B3S3)

## Wide-access doors

The doors to the work tank open up wide, left and right, for easy access. Experience for yourself the freedom of work placement, removal and centering.

(In B and C series)



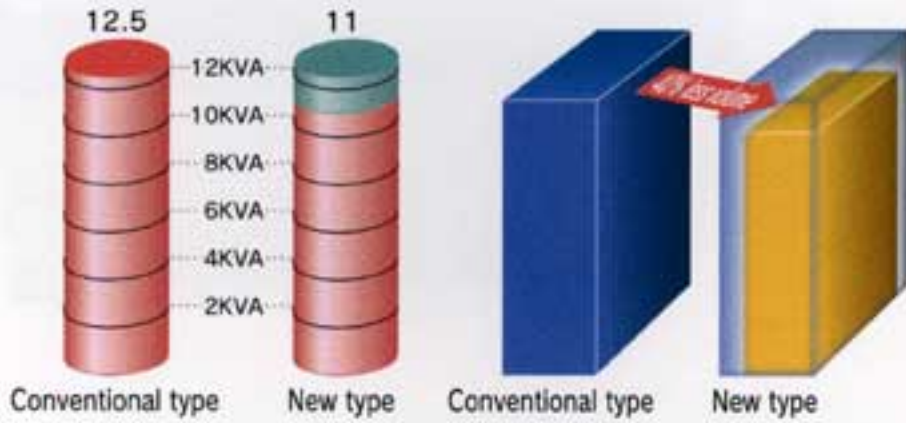
(Photo: EWP-B3S3)



# Advanced AI and diverse functions to support high-precision cutting. LCD panels for simpler operation on all models.

## Energy-efficient, compact design

To minimize running costs a regenerative circuit has been added to the machining power supply, slashing energy consumption by about 12% for even more economy. And the compact design uses about 40% less volume and considerably less precious floor space.



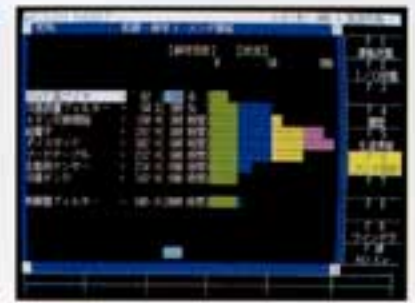
## One-touch positioning

A special screen has been provided for positioning, adjusting wire perpendicularity and measuring guides span. Once parameters are set positioning can be executed automatically later with a single button. And because of the extensive automation used, positioning is simpler than ever.



## Enhanced maintenance and diagnostic information

Alarms and warnings generated during cutting are instantly displayed on the screen, while consumables and maintenance points are managed on a special maintenance screen. Production information and operation history data provide statistical management of uptime ratios and wire feeding status and alarm log.



## Auto-boost function for cutting conditions

When approaching from the work end, the wire may break repeatedly due to unstable cutting conditions caused by insufficient cutting fluid supply or corrosion. The auto-boost function automatically controls cutting energy to assure a smooth cutting start, eliminating the need for complicated interrupted operation.



## Multi-window functions

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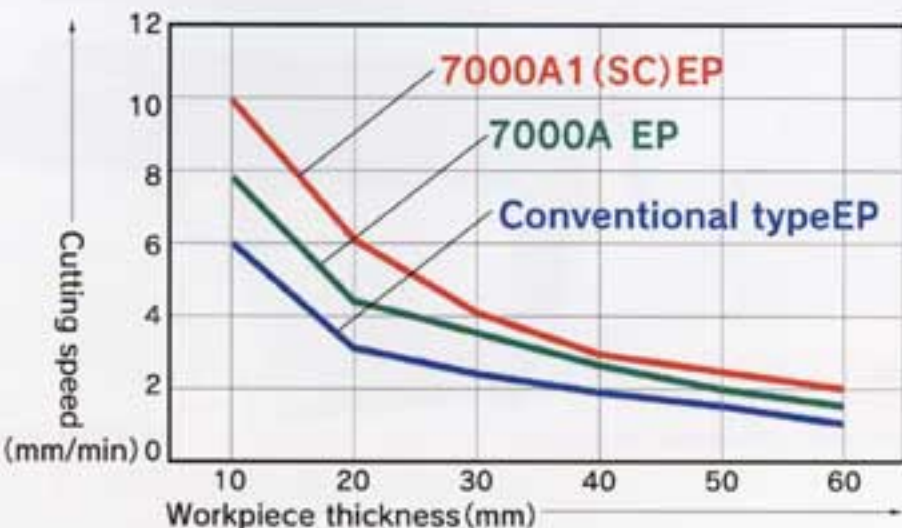
## Memory and MDI operation

The machining screen now shows all essential information, including any four of the ten supported coordinate data systems, operating conditions, taper constants, cutting speed and circumference, cutting path, and soft limit switch set regions. All with instantaneous screen update. With the multi-window function, user-defined screen layout is simple.



## High-speed cutting

The power supply unit in the SW-7000 series can deliver cutting speeds 30 to 90% faster than conventional power supplies, assuring significant improvements in cutting efficiency.



## Mini-APT

Even while cutting, graphic editing is possible for the next shape to be machined. Simple shapes can be created inter-actively from lines and arcs, and the NC program automatically generated when complete. The controller will handle tedious intersection and contact point coordinate calculation, making it possible to design shapes just like using a pencil.



## Machine Specifications

Item	Model	EW-A5S2	EW-A7S2	EW-300K3		
Machine	Max dimensions of workpiece (W×D×H)	※3 750×600×300(250) (29.5)×(23.6)×(11.8)	※3 900×700×300(250) (35.4)×(27.5)×(11.8)	※1 450×400×250 (17.7)×(15.7)×(9.8)	※1	
	Max weight of workpiece	750kg(1,650Lbs)	1,000kg (2,200Lbs)	300kg(660Lbs)		
	Table travel distance	Right & left direction	(X-axis) 500mm (19.6)	(X-axis) 700mm(27.5)	(X-axis) 300mm(11.8)	(X)
		Back & forth direction	(Y-axis) 300mm(11.8)	(Y-axis) 500mm(19.6)	(Y-axis) 250mm( 9.8)	(Y)
	Table manual feed rate(X-Y axes)	(Quick)900mm/min(35.4 in / min) Step feed 0.0001mm(0.000004)~1.0mm(0.04)(0.1 μm unit)			(Quick)1,200mm/min(47.2 in/min)	
	Table driving system					
	Z axis travel distance	315mm(12.4)				
	Wire feeding speed					
	Wire tension controlling range					
	Applicable wire electrode diameter	※2 0.2~0.3mm(0.008~0.012)			※2 0.1mm~0.3mm	
	Outline dimension (W×D×H)	※5 1,655×2,025×2,100 (65.1)×(79.6)×(82.6)	※5 2,300×2,420×2,245 (90.5)×(95.2)×(88.3)	1,820×1,075×2,100 (71.7)×(42.3)×(82.6)		
	Weight	3,000kg (6,600Lbs)	5,000kg (11,000Lbs)	2,000kg(4,400Lbs)		
Taper Cutting	Upper guide travel distance	Right & left direction	(U-axis) : 100mm(3.9)			
		Back & forth direction	(V-axis) : 100mm(3.9)			
	Upper guide manual feed rate	Quick 300mm(11.8)/min Middle 30mm(1.18)/min Slow 9mm(0.35)/min Step feed 0.0001~1mm(0.000004~0.04)(0.1 μm unit)			(Quick)300mm/min	
	Taper angle	※2 ±10° Height 250mm(9.8)				
	Angle changing function during cutting					
	Top-bottom equal R cutting					

※1. In the case of machine with automatic wire feeding device(option), Z axis stroke is 210mm, and max. workpiece height is 200mm.

※2. As for the case with an optional Automatic Wire Feeding Device, these items will be decided by the specifications of AWF - 3A and AWF-3B.

## Special accessories

○ Factory option ○ shows that option can be mounted × shows that option cannot be mounted

Item	Model	EW-A5S2	EW-A7S2	EW-300K3	
Automatic wire feeding device		Standard	Standard	○	
Automatic wire square jig		○	○	○	
Wide-angle taper nozzle		○	○	○	
Working fluid cooling device	Type 1	×	×	○	
	Type 2	○	○	○	
Source wire feeder (for 20kg bobbin)		○	○	○	
Air compressor		○	○	○	
Super finishing power supply (SF supply)		○	×	○	
Non - electrolytic power supply (EP supply)		○	○	○	
Linear scale for X-Y axes		○	○	×	
Start hole drilling device (for FA support type)		×	×	※1 ○	
Automatic punch-out ejector ※4		×	×	※2 ○	
Needle type tension meter	1 kgf	○	○	○	
Digital tension meter	2 kgf	○	○	○	
Integrated cutting hour meter		○	○	○	
Different wire diameter adjustment		○	○	※3 ○	
Tape reader (RS-232C interface)		○	○	○	
External alarm output		○	○	○	
Plotting table		○	○	○	

※1. Can not be equipped with punch-out ejector. ※2. Can not be equipped with start-hole drilling device.

※3. Can only be used together with automatic wire feeding device (AWF). ※4. Automatic punch-out ejector can be offered only in Japan.



EW-450K3	EW-600K3	EW-700K3	EW-1000K3	EWP-B3S2
450 x 600 x 250 (17.7)x(23.6)x(9.8)	※1 650x900x250 (25.5)x(35.4)x(9.8)	※1 650x1,000x250 (25.5)x(39.4)x(9.8)	※1 650x1,300x250 (25.5)x(51.1)x(9.8)	※4 400x300x120(100) (15.7)x(11.8)x(4.7)
500kg(1,100Lbs)	750kg(1,650Lbs)	1,000kg(2,200Lbs)	1,200kg(2,640Lbs)	100kg(220Lbs)
(X-axis) 300mm(11.8)	(X-axis) 450mm(17.7)	(X-axis) 450mm(17.7)	(X-axis) 450mm(17.7)	(X-axis) 300mm(11.8)
(Y-axis) 450mm(17.7)	(Y-axis) 600mm(23.6)	(Y-axis) 700mm(27.5)	(Y-axis) 1,000mm(39.3)	(Y-axis) 200mm(7.8)
(Middle)90mm/min(3.5) (Slow)9mm/min(0.35) (Step feed)0.00025(0.00001)~2.5mm/min(0.01)				(Quick)900mm/min(35.4 in/min) (Step feed)0.0001(0.000004)~1.0(0.04)(0.1 μm unit)
X-Y, U-V, Z axis : AC servo motor				
265mm(10.4)				140mm(5.5)
250mm/sec(2.0~9.8in / sec)				
300~1,800gf(0.66~3.96Lbs)				50~1,400gf(0.11~3.08Lbs)
(0.004~0.012)	※2 0.2mm~0.3mm(0.008~0.012)			0.07~0.2mm(0.0028~0.008)
1,825 x 1,505 x 2,100 (71.9)x(42.3)x(82.6)	2,285 x 2,070 x 2,100 (90.0)x(81.4)x(82.6)	2,380 x 2,240 x 1,980 (93.6)x(88.1)x(77.8)	1,980 x 2,780 x 2,125 (78.0)x(109.3)x(83.5)	1,540 x 1,250 x 1,920 (60.7)x(49.3)x(75.6)
2,500kg(5,500Lbs)	3,500kg(7,700Lbs)	4,000kg(8,800Lbs)	6,000kg(13,200Lbs)	2,000kg(4,400Lbs)
(U-axis) : 60mm(2.36)				(U-axis) : 40mm(1.57)
(V-axis) : 60mm(2.36)				(V-axis) : 40mm(1.57)
30mm/min(1.18) (Slow)9mm/min(0.35) (Step feed)0.00025(0.00001)~2.5mm(0.01) (0.25 μm unit)				Quick 300mm/min(11.8) Step feed 0.0001(0.000004)~1mm(0.04) (0.1 μm unit)
※2 ±10° (Height 150mm)(5.9)				※2 ±7° (Height 100mm)(3.9)
Possible				
Possible				

- ※3. In the case of submerged cutting, height is Max. 250mm. As to the workpiece of 250 ~ 300mm height, flushing cutting is available.  
 ※4. In the case of submerged cutting, height is Max. 100mm. As to the workpiece of 100 ~ 120mm height, flushing cutting is available.  
 ※5. Depth dimension includes wire hopper (600mm). Filtration device and control device are not included.

EW-450K3	EW-600K3	EW-700K3	EW-1000K3	EWP-B3S2
○	○	○	○	Standard
○	○	○	○	○
○	○	○	○	○
○	○	○	○	×
○	○	○	○	Standard
○	○	○	○	×
○	○	○	○	○
◎	×	×	×	Standard
◎	◎	◎	×	Standard
×	×	×	×	Standard
※ ◎	※1 ◎	×	※1 ◎	×
※2 ◎	※2 ◎	◎	※2 ◎	×
○	○	○	○	○
○	○	○	○	○
○	○	○	○	○
※3 ○	※3 ○	※3 ○	※3 ○	○
○	○	○	○	○
○	○	○	○	○
◎	◎	◎	◎	×

## Specification of Control Device

Item	Model	S W-7000K (32bit)	S W-7000A (32bit)	
<b>Control Device</b>	Input power source	3-phase 200V ±10% 50/60Hz 10KVA	3-phase 200V ±10% 50/60Hz 11KVA	
	Outline dimensions(W×D×H)	480×790×1.715mm(18.9×31.1×67.6)		
	Weight	240kg(528Lbs)		
<b>Power Supply</b>	Pulse generation	Transister pulse circuit		
	Cutting voltage	90 steps		
	Cutting current	15 steps(Max. working current 25A)		
<b>Numerical Control</b>	Control system	CNC of 32bit micro computer		
	Ambient temperature	0~40°C		
	Control axis	X-Y·U-V·Z 5axes (X-Y·U-V 4axes simultaneously)		
	Input system	3.5inch FDD, MDI, RS 232C interface		
	Code	I S O (R840) / E I A (R S 244-A) selective		
	Position command system	Incremental value/Absolute value, joint use		
	Max.programmble dimension	(X,Y) ±9999.999mm (393.7), (I-J) ±99999.999mm (3937.0)		
	Least input increment	0.001mm (0.00004)		
	Least command increment	0.00025mm (0.00001)/Pulse	0.0001mm (0.000004)/Pulse	
	Interpolation	Linear, Circular		
	Intersection calculation	Sharp edge, Corner R		
	Wire offset	- 9.999~ +9.999mm (- 0.39366~ + 0.39366)		
	Table manual feed rate	Quick, Middle, Slow, Step feed (Step feed settable 0.00025~2.5mm)	Quick, Middle, Slow, Step feed (Step feed settable 0.0001~1.0mm)	
	Cutting feed control	Servo feed/Constant feed, selective		
	Reverse function	At short circuit, reverse along cutting locus (Reverse distance 0.5/1.0/2.0mm selective)		
Plotting rate	400mm (15.7)/min			




















## Display specifications







● <b>Display</b>	10.4-inch color TFT LCD
● <b>Displayed characters</b>	Alphanumerics, and Japanese characters
● <b>Display screen</b>	Present coordinates, cutting conditions, cutting locus, and operating conditions displayed simultaneously or individually
● <b>Coordinate display</b>	Workpiece coordinates, relative coordinates, machine coordinates, and command coordinates displayed simultaneously(XY,UV,Zaxes 0.001mm units)
● <b>Current coordinates</b>	XY,UV and Z 5-axis simultaneous display in 0.001mm units (model SW-7000K)
● <b>Current coordinates</b>	XY,UV and Z 5-axis simultaneous display in 0.0001mm units (model SW-7000A)
● <b>Graphic functions</b>	XY plane,UV plane and 3D graphics (automatic scaling,partial magnification)
● <b>Cutting status display</b>	Cutting time, cutting length cutting speed, remaining cutting time
● <b>Other displays</b>	NC data, alarm, warning messages, system parameters, maintenance information, production information, operation log
● <b>Editing functions</b>	Search and replace, reference, cut and paste, copy to file
● <b>Multi-operation function</b>	During cutting, NC data editing and drawing are possible.
● <b>Multi-window function</b>	
● <b>Help function</b>	

## Control functions

● <b>Memory operation</b>	512 programs (memory capacity 1MB) total tape length : approx. 2,500m
● <b>Compensation</b>	Pitch error, backlash compensation
● <b>Control functions</b>	Axis exchange, mirror image (XY axis, individual / simultaneous), optional stop, M20 stop, M21 stop, M29 stop, single block, machine lock, dwell, dry run, block skip
● <b>Drawing expansion / shrinkage</b>	0.001 to 99.999 magnification factor
● <b>Drawing rotate</b>	±1°~±360°
● <b>Automatic positioning</b>	Submerged operation possible (edge, side center, corner edge, hole center, column center, slit center)
● <b>Return to origin</b>	Cutting start point, reference point, wire breakage point, designation of returning axes
● <b>Automatic measurement functions</b>	Wire perpendicularity, axis compensation, circle compensation, taper parameter (wire perpendicularity requires optional jig)
● <b>Soft limit</b>	5 regions
● <b>Macro functions</b>	Calculation function
● <b>Corner chamfering control</b>	
● <b>Top - bottom equal radius cutting</b>	
● <b>Top - bottom different shape cutting</b>	
● <b>Mini-APT</b>	

# Superlative Technology Contributes to Improved Work Efficiency.

Cutting range (X axis × Y axis)	Submerged type	
	Ultra-precision wire EDM B series	High-speed, high-precision wire EDM A series
300×200	B3S3         	
300×250		
300×450		
350×250		
450×600		
450×700		
450×1000		A5S3          
500×300		
500×350		
700×500		

 Submerged type	 AWF III	 EP power supply	 SF power supply	 SC circuit
 Flushing type	 (Option) AWF III	 (Option) EP power supply	 (Option) SF power supply	 (Option) FA

## Flushing type

**High-speed, high-precision wire EDM**  
C series

**High-speed, general-purpose wire EDM**  
K series

C3S



300K3



450K3



600K3



700K3



1000K3



C5S2



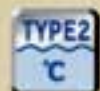
Linear scale (X-Y)



(Option) Linear scale (U-V)



(Option) Drafting table



Water cooler (type 2)



(Option) Total cutting time timer



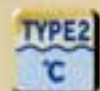
(Option) Linear scale (X-Y)



(Option) 20-kg winding

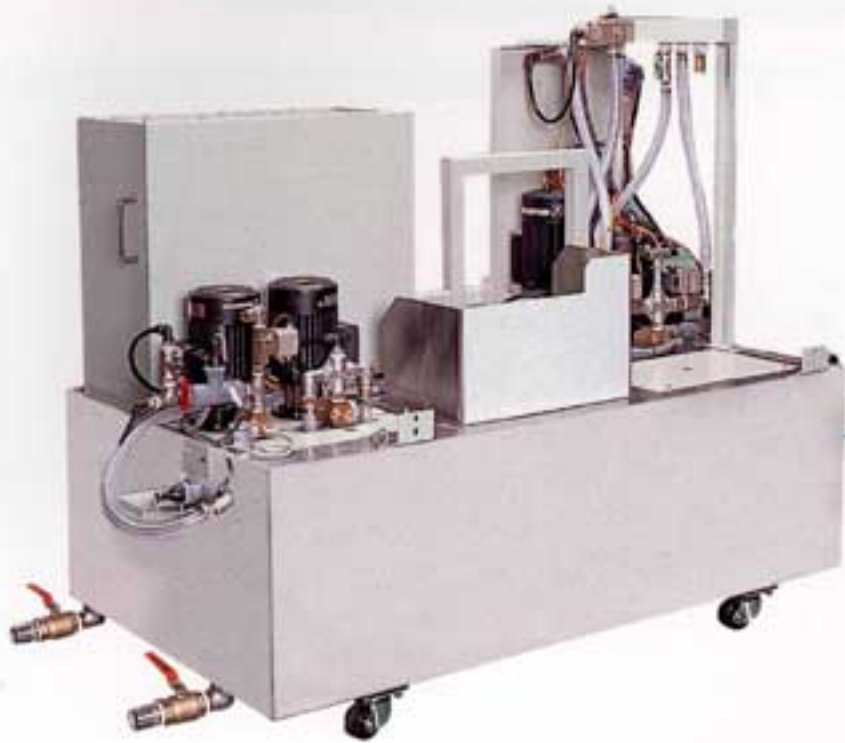


(Option) Water cooler (type 1)



(Option) Water cooler (type 2)

# Filtration Device



## FW-4CP

- Target machine / EWP-B3S2
- Ion exchange resin / 20 l
- Internal/external pressure paper filter / 2 pcs.
- Tank capacity / 400 l
- Weight / 400kg (not including cutting fluid)
- Power input / Included in control system
- Dimensions / 850 × 1,500 × 1,350mm  
(33.5 × 59.1 × 53.2)

## FW-7C

- Target machine / EW-A5S2
- Ion exchange resin / 20 l
- Internal/external pressure paper filter / 2 pcs.
- Tank capacity / 700 l
- Weight / 350kg (not including cutting fluid)
- Power input / Included in control system
- Dimensions / 1,000 × 2,030 × 1,150mm  
(39.4 × 80.0 × 45.3)



# Preparation for installation

### Installation site

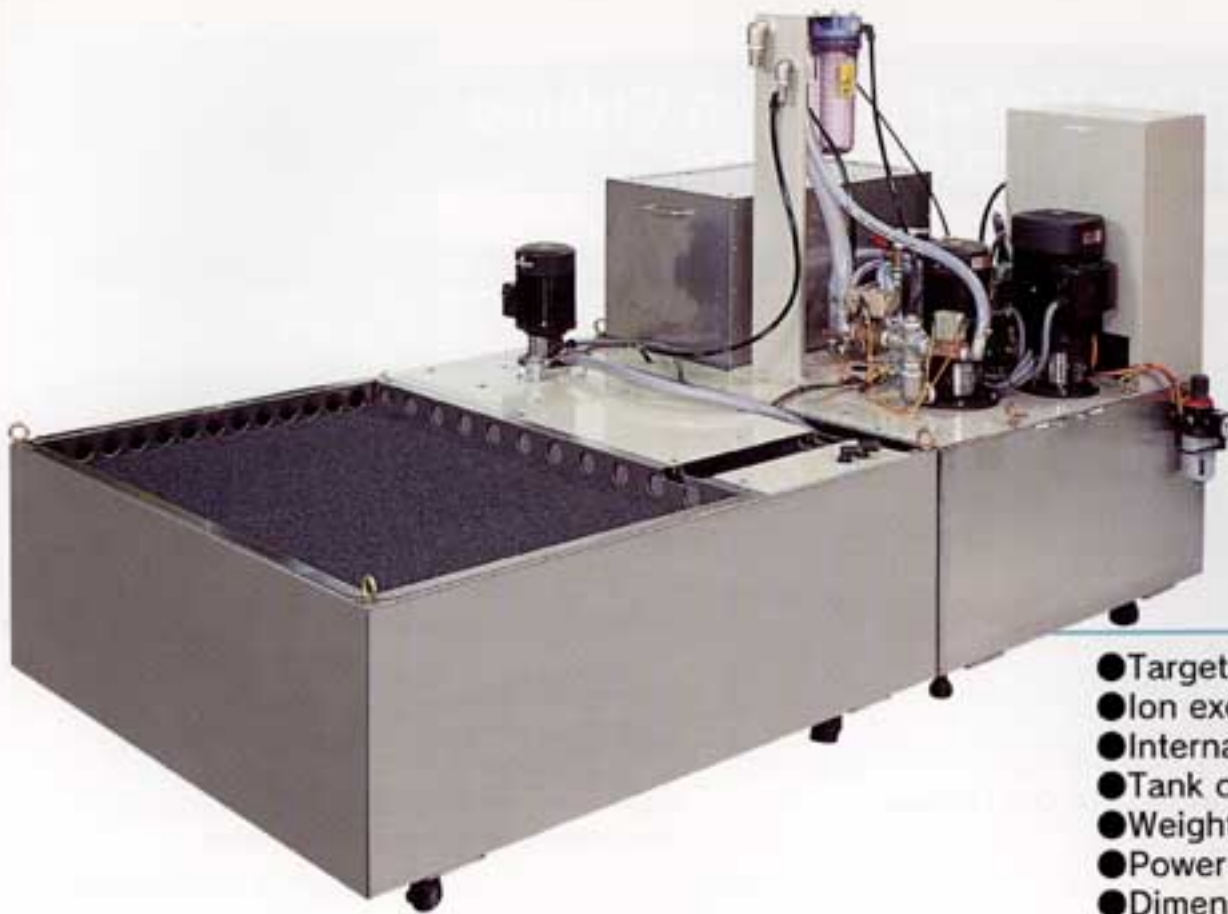
We recommend that you install your EDM system in a site that fulfills the following conditions:

- Small temperature change  
The optimum temperature is  $20^{\circ}\text{C} \pm 1^{\circ}\text{C}$ . Temperature change will adversely affect the system's precision. Avoid direct exposure to air conditioning cold air or sunlight.
- Low humidity and particle count  
If other machine tools are located nearby the machining dust will have an adverse effect on the sliding and rotating surfaces (ballscrews, etc.) of the system, so be sure that the operating environment is clean. Any condensation will cause system corrosion.
- Low vibration  
Excessive vibration will make it difficult to maintain machining precision. Either resite the system or use foundations to isolate it.
- We recommend using this system in a shielded room to avoid excessive EMI.

### Installation construction

Be sure to ground this system to prevent leakage accidents, misoperation due to electrical noise and EMI problems.

- Class 3 grounding (ground resistance  $10\Omega$  max.) is required, with each EDM system to be grounded separately.
- The grounding cable should be at least  $14\text{mm}^2$  in cross-section.



## FW-11C

- Target machine / EW-A7S2
- Ion exchange resin / 20ℓ
- Internal/external pressure paper filter / 2 pcs.
- Tank capacity / 1,100 ℓ
- Weight / 400kg (not including cutting fluid)
- Power input / Included in control system
- Dimensions / 1,200 × 2,500 × 1,150mm  
(47.3 × 98.5 × 45.3)

## FW-3C

- Target machine / EW-K3 Series
- Ion exchange resin / 5 ℓ
- Internal/external pressure paper filter / 2 pcs.
- Tank capacity / 340ℓ
- Weight / 300kg (not including cutting fluid)
- Power input / Included in control system
- Dimensions / 1,030 × 1,170 × 950mm  
(40.6 × 46.1 × 37.4)



For FW-3C and 4CP



Internal/external pressure  
3 μm paper filter  
φ 300 × 500mm  
(OD × height)

For FW-7C and 11CP

Internal/external pressure  
3 μm paper filter  
φ 340 × 300mm  
(OD × height)

### Shielded room

If televisions, radios or other communication equipment are affected, it may be necessary to install the system in a shielded room.

- Ground the system within the shielded room.
- If the ground can not be made within the shielded room, use a thru-bolt into the shielded room. Please consult the vendor in advance for shielded room installations.

### Power supply

Complete power supply construction before installing the EDM system. The input power supply must use a dedicated line from the factory supply.

- If there is excessive voltage fluctuation it may be impossible to assure stable machining or precision.
- The wire EDM system input capacity will vary with the specific system; refer to the specifications.
- Use a leakage breaker with a 100mA current sensitivity.

### Compressed air supply

The wire EDM requires connection to a compressed air supply. Complete all piping before installing the EDM system.

- Required air pressure : 0.5MPa minimum (5kgf/cm<sup>2</sup> minimum)
- Connector ID : 0.8mm diameter nylon or urethane hose

# Power Support for High-Precision Cutting and Unattended Operation.

Source wire feeder



Can supply wire electrodes continuously for long periods (20kg bobbin wire). Supports 0.2, 0.25 and 0.3 diameter wires.

NC indexing device



Min. indexing unit : 0.001 degree

Working fluid cooling device



Maintains working fluid at a constant temperature for high-precision cutting.

Automatic wire square jig



By setting the jig on the table and touching the wire with its edges, the verticality of wire electrode against the table can be automatically detected corrected.

Die guide



Wire die guides provided for 0.1, 0.15, 0.2, 0.25 and 0.3 diameter wires, supporting a wide range of applications.

Digital tension meter



High performance meter with an accuracy of  $\pm 1.5\%$  (fullscale). Measurement range : 200 to 2,000 gf.

Integrated cutting hour meter



Logging and display of cumulative cutting time for long periods of time (for example, in monthly units.)

Wide angle taper nozzle



Supports tapering up to an incredible  $32^\circ$ , dramatically expanding your range of wire electrical discharge machining.  
(Upper : EW-K3, Lower : EW-A)

Tension meter



Quick verification of wire electrode tension up to 1000 gf.