

SEIBU



EW-C 5S

SEIBU

EW-C 5S

- 32-Bit PC-Steuerung
- Deionisiersystem
- Filteranlage
- gesteuerte Z-Achse (5. Achse)
- Automatischer Drahteinfädung
- Wiedereinfädeln an der Drahtbruchstelle
- Restdraht-Entnahmeroboter
- Automatischer Restart nach Stromunterbrechung



Einfädeln in kleinste Bohrungen und an der Drahtbruchstelle im Schneidspalt

Max. Werkstückgröße (L x B x H) [mm] : 800 x 650 x 300

Verfahr-/Schneidwege

– X-/Y-/Z-Achse [mm] : 500 x 350 x 315
 – U-/V-Achse [mm] : 70
 – Maximaler Schneidwinkel [Grad] : ± 32

Max. Werkstückgewicht [kg] : 800

Platzbedarf (B x T x H) [mm] : 3200 x 2850 x 2100

Gesamtgewicht [kg] : 3250

Netzanschluß [V AC]: 400, 3~ /50 Hz

Anschlußwert Werkzeugmaschine [kVA] : 7,5

Anschlußwert Filteranlage [kVA] : 4,5

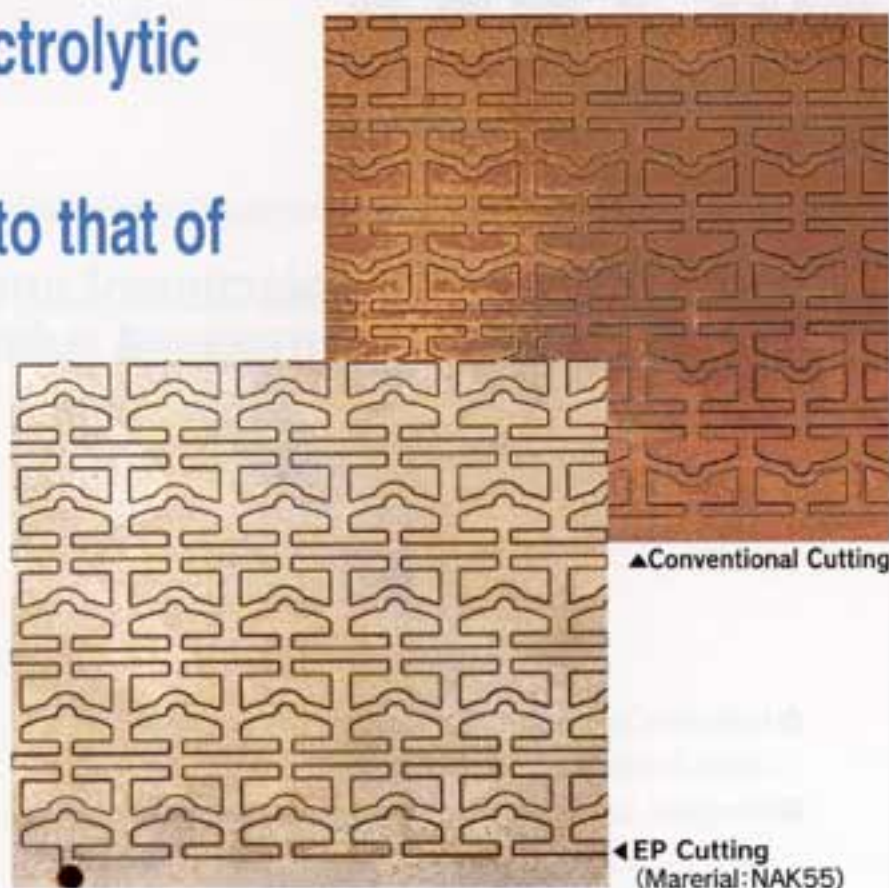
Antriebe X-/Y-/U-/V-Achsen:
 Vertikalverstellung (Z-Achse):

digitale AC-Servo-Motoren
 motorisch, programmierbar,
 digitaler AC-Servo-Motor

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.

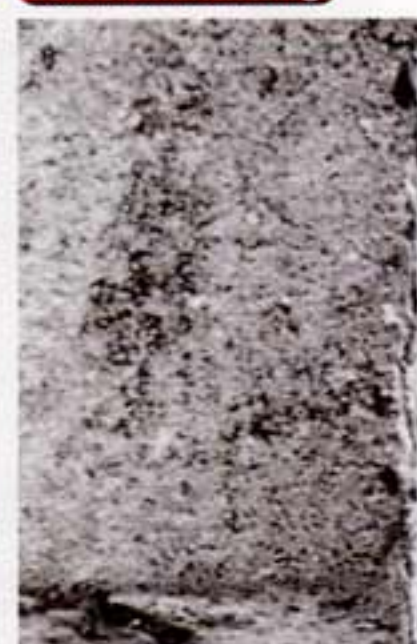
High-speed non-electrolytic cutting

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



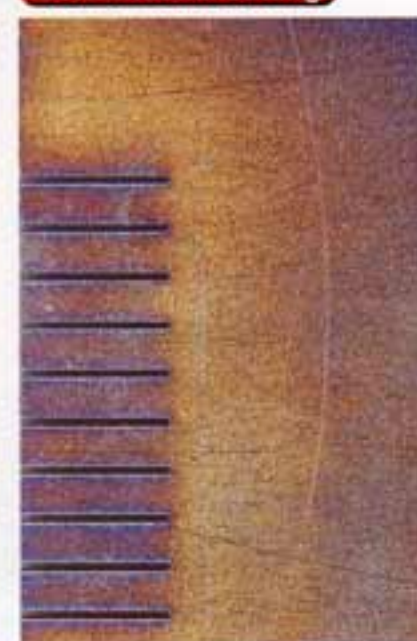
Conventional cutting



Titanium alloy



Conventional cutting



Machine specifications

Item	Model	EWP-B3S3	EW-A5S3	EW-A7S3	EW-C3S	EW-C5
Max dimensions of workpiece (W×D×H)		※1 400×300×120mm(15.7×11.8×4.7)	※2 750×600×300mm(29.5×23.6×11.8)	※2 900×700×300mm(35.4×27.5×11.8)	※3 600×550×220mm(23.6×21.6×8.7)	※3 800×650×300mm
Max weight of workpiece		100kg(220Lbs)	750kg(1,650Lbs)	1,000kg(2,200Lbs)	350kg(770Lbs)	800kg(1,760Lbs)
Table travel distance Right & left direction		(X-axis) 300mm(11.8)	(X-axis) 500mm(19.5)	(X-axis) 700mm(27.5)	(X-axis) 350mm(13.8)	(X-axis) 500mm
Table travel distance Back & forth direction		(Y-axis) 200mm(7.8)	(Y-axis) 300mm(11.8)	(Y-axis) 500mm(19.6)	(Y-axis) 250mm(9.8)	(Y-axis) 350mm
Table manual feed rate(X-Y axes)		Quick, Middle, Slow: 300, 90, 30mm/min(35.4, 11.8, 3.35in./min) Step feed: 0.0001(0.000004)~1.0(0.04)mm(0.1µm unit)	Quick: 900mm/min(35.4in./min) Step feed: 0.0001(0.000004)~1.0(0.04)mm(0.1µm unit)	Quick, Middle, Slow: 300, 90, 30mm/min(35.4, 11.8, 3.35in./min) Step feed: 0.0001(0.000004)~1.0(0.04)mm(0.1µm unit)	Quick: 900mm/min(35.4in./min) Step feed: 0.0001(0.000004)~1.0(0.04)mm(0.1µm unit)	Quick: 900mm/min(35.4in./min) Step feed: 0.0001(0.000004)~1.0(0.04)mm(0.1µm unit)
Table driving system						
Upper guide drive						
Z axis travel distance		140mm(5.5)	315mm(12.4)		225mm(8.9)	310mm
Wire feeding speed						
Wire tension controlling range		0.5~16N(0.0011~0.0352)				
Applicable wire electrode diameter		0.07~0.2mm(0.0028~0.008)	※5 0.1~0.3mm(0.004~0.012)		※5 0.1~0.3mm(0.004~0.012)	
Outline dimension (W×D×H)		1,640×1,400×1,940mm(64.5×55.1×76.3)	※6 1,655×2,025×2,100mm(64.1×79.6×82.6)	※6 2,300×2,420×2,245mm(90.5×95.2×88.3)	1,440×2,040×2,035mm(56.6×80.2×80.0)	1,800×2,200×2,080mm
Weight		2,500kg(5,500Lbs)	3,000kg(6,600Lbs)	5,000kg(11,000Lbs)	2,500kg(5,500Lbs)	3,000kg
Upper guide travel/right-left		(U-axis) 40mm(1.57)	(U-axis) 100mm(3.9)		(U-axis) 70mm(2.75)	
Upper guide travel/back-forth		(V-axis) 40mm(1.57)	(V-axis) 100mm(3.9)		(V-axis) 70mm(2.75)	
Upper guide manual feed rate		Quick, Middle, Slow: 300, 90, 30mm/min(11.8, 11.8, 0.35in./min) Step feed: 0.0001(0.000004)~1.0(0.04)mm(0.1µm unit)			Quick, Middle, Slow: 300, 90, 30mm/min(11.8, 11.8, 0.35in./min) Step feed: 0.0001(0.000004)~1.0(0.04)mm(0.1µm unit)	
Taper angle		±7°(Height 100mm, cone cutting)	±10°(Height 250mm)		±7°(Height 200mm, cone cutting)	±6°(Height 300mm) ±10°
Model		FW-4CP2	FW-7C	FW-11C	FW-5C	FW-8C
Ion exchange resin			20ℓ		10ℓ	20ℓ
Filtration method						
Tank capacity		460ℓ	560ℓ	900ℓ	480ℓ	630ℓ
Dimensions		1,050×1,500×1,160mm(41.3×59.0×45.6)	950×2,180×1,370mm(37.4×85.7×53.9)	1,100×2,500×1,370mm(43.3×98.3×53.9)	850×2,065×1,155mm(33.4×81.2×45.4)	1,020×2,180×1,370mm
Weight		※7 220kg(484Lbs)	※7 240kg(528Lbs)	※7 270kg(594Lbs)	※7 230kg(506Lbs)	※7 250kg

※1: Max. submerged cutting depth is 100mm. Flush cutting available for work 100 to 120mm high. ※2: Max. submerged cutting depth is 250mm. Flush cutting available for work 250 to 300mm high.
 ※5: When automatic wire feeding device mounted, depends on specifications of AWF. ※6: Depth includes wire hopper(600mm), excludes filtration system and controller. ※7: Not including cutting fluid.

Special accessories

Item	Model	EWP-B3S3	EW-A5S3	EW-A7S3	EW-C3S	EW-C5S2	EW-300K3	EW-450K3	EW-600K3	EW-700K3	EW-1000K3
Automatic wire feeding device		○	○	○	※	※	○	○	○	○	○
Automatic wire square jig		○	○	○	○	○	○	○	○	○	○
Wide-angle taper nozzle		○	○	○	○	○	○	○	○	○	○
Working fluid cooling device Type 1		×	×	×	×	×	○	○	○	○	○
Working fluid cooling device 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		○	※	※	※	※	×	×	×	×	×
Linear scale for U-V axes		※	※	※	※	※	×	×	×	×	×
Start hole drilling device (for FA support type)		×	×	×	×	×	※	※	※	×	※
Integrated cutting hour meter		○	○	○	○	○	○	○	○	○	○
Different wire diameter adjustment		○	○	○	○	○	※1 ○	※1 ○	※1 ○	※1 ○	※1 ○
Tape reader (RS-232C interface)		○	○	○	○	○	○	○	○	○	○
External alarm output		○	○	○	○	○	○	○	○	○	○
Plotting table		×	※	※	※	※	※	※	※	※	※

※1: Can only be used together with automatic wire feeding device (AWF).

○ : Standard equipment ○ : shows that option can be mounted × : shows that option cannot be mounted ※ : Factory option

EW-300K3	EW-450K3	EW-600K3	EW-700K3	EW-1000K3
450x400x250mm(17.7x15.7x9.8)	450x600x250mm(17.7x23.6x9.8)	650x900x250mm(25.5x35.4x9.8)	650x1,000x250mm(25.5x39.4x9.8)	650x1,300x250mm(25.5x51.1x9.8)
300kg(660Lbs)	500kg(1,100Lbs)	750kg(1,650Lbs)	1,000kg(2,200Lbs)	1,200kg(2,640Lbs)
(X-axis) 300mm(11.8)	(X-axis) 300mm(11.8)	(X-axis) 450mm(17.7)	(X-axis) 450mm(17.7)	(X-axis) 450mm(17.7)
(Y-axis) 250mm(9.8)	(Y-axis) 450mm(17.7)	(Y-axis) 600mm(23.6)	(Y-axis) 700mm(27.5)	(Y-axis) 1,000mm(39.3)
Quick: Middle: Slow: 1,200, 90, 9mm/min(47.2, 3.5, 0.35in/min) Step feed: 0.00025(0.00001)~2.5(0.01)mm(0.25μm unit)				
X-Y axis: AC servo motor				
Z axis: AC servo motor				
265mm(10.4)				
50-250mm/sec(2.0-9.8in/sec)				
3~18(0.0066~0.0396)				
x5 0.1~0.3mm(0.004~0.012)		x5 0.2~0.3mm(0.008~0.012)		
1,820x1,075x2,100mm(71.6x42.3x82.6)	1,825x1,505x2,100mm(71.8x59.2x82.6)	2,285x2,070x2,100mm(89.9x81.4x82.6)	2,380x2,240x1,980mm(93.6x88.1x77.9)	1,980x2,780x2,125mm(77.9x109.3x83.6)
2,000kg(4,400Lbs)	2,500kg(5,500Lbs)	3,500kg(7,700Lbs)	4,000kg(8,800Lbs)	6,000kg(13,200Lbs)
(U-axis) 60mm(2.36)				
(V-axis) 60mm(2.36)				
Quick: Middle: Slow: 300, 90, 9mm/min(11.8, 3.5, 0.35in/min) Step feed: 0.00025(0.00001)~2.5(0.01)mm(0.25μm unit)				
±10°(Height: 150mm)				
FW-3C				
5"				
Internal/external pressure paper filter				
340"				
1,030x1,170x1,050mm(40.5x46.0x41.3)				
x7 180kg(396Lbs)				

※3: Max. sheet thickness for automatic wire feeding device (option) is 150mm. ※4: When automatic wire feeding device mounted, Z stroke is 210mm, max work height is 200mm.

Optional Equipments



Source wire feeder

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



Die guide

Wire die guides provided for supporting a wide range of applications. (The left side: K3 series, The right side: A, B, C series)



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.



Wide angle taper nozzle

Supports tapering up to an incredible 32°, dramatically expanding your range of wire electrical discharge machining. (Upper: K3 series, Lower: A, B, C series)

Specification of Control Device

Item	Model	SW-7000K	SW-7000C1	SW-7000A1
Control Device	Input power source	3phase 200V ±10% 50/60Hz 10KVA	3phase 200V ±10% 50/60Hz 11KVA	
	Outline dimensions(W×D×H)	480×790×1,715mm(18.9×31.1×67.6)		
	Weight	240kg(528Lbs)		
Power Supply	Pulse generation	Transister pulse circuit		
	Cutting voltage	90 steps		
	Cutting current	15 steps(Max. working current 25A)		
Numerical Control	Ambient temperature	0~40℃		
	Control axis	X-Y-U-V-Z 5axes(X-Y-U-V 4 axes simultaneously)		
	Input system	3.5inch FDD, MDI, RS 232 C interface		
	Code	ISO(R840)/EIA(RS244-A) selective		
	Position command system	Incremental value/Absolute value, joint use		
	Max programmable 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 · Control functions
































Display specifications

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

Control functions

Memory operation	512 programs (memory capacity 1MB) total tape length : approx. 2,500m
Compensation	Pitch error, backlash compensation
Control functions	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
Drawing expansion / shrinkage	0.001 to 99.999 magnification factor
Drawing rotate	±1°~±360°
Automatic positioning	Submerged operation possible (edge, side center, corner edge, hole center, column center, slit center)
Return to origin	Cutting start point, reference point, wire breakage point, designation of returning axes
Automatic measurement functions	Wire perpendicularity, axis compensation, circle compensation, taper parameter (wire perpendicularity requires optional jig)
Soft limit	5 regions
Macro functions	Calculation function
Corner chamfering control	OK
Top - bottom equal radius cutting	OK
Top - bottom different shape cutting	OK
Mini-APT	OK

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		
500×300		A5S3           
500×350		
700×500		A7S3          

 Submerged type	 AWFⅢ	 EP power supply	 SF power supply	 SC circuit
 Flushing type	 (Option) AWFⅢ	 (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



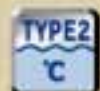
Linear scale (X-Y)



(Option) Linear scale (U-V)



(Option) Drafting table



Water cooler (type 2)



(Option) Total cutting time timer



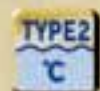
(Option) Linear scale (X-Y)



(Option) 20-kg winding



(Option) Water cooler (type 1)



(Option) Water cooler (type 2)

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 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.

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° , 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.