

EW-A5S2

Thorough thermal displacement and mechanical deformation measures assure unsurpassed submerged machining precision.

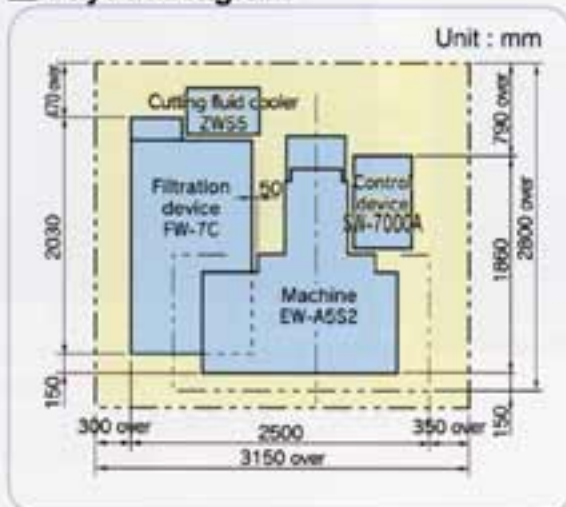
- Applicable to high-precision submerged cutting needs in a wide range of fields.
- Structural design stresses control of thermal displacement and mechanical distortion for superlative performance.
- Machining takes place in temperature-controlled bath for stable precision regardless of cut or shape.
- Easy-to-use high-precision regardless of cut or shape.
- Comes standard with Seibu's original automatic wire feeding device, the only one in the world capable of automatic wire feeding at the wire breakage point.
- Small footprint for maximized shop floor space.



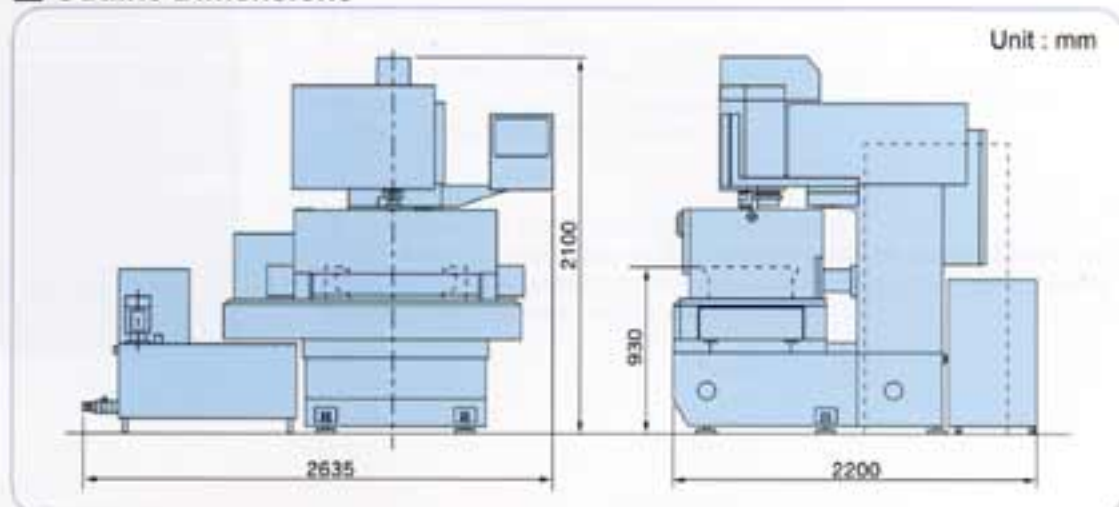
Major Specifications

- Max. dimensions of workpiece
750(29.5)×600(23.6)×300(11.8) mm (W×D×H)
(Maximum workpiece height 250mm for submerged machining.)
- Max. weight of workpiece : 750kg(1,650Lbs)
- Table driving system : AC servo motor
- Table travel
Right & left (X axis) : 500(19.6) mm
Back & forth (Y axis) : 300(11.8) mm
- Z axis travel (up & down) : 315(12.4) mm

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

EP cutting



Conventional cutting

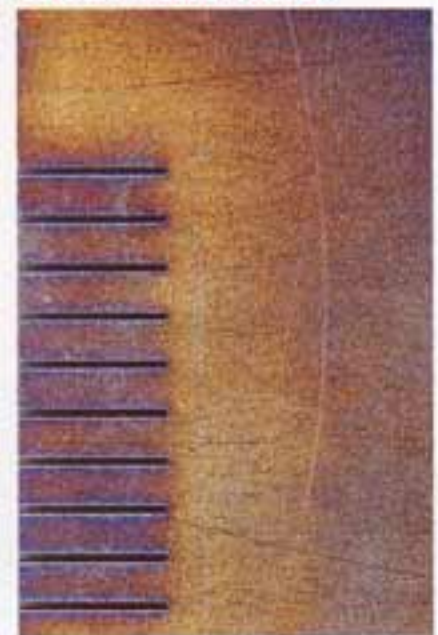


Titanium alloy

EP cutting



Conventional cutting



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)	
Control Device	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)		
Power Supply	Pulse generation	Transister pulse circuit		
	Cutting voltage	90 steps		
	Cutting current	15 steps(Max. working current 25A)		
Numerical Control	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			

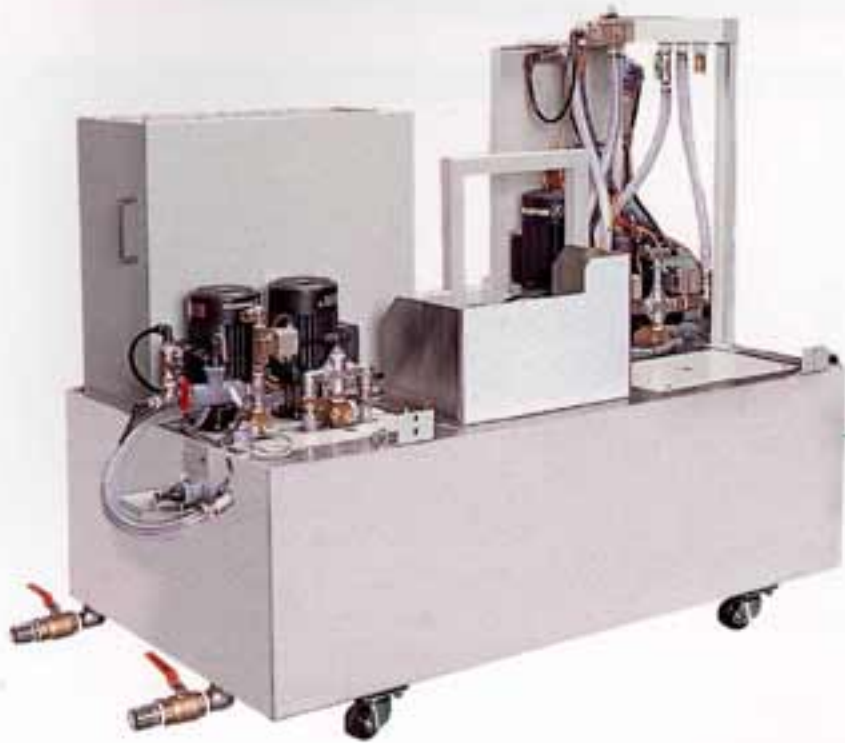
Display specifications

● 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(XY, UV, Z axes 0.001mm units)
● Current coordinates	XY, UV and Z 5-axis simultaneous display in 0.001mm units (model SW-7000K)
● Current coordinates	XY, UV and Z 5-axis simultaneous display in 0.0001mm units (model SW-7000A)
● 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	
● Help function	

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	
● Top - bottom equal radius cutting	
● Top - bottom different shape cutting	
● Mini-APT	

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

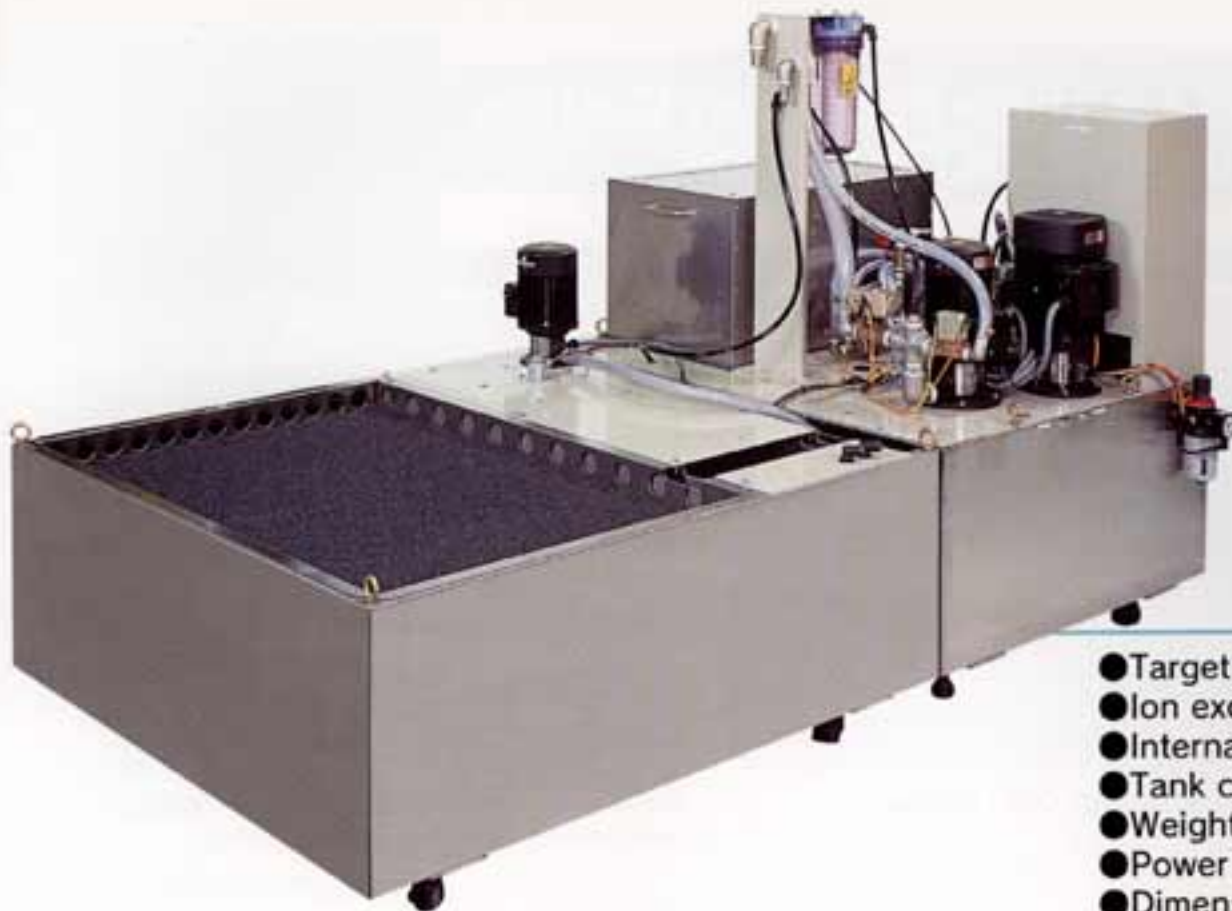
We recommend that you install your EDM system in a site that fulfills the following conditions:

- 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 10Ω max.) is required, with each EDM system to be grounded separately.
- The grounding cable should be at least 14mm^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/cm² 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



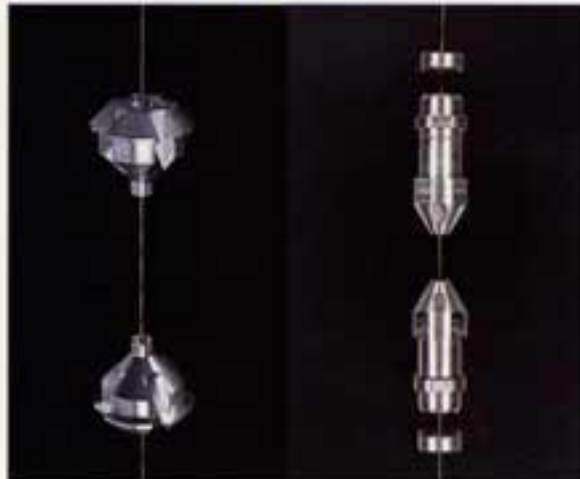
Maintains working fluid at a constant temperature for high-precision cutting.

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° , 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.

SEIBU

Manuelle Startlochbohreinrichtung



**Bohren auf der Drahterodiermaschine?
Aber schnell!**

SEIBU Startlochbohrereinrichtung



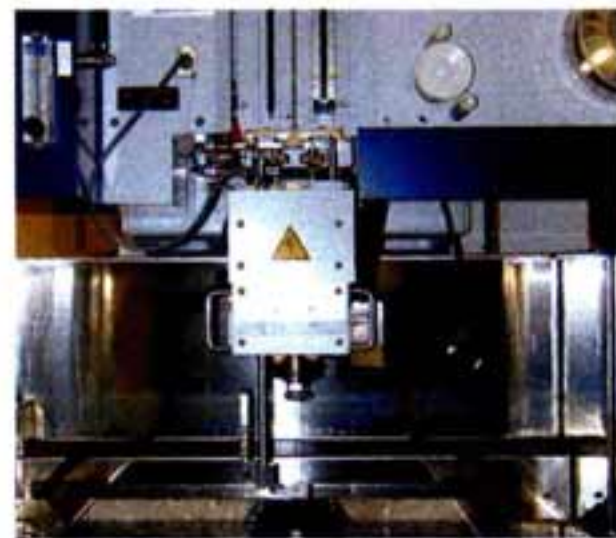
Schnell manuell einwechselbare Bohreinheit.

Die Befestigung erfolgt mit zwei Schrauben. Der elektrische Anschluss wird mittels eines Steckers, der Spülanschluss mittels eines Schnellverschlusses hergestellt.

Alle Funktionen werden über die Steuerung aktiviert.

Das Anfahren an das Werkstück erfolgt über die Positionierfunktionen der Steuerung – wie beim Drahtschneiden.

Alle Technologieparameter werden über den Generator geschaltet. Die Drehzahl ist über den Parameter für die Drahtgeschwindigkeit einstellbar.



Maximale Werkstückhöhe
(ohne Röhrchenwechsel)

M350S: 40 mm
M500S und M750 S: 60 mm

Röhrchendurchmesser

1 mm (Messing 1,0x0,3x300)

Bohrgeschwindigkeit

ca. 10 mm/min (in Stahl)

Gewicht

ca. 3 kg

Die Startlochbohrereinrichtung ist nachrüstbar auch bei SEIBU Modellen A5S2, A7S2, C5S2 und deren Nachfolgemodellen (Werkstückhöhe 60 mm) sowie der C3S2 und ihren Nachfolgemodellen (Werkstückhöhe 40 mm).