

SEIBU EDM

EW-400

EW-600

HIGHLY ACCURATE WIRE-CUT ELECTRICAL DISCHARGE MACHINES (MIDDLE SIZE MACHINE, LARGE SIZE MACHINE)



SEIBU Electric Mfg. Co., Ltd.

Responding To The Latest Users' Needs, High — Speed Cutting Has Been Realized!!

EASY MACINING

Responding to the needs for larger-sized dies and ordered feeding of cars, home electric products, optical instruments and precision instruments, larger-sized dies and high accuracy have been realized. EW-400 type middle-sized machine in a series of machines can cut the maximum workpiece (250 kg) and EW-600 type large-sized machine can cut the maximum workpiece (650 kg) easily with high accuracy and high speed. Moreover the abundant optional functions maximize the applicable range of the wire-cut electrical discharge machines and high productivity is promised to the users.



EW-600

Specification

1. MACHINE

Type	EW-400 - 600
Maximum dimensions of workpiece	EW-400/550 x 450 x 120 mm (width x depth x height) EW-600/600 x 900 x 150 mm (width x depth x height)
Maximum weight of workpiece	EW-400/250 kg EW-600/650 kg
Table travel distance	EW-400/right and left direction (X-axis) 400 mm back and forth direction (Y-axis) 300 mm EW-600/right and left direction (X-axis) 400 mm back and forth direction (Y-axis) 600 mm
Table manual feed rate	(Quick) 900 mm/min (Middle) 90 mm/min (Low) 9 mm/min (1 pulse) 0.001 mm
Applicable wire diameter	0.2 mm (the others are options)
Outline dimensions	EW-400/1935 x 1255 x 1805 mm (width x depth x height) EW-600/2030 x 2065 x 1945 mm (width x depth x height)
Weight	EW-400/2000 kg EW-600/3000 kg

2. FILTRATION DEVICE

Type	EW-162
Working fluid	Water (purity automatically controlled)
Filtration element	5 μm paper filter
Outline dimensions	1025 x 900 x 1030 mm (width x depth x height)
Weight	180 kg (not including working fluid)

3. CONTROL DEVICE

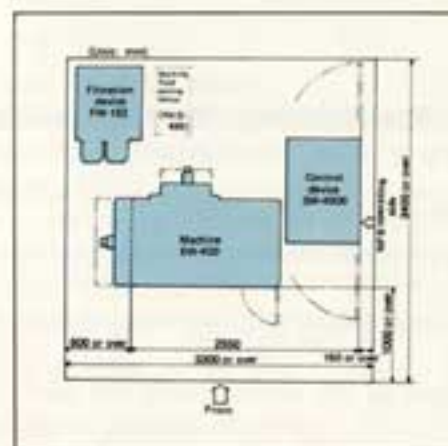
Type	SW-4000
Input power supply	3 phases AC 200 V 50/60 Hz 8 kVA
Outline dimensions	800 x 1100 x 1850 mm (width x depth x height)
Weight	620 kg
(Power supply part)	
Pulse generating system	transistor pulse circuit
No-load voltage	(30 V) 60 ~ 139 V (79 steps selection) (30 V is exclusive for positioning)
Output electric current	9 steps selection
(NC control part)	
Control system	CNC system with micro-computer
Code	ISO (R840)/EIA (RS244-A) selection
Pulse control	X, Y 2 axes simultaneously

Maximum command value	(X, Y) ±9999.999 mm (I, J) ±99999.999 mm
Least input increment	0.001 mm
Intersection point calculation	sharp edge, corner R
Reversing function	reverse along cutting path at short circuit
Plotting rate	300 mm/min
Wire offset	0 ~ ±9.999 mm
Display function	1. present position display (origin)/(auxiliary origin) selection (X-Y, U-V 2 axes simultaneously) 2. input data display 3. alarm code display
Control function	1. mirror image 2. axes exchange 3. fixed program (5 kinds) 4. automatic positioning (edge, hole center) 5. expansion, shrinkage (magnification 0.01 ~ 99.99) 6. return to working origin
Countermeasure for power failure	self-start after power failure
Self-diagnosis function	existing
Surrounding temperature	0 ~ 40 °C

4. SPECIAL ACCESSORIES

- (1) Taper cutting device
Taper angle EW-400 max. ±4° EW-600 max. ±3° (max. ±5° is possible at NC)
Angle changing function during cutting existing
Top & bottom equal R cutting possible
 - (2) Memory operation
 - (3) Pitch error, backlash compensation
 - (4) Cutting time indication
 - (5) Length indication
 - (6) Cutting rate indication
 - (7) Inch/metric exchange
 - (8) Automatic wire vertical positioning
 - (9) Lamp type square
 - (10) Cutting time accumulation meter
 - (11) V slot wire guide
 - (12) φ0.25 dies guide
 - (13) Tape winder (for system tape)
 - (14) Tension meter 0 ~ 100 g
 - (15) Working fluid cooling device (RKS-400)
- *These specifications may be changed without notice to improve the functions of the machine.

EW-400 LAYOUT DIAGRAM



EW-600 LAYOUT DIAGRAM



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UNIQUE TABLE GUIDE SYSTEM PROVES ITS EXCELLENCE TO THE WORLD

Special Merits of EW-400 & EW-600

1. HIGH ACCURACY

The unique table guide system is adopted at the sideway of X-Y table, which is guaranteed its long life and high accuracy.

2. EXCELLENT TEMPERATURE STABILITY

The base is highly stiff box-type casting structure whose temperature stability is excellent. It is the most suitable structure to absorb vibration and it maintains high accuracy for long time.

3. MORE THAN THREE TIMES HIGH PRODUCTIVITY IS REALIZED

High speed cutting device is a standard equipment. High productivity is made possible due to high speed cutting more than three times as fast as usual.

4. PITCH ERROR & BACKLASH COMPENSATION

X-Y axes pitch error data

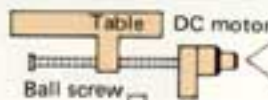


table travel after pitch error compensation



X-Y axes pitch e compensation dat



Previously pressured top grade ball screw sends NC command faithfully to the table. Furthermore the computer compensates the error of table feed with $1\mu\text{m}$ unit, which is measured with a laser distance measure, and highly accurate cutting is realized.



7. AUTOMATICAL SELF-START AFTER POWER FAILURE

Self-start after power failure is made automatically. If power fails at night, the machine is self-started automatically and cutting is finished.



8. TAPER CUTTING DEVICE



Needless to say of second cutting of drill-press dies, drilling grade cutting of plastic mold dies has also been made possible. And punch and die cutting can be made simultaneously on a single workpiece. Cutting can be done easily at a sharp corner and a round corner and you need no special program for taper cutting. You only input the taper angle with MDL.

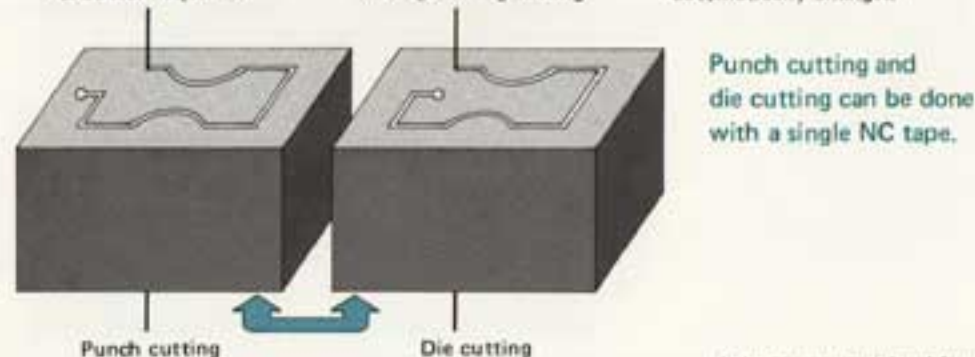
Confirming the form of the taper can easily be done with the contour line plotting function.

5. FULLY AUTOMATIC POSITIONING

Edge positioning, hole center positioning and wire electrode vertical positioning can be done fully automatically.

6. MANY KINDS OF CUTTING ARE POSSIBLE WITH A SINGLE NC TAPE

By the NC tape command, the taper angle, wire offset, cutting electric current and cutting voltage can be changed freely even on the way of cutting. Plastic mold die cutting and second cutting can be made continually and automatically.



(The above explained functions include optional functions.)

9. CNC DEVICE WITH EASY OPERATION AND VARIOUS FUNCTIONS

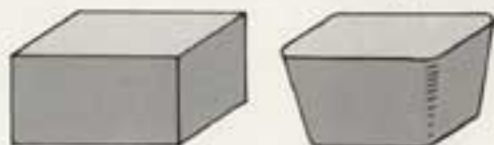


- 1) As the simultaneous 2 axes display of the present position is standard equipment and also 2 channel display can be made, the absolute position and the relative position can be confirmed with one touch. Ordered feed die cutting is performed extremely powerfully.
- 2) With MDI (Manual Data Input), selection of cutting conditions, taper angle, wire offset, chamfering, tapeless cutting, NC tape editing and alteration, self-diagnosis function and so on can be inputted into CNC Device.
- 3) Path reversing control with few short circuits and wire breakage can be performed.
- 4) As 5 fixed figures are registered, you need no program for simple figures such as trail cutting and navel removing cutting and so on.
- 5) As it is an off-line system separate from the automatic programming device, the system can easily be expanded, needless to say, of the program during cutting. And also it is advantageous in case of trouble.
- 6) The dust is shut out with the unique board inside cooling system, which is the greatest cause of the troubles in CNC device. So, in many years, the machine will still look like a newly made one and there will be no trouble.

MORE EXPANDED FUNCTION WITH OPTIONS !!

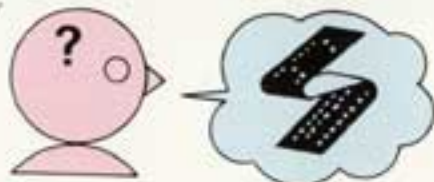
1 TAPER CUTTING DEVICE

Taper angle EW-400 $\pm 4^\circ$, EW-600 $\pm 3^\circ$.
The angle can be changed during cutting.
Top bottom equal R — The circular radius of a corner on the top surface of the workpiece is made equal to that on the bottom surface of the workpiece.



2 MEMORY OPERATION

About 40 meters long memory on NC tape is possible.
NC command can be added and changed with memory call.



3 PITCH ERROR, BACKLASH COMPENSATION

Compensation can be made with 1 μm unit separately on each of X-axis and Y-axis.

4 CUTTING TIME INDICATION

Cutting time indicator accumulates minute by minute.

5 CUTTING LENGTH INDICATION

Cutting length is accumulated with mm unit and indicated.

6 CUTTING RATE INDICATION

Cutting rate is indicated with mm/min.

7 INCH/METRIC EXCHANGE

8 AUTOMATIC WIRE VERTICAL POSITIONING

If you use the taper cutting device with this, vertical positioning of wire electrode can be made automatically.

9 LAMP TYPE SQUARE

Without the taper cutting device, the verticality of wire electrode is indicated with a lamp.

10 CUTTING TIME ACCUMULATION METER

Cutting time for long period (e.g. month unit) is accumulated with minute unit and indicated.

11 V SLOT WIRE GUIDE

It is used when the wire with less than $\phi 0.2$ is used.
With the taper cutting device, cutting with less than $\pm 1^\circ$ can be done without decreasing accuracy.

12 DIES GUIDE FOR WIRE ELECTRODE WITH $\phi 0.25$.

13 TAPE WINDER

It is used to wind a long tape.

14 TENSION METER

0 ~ 1000 g tension of wire electrode can be confirmed.

15 WORKING FLUID COOLING DEVICE

It makes the temperature of working fluid constant and makes cutting more accurate.

AUTOMATIC PROGRAMMING DEVICE EXCLUSIVE FOR WIRE-CUT DISCHARGE MACHINE

SEMAPT 200

1. The program can be made in the language similar to the natural language of Q & A.
2. Each step of the program can be plotted on a Brown tube display and confirmed.
3. As it is an off-line system, only one SEMAPT-200 can control many wire-cut electrical discharge machines.

