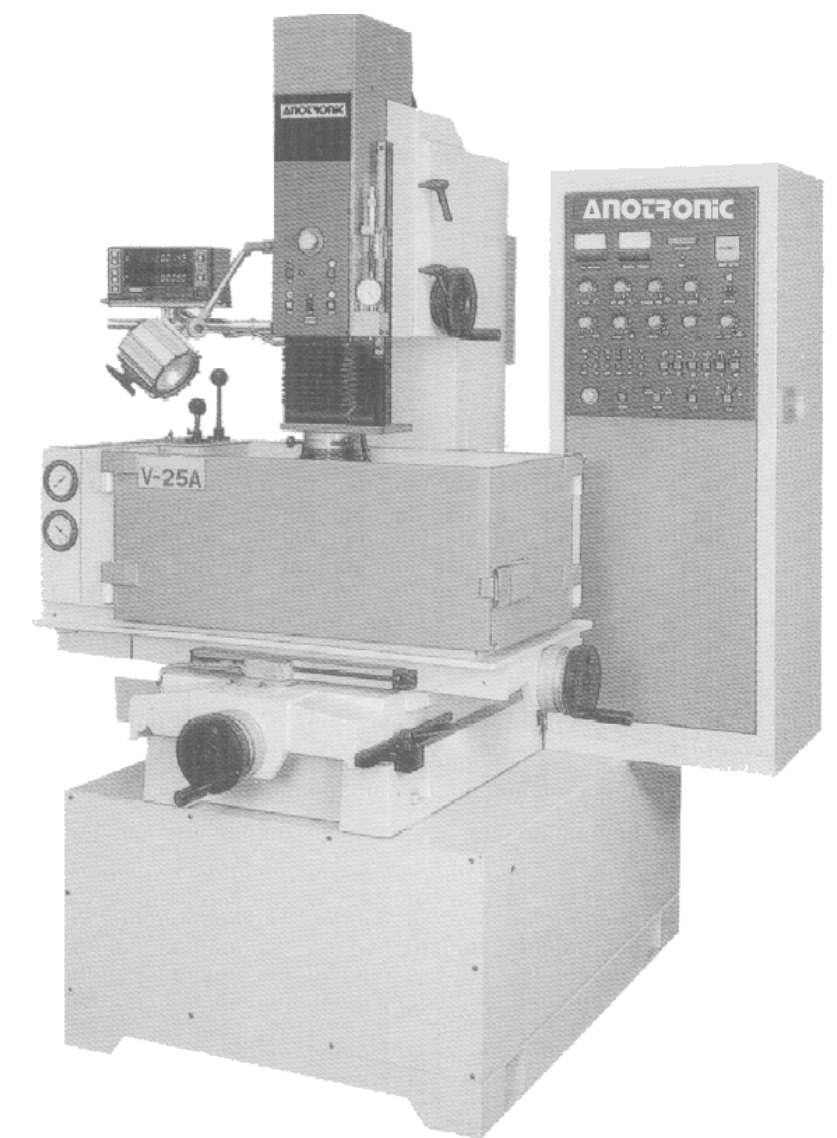


# V20/E30



***NEW CONTROL SYSTEM***

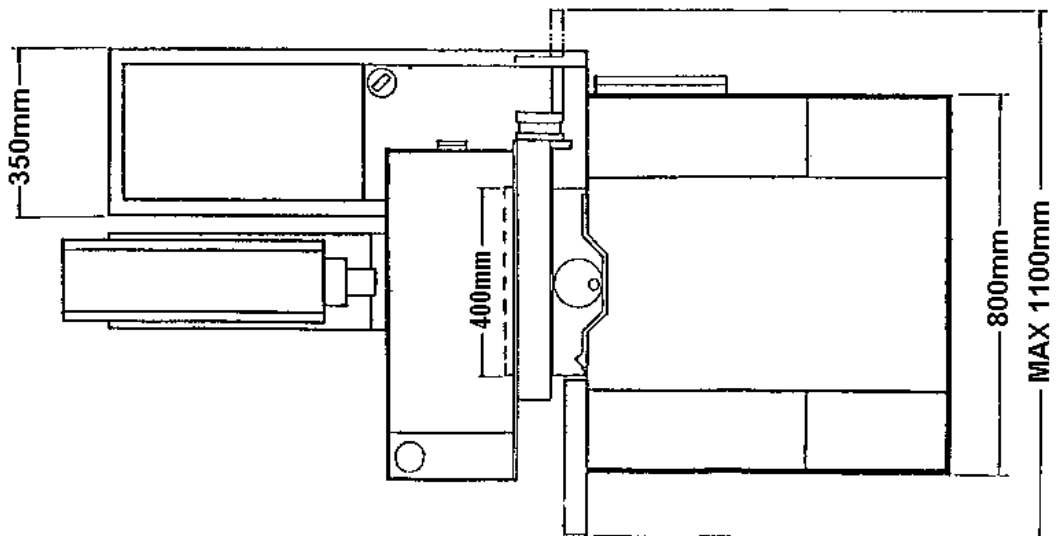
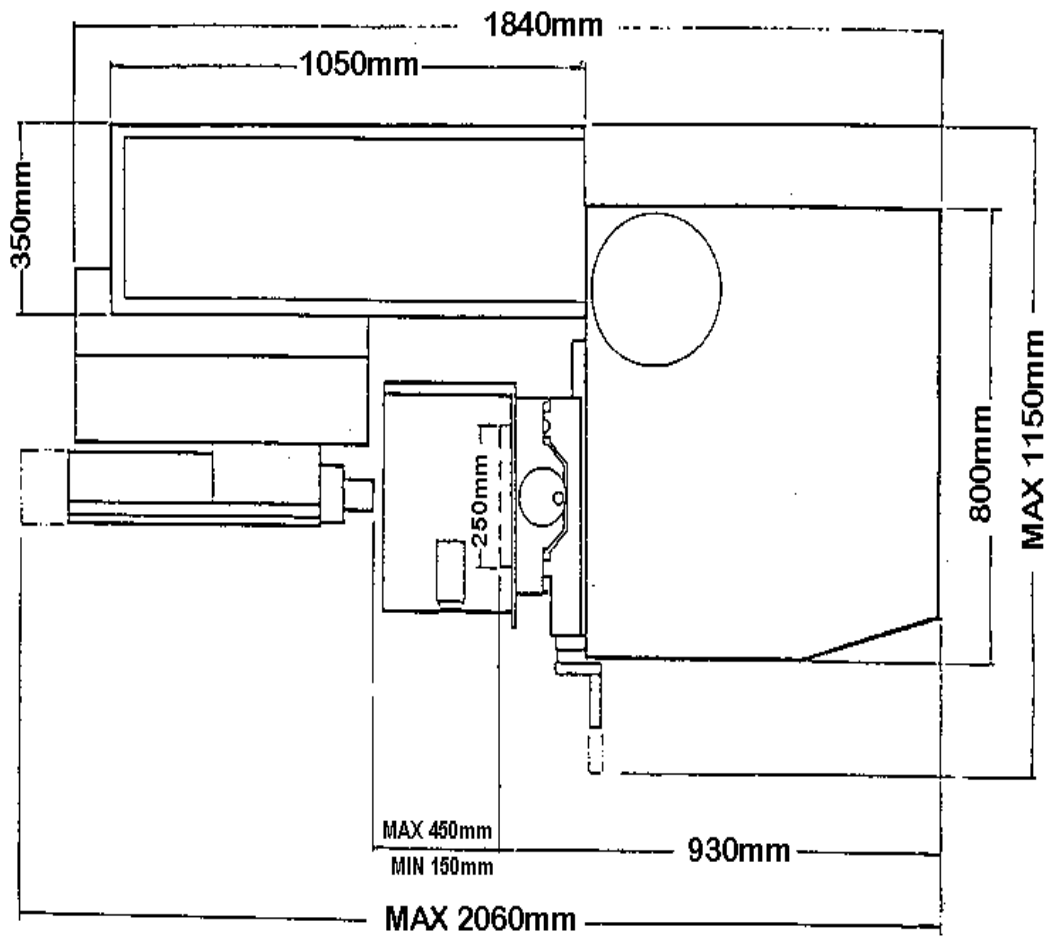
# CONTENTS

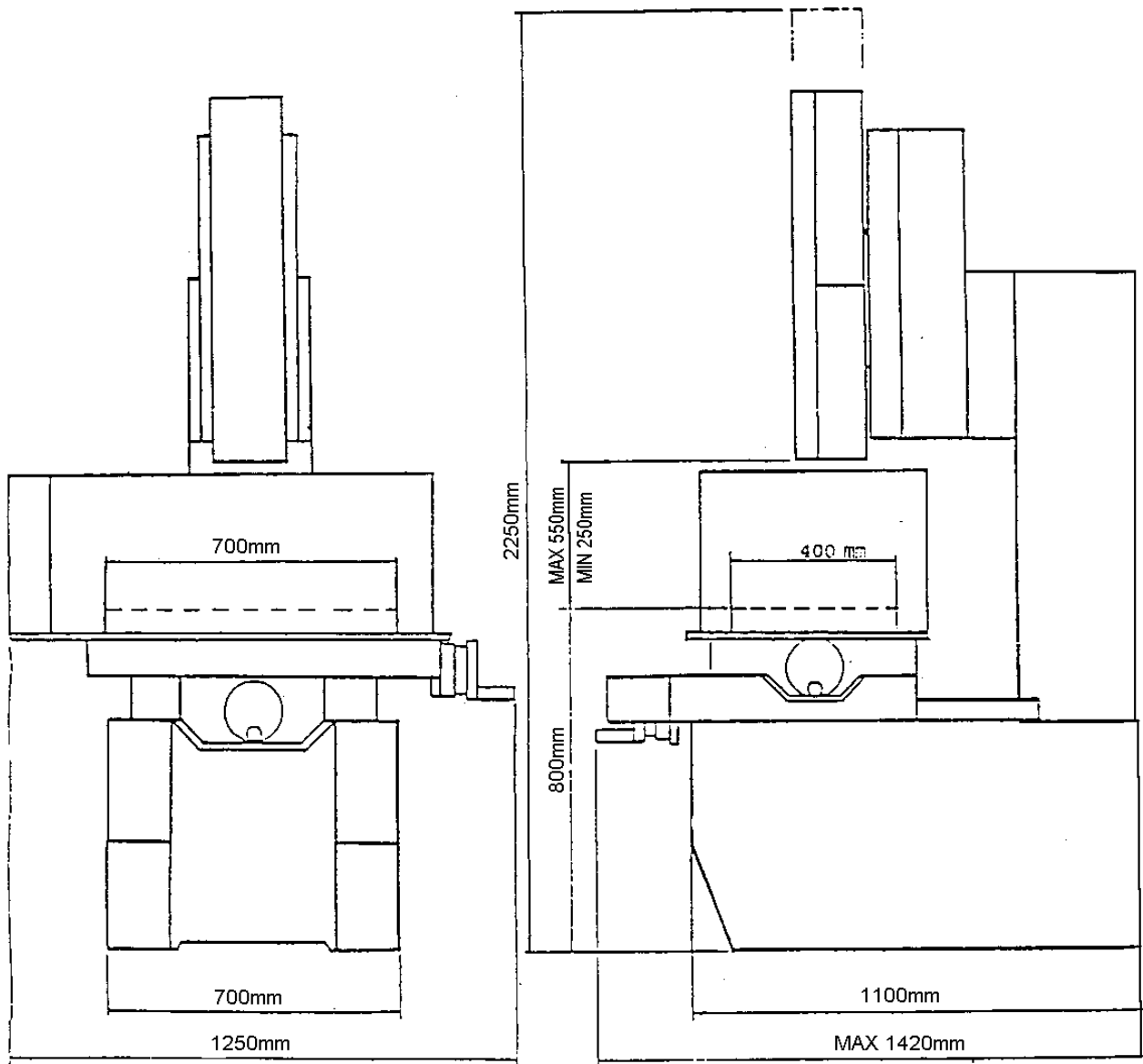
<b>SPECIFICATION</b>	<b>1</b>
<b>UNPACKING</b>	<b>3</b>
<b>LIFTING</b>	<b>4</b>
<b>TRANSPORTATION</b>	<b>5</b>
<b>INSTALLATION</b>	<b>6</b>
<b>GENERATOR CONTROL PANEL</b>	<b>7</b>
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<b>DISCHARGE DATA SHEETS</b>	



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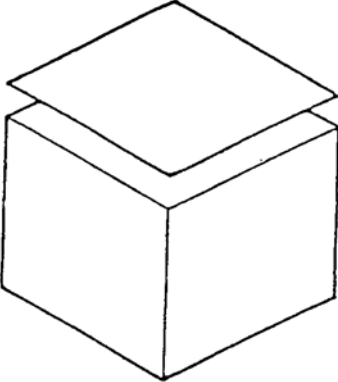




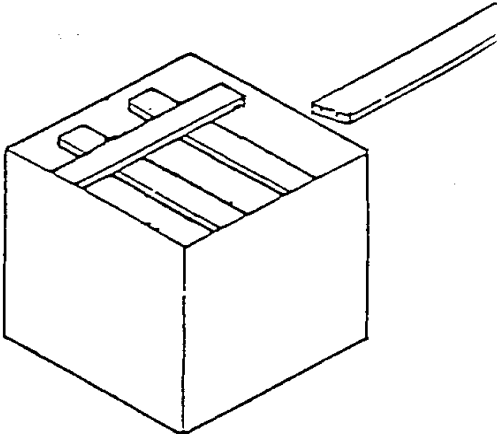


# UNPACKING

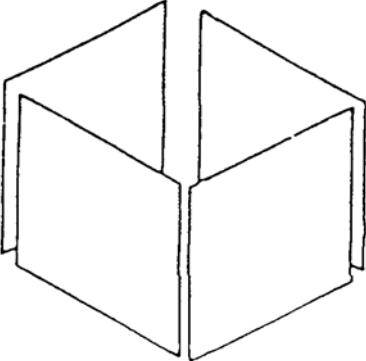
REMOVE THE TOP COVER



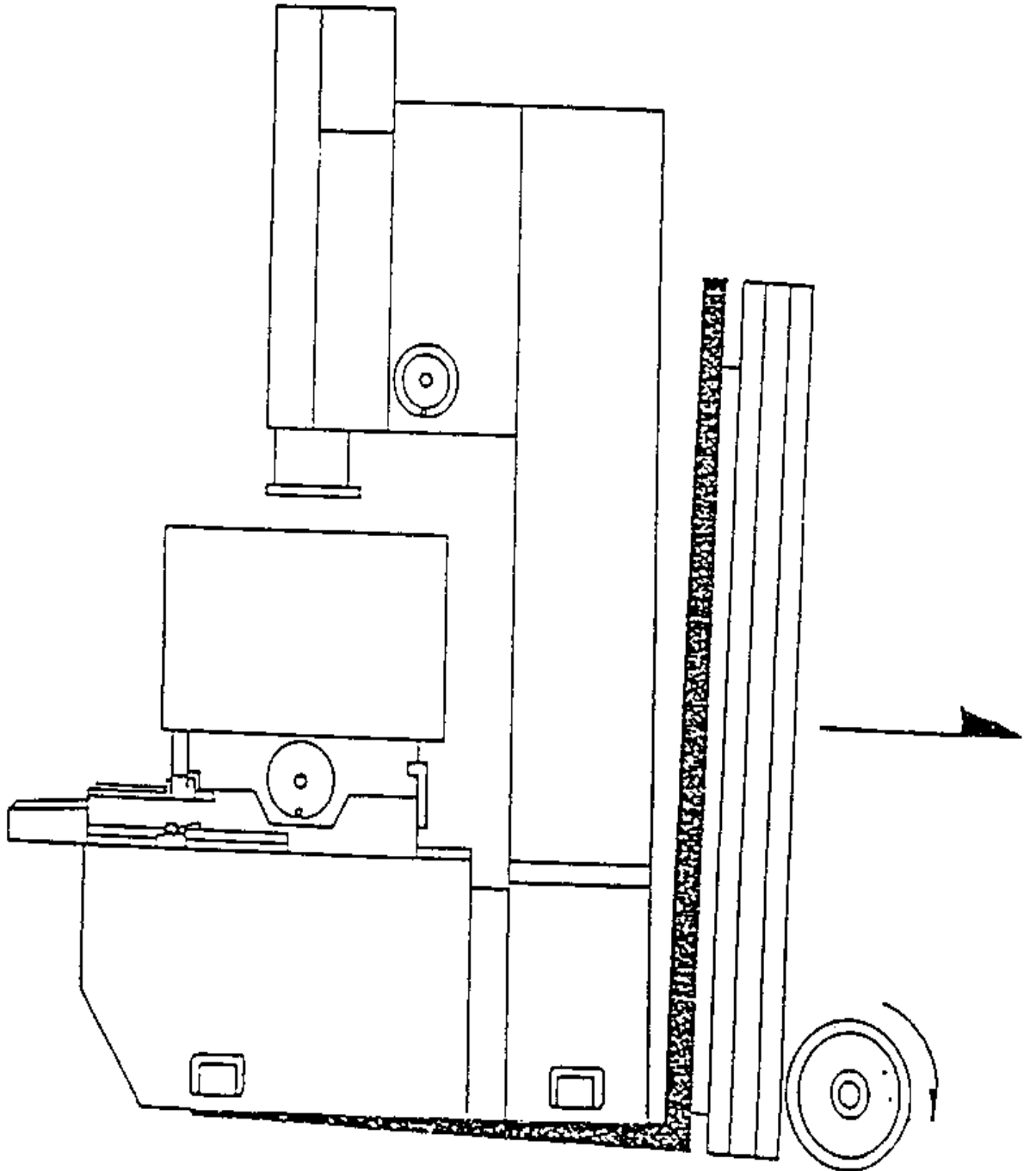
REMOVE THE WOODEN BEAMS



REMOVE THE FOUR SIDES OF THE CASE



# LIFTING



# TRANSPORTATION

When moving the packing cases, make sure that they are kept upright.

1. The correct way to move the Machine

- A. There are two holes through the machine base to insert steel bars. Place slings around the bars and lift using a crane.
- B. Using the four leveling bolts provided, raise the machine and move by

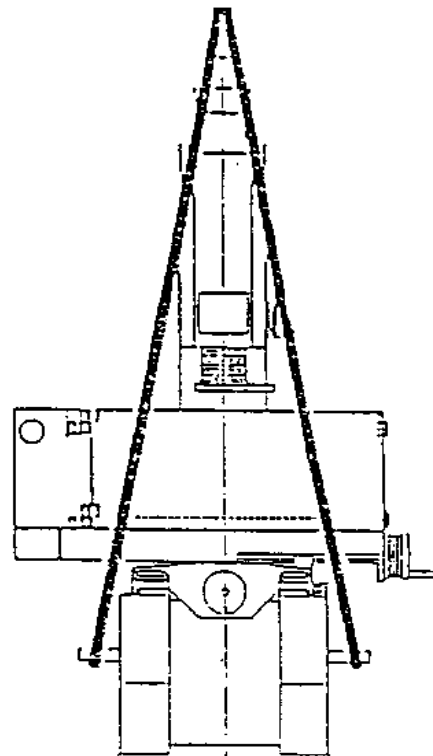
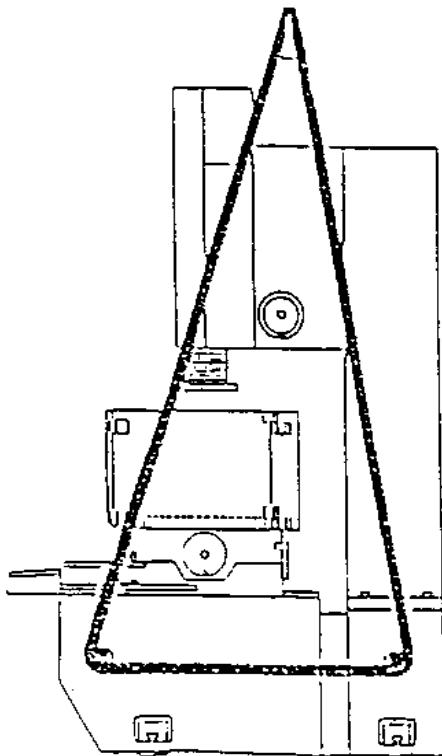
**CAUTION :- DO NOT ALLOW ANY PRESSURE ON THE WORK TABLE OR SADDLE.**

2. Moving the Power Unit.

- A. Hoist by fastening a rope through the eye bolts on top of the unit.
- B. Manually on the four built-in castors.

3. Moving the Oil Tank

Either by fork lift or on the four built-in castors.



# INSTALATION

## 1. Enviroment.

To obtain the best working conditions for the Machine :-

- A. A cool ventilated, clean room, well protected from dust and dirt will prolong the life of the machine.
- B. Placing the machine on a stable concrete foundation will reduce vibration which can seriously affect precision.
- C. For easier operation and maintenance the machine should be positioned with at least 1 metre all-round clearance.

## 2. Degreasing the Machine.

To protect the machine against corrosion during delivery, all unpainted areas, slideways, handles, etc. are coated with grease.

- A. Degrease using paraffin, dielectric fluid or a suitable solvent cleaner.
- B. The slideways should be then lightly oiled.

## 3. Levelling the Machine.

After positioning the machine the worktable should be levelled.

- A. There are four levelling bolts at the base of the machine.
- B. Level the machine using a spirit level on the worktable.
- C. Tighten the lock nuts after adjustment.

## 4. Inspection Before Operation

### A. Power Supply.

Connect the machine tool and the dielectric unit to the control cabinet using the cables supplied.  
Connect the control cabinet to a three phase supply, suitably fused and earthed.

**NOTE:- THIS SHOULD ONLY BE CARRIED OUT BY A COMPETENT ELECTRICIAN.**

### B. Dielectric System.

- a. Check and fill the dielectric tank. This should be filled to at least 80% of capacity.
- b. Check the flow and drainage of dielectric fluid to the work tank.
- c. Check the rotation direction of the dielectric pump.

### C. Work Tank

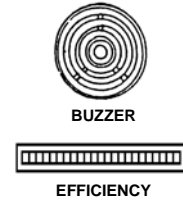
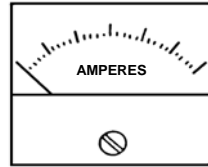
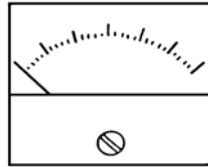
Lock the work tank door, slowly fill the tank and check for leaks.

### D. Machine Head

Check the Auto / Manual up and down movements of the electrode (Quill)

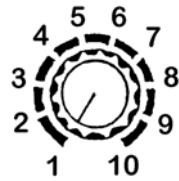


# ANOTRONIC

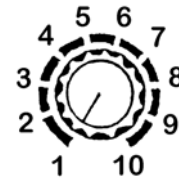


BUZZER

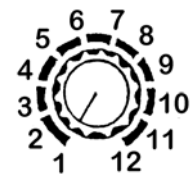
EFFICIENCY



SPEED



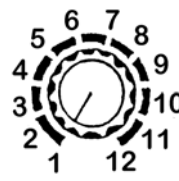
ANTI-ARC HEIGHT



ON TIME



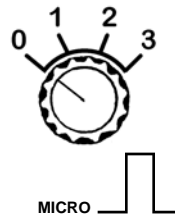
GAP



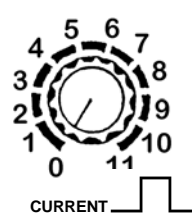
WORKING TIME



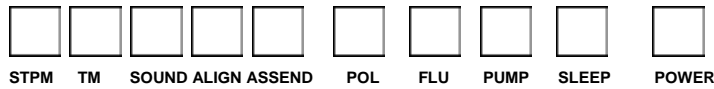
OFF TIME



MICRO



CURRENT



DIS



UP



STOP



SLOW



DOWN

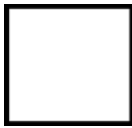


# GENERATOR CONTROL PANEL



Push hard on this button to switch off the power supply completely.

Turn in the arrowed direction to reset.



POWER

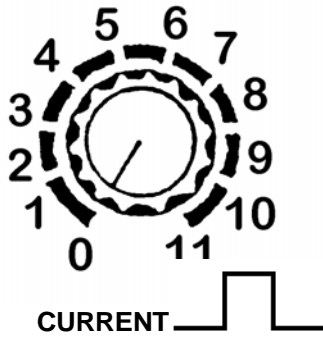
This controls the main power supply.



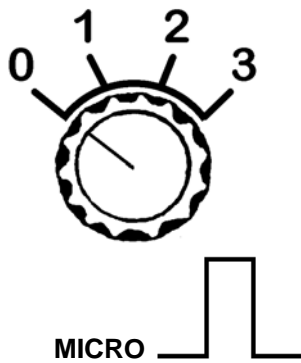
BUZZER

The BUZZER will sound as an alarm in conjunction with the SOUND switch.

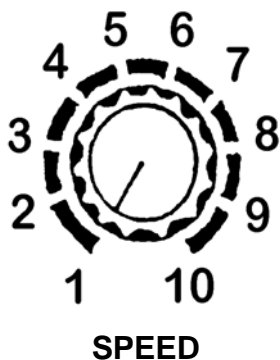
The BUZZER will also sound when the electrode touches the workpiece giving the edge detect function.



The discharge current required depends on the workpiece dimensions. A general rule of thumb is not to exceed 6 Amps cm<sup>2</sup>. Choose a high current for roughing, lower for finishing. See the appropriate EDM Discharge Data sheet for the equivalent current / switch settings.



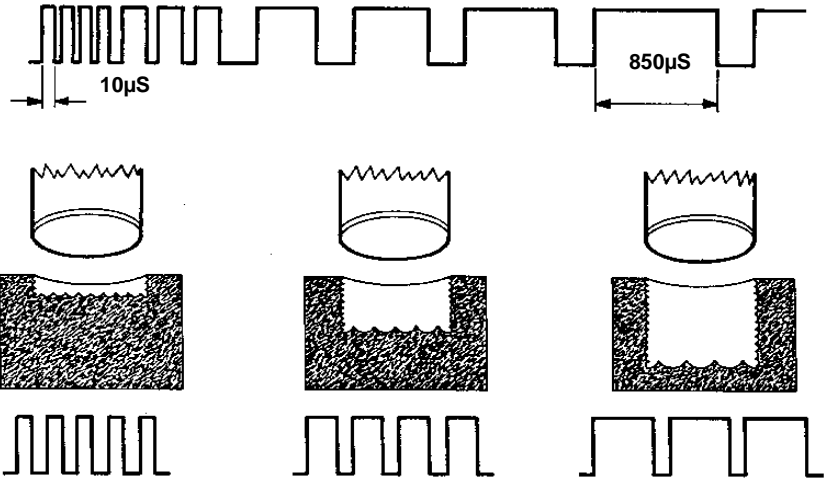
High voltage current / Micro spark current. For micro fine finishing



The Servo speed control should be set so that the quill returns to the sparking position after lifting, as quickly and steadily as possible. Too slow will waste time, while too fast could cause vibration when discharging and lower working efficiency.



1 = 10 $\mu$ S	5 = 60 $\mu$ S	9 = 350 $\mu$ S
2 = 15 $\mu$ S	6 = 100 $\mu$ S	10 = 500 $\mu$ S
3 = 25 $\mu$ S	7 = 150 $\mu$ S	11 = 650 $\mu$ S
4 = 40 $\mu$ S	8 = 250 $\mu$ S	12 = 850 $\mu$ S



The ON TIME is the pulse duration or the length of the spark measured in microseconds.

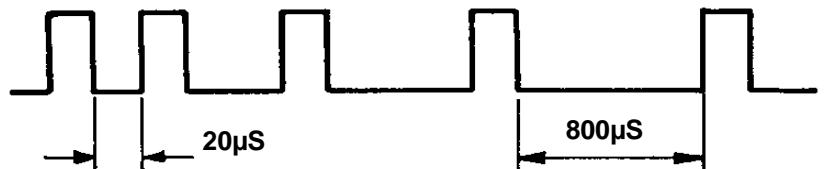
1 - 4 for fine and micro finishing.

5 - 8 for semi rough cutting.

9 - 12 for rough cutting.



1 = 20 $\mu$ S	5 = 350 $\mu$ S	9 = 750 $\mu$ S
2 = 30 $\mu$ S	6 = 450 $\mu$ S	10 = 800 $\mu$ S
3 = 150 $\mu$ S	7 = 550 $\mu$ S	
4 = 250 $\mu$ S	8 = 650 $\mu$ S	



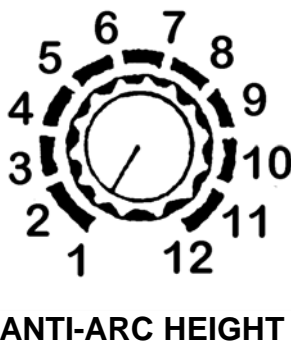
The OFF TIME or interval is the time between sparks measured in microseconds. Used in conjunction with the ON TIME control to give the correct discharge efficiency ratio.

1 - Gives high erosion efficiency but bad flushing.

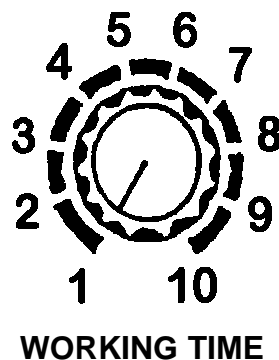
10 - Gives low erosion efficiency but good flushing.



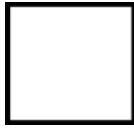
For adjusting the discharge voltage.  
30 - 50V for high efficiency.  
50 - 100V for a difficult workpiece.  
100 - 200V for micro finish or a difficult workpiece.



The lift time between discharge periods. Used in conjunction with WORKING TIME



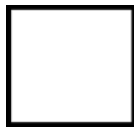
The discharge time between lifts. Used in conjunction with ANTI ARC HEIGHT.



**ASSEND**

When the pre-set depth is reached, the quill will lift 10 - 30mm from the workpiece.

When used in conjunction with **SOUND** the quill will lift to the top and the **BUZZER** will sound continuously.



**STPM**

Stops the quill servo motor.

Used in conjunction with orbiting devices.



**TM**

Turns the timers, **WORKING TIME** and **ANTI-ARC HEIGHT** off.



**SOUND**

With **SOUND OFF** a short alarm will sound to alert the operator.

With **SOUND ON** this is latched on.

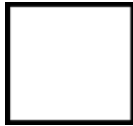


**ALIGN**

Turns off the reference voltage between the electrode and workpiece.

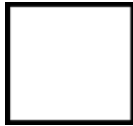
Used when clocking electrodes.

*Note. With this on the electrode can hit the workpiece causing damage !.*



**SLEEP**

When the pre-set depth is reached, the machine stops and the main power is turned off.



**PUMP**

Turns the dielectric pump on and off.



**FLU**

Synchronises the dielectric pump on and off with discharge power.



**POL**

Normally the electrode is positive and the work-piece is negative. This reverses the polarity.



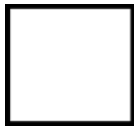
**EFFICIENCY**

Indicates the discharge efficiency during eroding. The larger the GAP between the electrode and work-piece, the more lights displayed.



**SLOW**

For adjusting the manual servo speed.



**UP**

Quill UP and DOWN buttons

Press to move quill up or down.



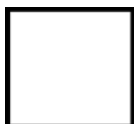
**DOWN**



**DIS**

Discharge start button,

Press to start machining.



**STOP**

Discharge stop button,

Press to stop machining.

If this is not illuminated when the machine is stopped, oil level low, oil hot, quill at top limit etc., discharging will not start.



# OPERATION

## 1. Machine Head and Quill Up and Down Movement

Raise or lower the machine head by using the Z Axis manual travel handwheel. On larger machines with this function is motorised, use the up and down buttons on the side of the column.

*This is not available on V20 size machines.*

Raise or lower the quill by using the up and down buttons on the remote control.

## 2. X and Y Axis Movement.

Engage the locking pin into the handwheel to enable movement of the table or saddle.

## 3. Fastening the Workpiece.

Fasten the workpiece to the table , clocking the datum edge square, using the clamps provided.

## 4. Mounting Electrodes.

Whatever electrode holder is used, securely fasten the electrode, clocking vertical and square.

## 5. Edge Locating.

When the electrode touches the workpiece the BUZZER will sound (Make sure that ALIGN is not on). This can be used to position the electrode in the X and Y axis using the appropriate datum of the workpiece.

Make sure that the electrode and workpiece are clean and free from burrs . Repeat this several times to be sure of an accurate touch position.

## 6. Depth Setting.

Bring the electrode down close to the workpiece using the DOWN button on the remote control. Use 0 amps set ont the current control and press the discharge button, the quill will move slowly down and spark lightly.

Set the required depth using the micrometer.

**Note.** Be sure that the fire detection sensor is clean at all times.  
It is very important to guard against fire.

Consistent flushing is essential. It has a direct effect on machining speed and efficiency.

Suction can be used in certain applications and is very effective when machining large or deep cavities.



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Anotronic Electrochemical  
Deburring Machines (ECD)



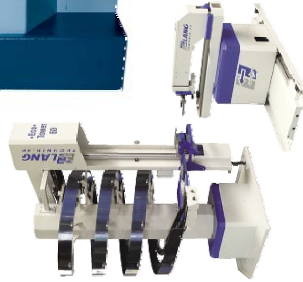
CNC CMM inspection



Multi axis CNC Turning



Fully Automated 5axis cnc Milling



5axis cnc Milling

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