

COMPACT BARREL ELECTROPLATING MACHINE (MANUAL & AUTOMATIC) USER MANUAL

DO NOT USE BEFORE READING THESE INSTRUCTIONS

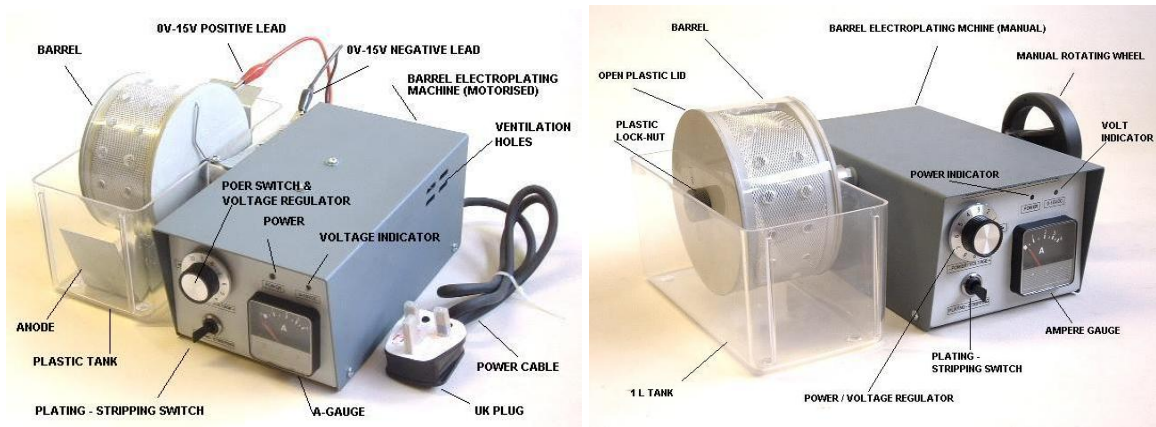
PRODUCT INTRODUCTION:

This compact barrel electroplating machine is designed for cleaning, stripping, activating or coating parts by conducting an electrical current through electrochemical means. There are two types of this machine available, a manual rotating machine or a motorised (automatic) machine (6-7 RPM). This machine can also be used for barrel, tank or brush plating.

ELECTROPLATING:

An electroplating process involves covering a certain metal so that an adherent and a durable film of any other metal can then be applied. The process is performed in a tank containing a solution, which undergoes an electrolytic action induced by a current from a source of an electric power. The barrel electroplating machine is connected to a source of electric power and converts its energy into a direct current of up to 15 volts. Upon the immersion of the cathode and the anode into the solution, an electric current moves through the solution and thus completing the electric circuit which triggers the motion of metal ions from the solution. This results in a coating of the cathode by the atoms of the metal. At the same time an equal amount of the same metal is discharged from the anode into the solution. This process is widely used in jewellery and the electronics industry, decorating, crafts, arts, etc (Gold, Silver, Copper, Nickel, Chrome, Rhodium plating / forming etc.)

IMAGES OF THE MACHINE:



If you are a beginner please feel free to contact us at any time regarding our electroplating course for beginners.

Technical specification:

INPUT	220V - 240VAC / 110V – 120VAC
OUTPUT (V)	0 - 15 VDC
OUTPUT (A)	0 – 4 ADC
BARREL x	1
BARREL'S DIMENSIONS (MM)	120(D) X 65
ESTIMATED BARREL CAPACITY	20 (RINGS) /0.5 L/1 KG
TURNING VERSION AVAILABLE	MANUAL & AUTOMATIC
GAUGE	A
FILTER x	1 (1000 McF+)
TANK x	1 (200 x 90 x 90 mm)
TANK VOLUME	1 L
STRAPPING OPTION	YES
SS ANODE (cleaning, gold, silver process)	YES (400 X 70 mm) x 1
WEIGHT	2.8 Kg
UNIT DIMENSIONS (MM)	350(W) X 230(D) X 130(H)

DELIVERY SPECIFICATIONS:

Please make sure the delivery includes the following components:

- Barrelling machine x 1;
- Barrel with an aluminium mesh x 1;
- Plastic tank x 1;
- Stainless steel anode for cleaning & Gold and Silver plating processes;
- Instruction manual (downloadable).

PREPARATION:

To prepare your articles for electroplating it is important to ensure that all oil, grease, paint or other materials are removed prior to processing. The most common cause of poor quality forming/plating is insufficient preparation. It is recommended to use ultrasonic or electromagnetic cleaners, sand cabinets or alternatively vigorous brushing with soapy water may polish the compound well. In any case, use an electro cleaning process before starting any type of plating process. Also make sure that you do not touch the object with your hands after cleaning.

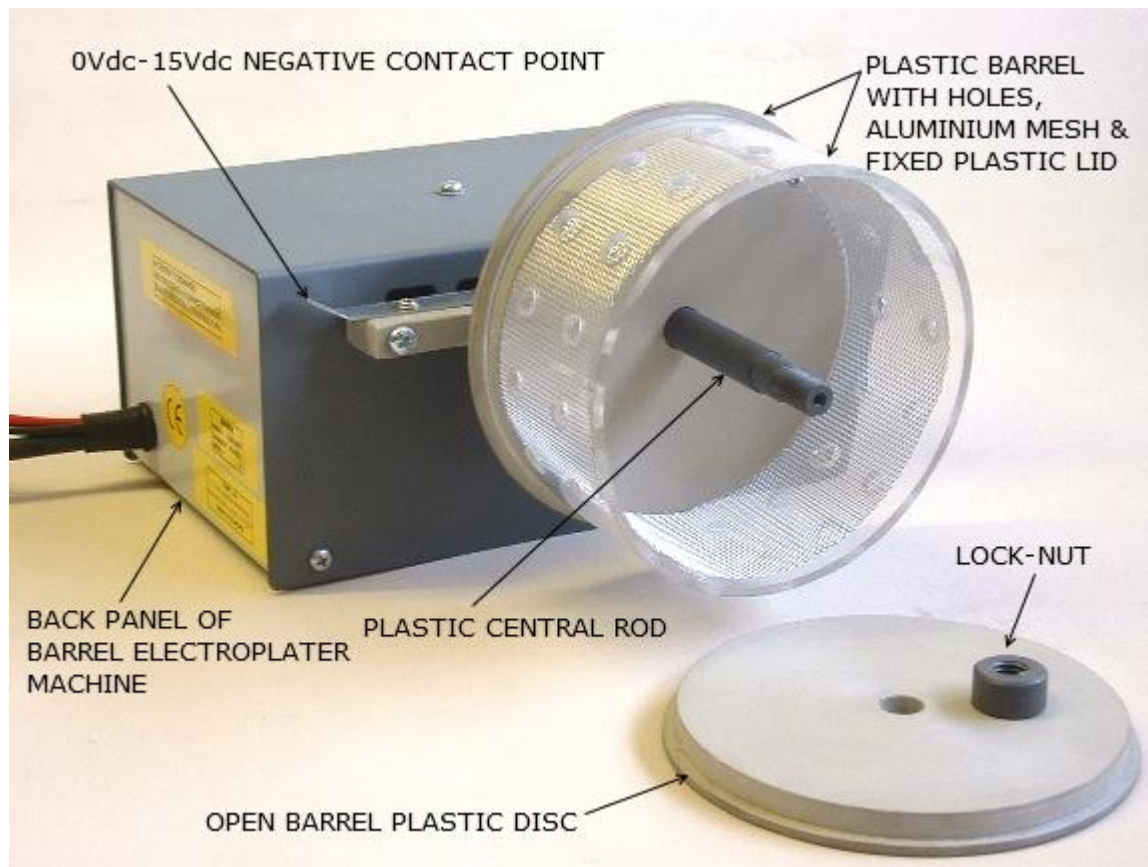
INSTALLATION AND OPERATION:

NOTE: the thickness and quality of a coating is a complex function of electric current, voltage, temperature of the solution, time of exposure, correct position of the cathode in the tank, correct distance between the anode and the object, quality of chemicals and user's experience.

The installation and operation of this unit does not require professional knowledge or specific training and it can be easily used by beginners. After making sure that you have all the necessary materials, place the unit in a suitable level position. Please do not move this machine by rotating the wheel and never touch the body when the power is on.

Once the machine is properly placed on a worktop please make sure that it is installed correctly (please use the pictures as a guide):

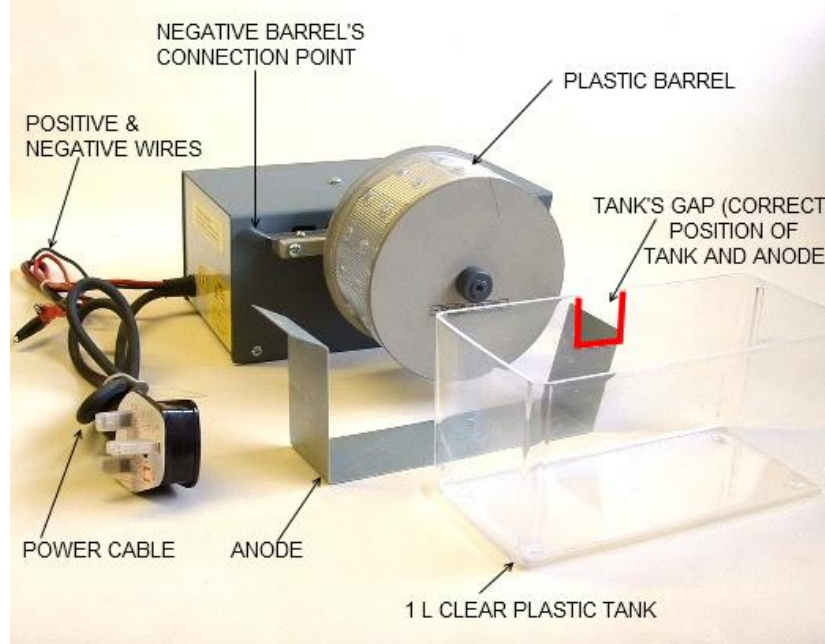
1. Unscrew the plastic lock-nut from the open side of the barrel and take out the plastic disc with a level mark from its plastic rod. Now your barrel is in an open position and you can load it (on 1/3) with any suitable objects you wish to clean, strip, activate or plate. Please do not overload the barrel as it can damage your machine or increase plating time and do not open the other side of the barrel as it has contact with a negative source.



2. When all required objects are in the barrel put the plastic disc (lid) back on its place and fix it on the central plastic rod by the plastic nut. Now screw the lock-nut back and tighten it slightly. Please repeat the same operation each time you need to load or unload the barrel if you use the same barrel for all processes.

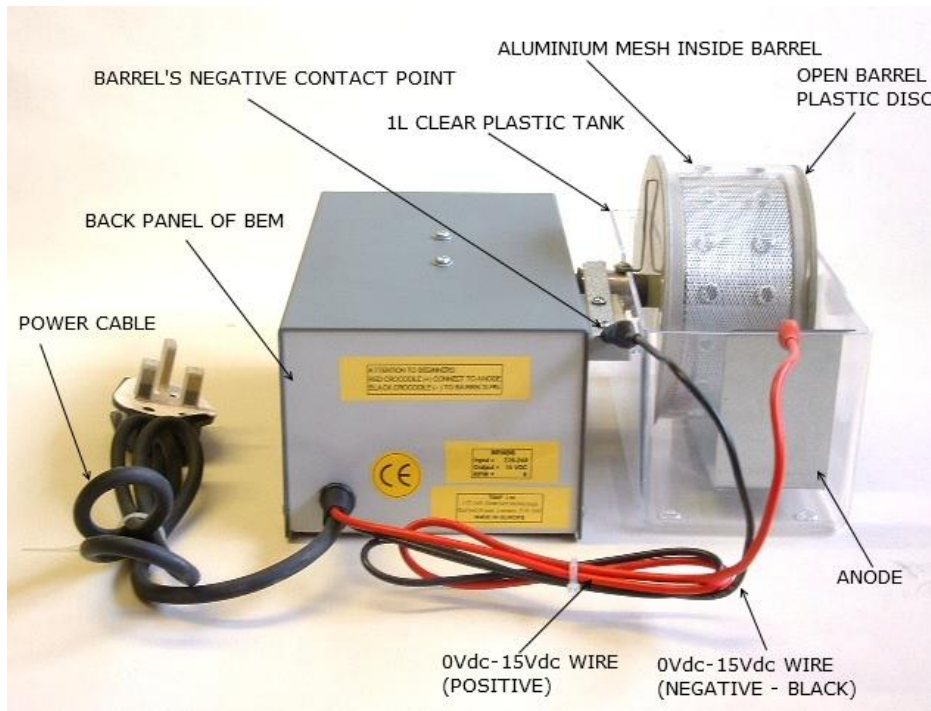
3. Place the anode inside the plastic tank. Make sure that the anode is placed in the tank in the correct way.

4. Place this plastic tank with the anode under the barrel so that the barrel rotates inside the tank freely, not touching each other. The plastic tank has a small gap on one wall that must be placed in the correct position between the barrel and the machine.



5. Now the anode can be connected to the positive power source by RED clamp that can be found on the back panel of the machine.

6. Also connect the barrel to a negative power source by BLACK clamp as shown on the picture below. Now your machine is ready to work.



REMEMBER: The ampere gauge shows amperes range only when the anode and barrel are in the solution and under an electric current (switched on)

INSTRUCTIONS:

Prepare the solution you wish to use and fill the tank up to a level mark which should be just about 10-15 mm UNDER the lock-nut.

Make sure that the voltage regulator (the knob on the front panel with 0-9 digits) is in the far left position. Check that red and black clamps are connected correctly.

Switch the power 'ON' by using the potentiometer with a pointed knob. The "Power" indicator will be switched on.

When you turn the voltage regulator to the correct position the right indicator "0-15Vdc" will switch on. Note: it will be brighter on a higher voltage.

When you connect all the wires and get the correct voltage (usually position 5-7 (around 1.5V per one digit on the knob) rotate the barrel by using either the handle or the motor. Note: plating time and layer quality depends on rotating speed and your experience. It is usually 5-10 RPM.

When the objects have been plated you will see this inside the barrel, switch the machine 'OFF' and take out the barrel from the tank. Then, open the plastic lid of the barrel and take the finished objects out. Then, place them into a glass or plastic container and then clean them together with the barrel in water.

Now the barrel is ready to be loaded again with other objects.

Pen-stick or a brush-probe may also be connected to this machine. To do that just connect the red clamp to a pen or brush and then connect the black clamp to the object that needs to be plated.

You can also use this machine for a standard tank plating process. For this purpose just use any suitable plastic or glass container. Fill this container with the required solution.

Then place an anode in the solution and connect it to a positive (red) clamp. Now connect the object to be plated to a metal rod (aluminium, copper, steel) via a copper or aluminium wire and place the rod on the top of this container. Please make sure that the object is fully immersed in the solution.

NOTE: the ampere gauge starts to show amperage range only from 1+ ampere. Most electrochemical processes require amperage lower than 1A. If you see that the ampere meter's coil on your machine does **NOT** move during the process it means that this process requires less than 1A. You can see whether your machine is under voltage using the right indicator. You can also check whether the process is in progress by checking the solution inside the barrel. You will be able to see some small bubbles around the objects being plated and the solution will be white in colour. If you still wish to increase the amperage please do the following:

- Add 1-2 drops of sulphuric acid to the solution (first check the solution data sheet);
- Increase voltage;
- Increase the number of the objects being plated and the area of the anode but always remember that the lower the amperage the better the result. So always try to hold the ampere gauge's coil at "0" position if the data sheet does not advise otherwise.

HEALTH AND SAFETY:

- Always make sure that the machine is kept clean and stored in a dry place.
- Never keep chemicals and solutions in the tanks.
- All electrochemical processes are subject to two main hazardous effects: electrical injury and poisoning by solutions and their gases.
- To avoid electrical injury the user must not touch bare leads of the Unit with unprotected hands. Always use rubber gloves. This will also be useful to protect hands from the effect of the solutions.
- It will also be necessary to provide the operating area with a rubber mat to stand on.
- Some chemicals may be deadly poisonous and in combination often produce corrosive and poisonous gases. Therefore, all general safety measures should be undertaken when working with them including eye protection, skin protection, inhaling protection etc.
- Always keep children away from the work area.
- Ensure proper ventilation of the work area.
- The user should carefully follow all instructions provided by the chemicals supplier.

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