

GOLD PLATING INSTRUCTIONS

5/2020

Depositing a layer of coloured gold (9K, 14K, 18K, 22K, 24K yellow gold), in thickness of between 0.5 microns and 20 microns. The deposited gold plate presents a durable surface with all the appearance of solid carat gold.

9 to 24 K colour Gold solutions

- Container - Polypropylene, PVC, Glass. Temperature - 35 – 40°C
- Anodes - Platinum coated Titanium, Connect to the positive output of DC supply.
- DC Voltage - 2 – 4 volts. Correct use is by using current (amps) voltage is only a general guide.
- DC Amps - 0.008 amps per cm² (0.05 amps per inch²).
- Rate of deposition- 6 minutes per 1 micron. Heater type - Glass or indirect (water jacket).
- Agitation - Horizontal or rotary, speed 150 – 300 cm per minutes, air pump not recommended.
- Preparation - Pour into suitable tank, heat to recommended temperature.
- Operation - Hang articles on copper wire or specialised jigs and racks, clean in an ultrasonic if very dirty. Electrolytically clean articles to ensure adhesion of the deposit, wash in water and hang in gold plating solution, connecting the work to the negative output of the DC supply. Rinse in cold water followed by very hot water to dry the item and stabilise the deposit colour.

As an indication the following is a rough guide to the current (amps) needed per single piece.

Product	Area (cm ²)	Thickness (microns)	Current (Amps)	Time (Mins)
Gents Ring	15	1	0.12	6
Ladies Ring	8	1	0.06	6
Watch Bracelet	50	1	0.4	6
Pendant	25	1	0.2	6
Earring (pair)	6	1	0.05	6

Digital metering is highly recommended as the current (amps) applied can be a fraction of 1 amp

Available on request is a method to inexpensively (£20) add digital metering to an analogue metered machine.

★ Replenishment or "use and replace"

With small volume solutions many people prefer to use the solution to exhaustion and then replace it as the addition of chemical replenishment is difficult to do correctly. Larger or heavily used solutions are less expensive to operate using replenishment method but this involves recording all the current and plating times to be correct. We can advise on the methods and systems to achieve this.

WARNING—GOLD PLATING SOLUTIONS ARE LETHAL IF CONSUMED.

ADD PART B GRADUALLY & CHECK COLOUR

ASSOCIATED PRODUCTS THAT MAY BE OF INTEREST.



Red gold plating.

Up to 10 microns of 18K Red Gold, contains 25% copper to give an authentic rose to red gold colour



Platinum plating.

Deposits pure white Platinum to give a even colour and a clean look of Platinum. Used for repairs and new items



Black Ruthenium plating.

Plates a very dark black deposit to give contrast to stones and to produce Gothic styles.



Pen plating products

Yellow Gold
Rose Gold
White & black Rhodium
Silver

Contact your normal supplier for details.

HARD GOLD PLATING AMP CONTROL METHOD

An improved way to produce accurate results using basic electroplating equipment.

Electroplating heavy deposits of **Yellow, Green and Red** Gold requires more control over current (amps) and Voltage (Volts) than thin deposits like Gilding.

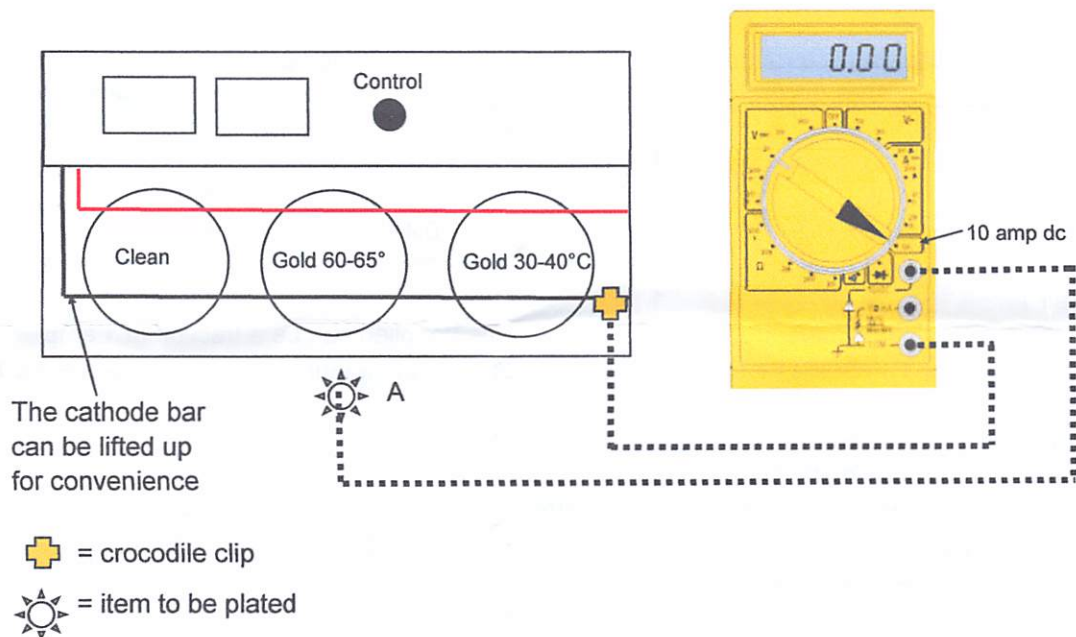
Analogue meters, those with a needle and scale, are too insensitive to read very small current and voltage movements, making accuracy a problem.

95% of problems with Gold plating are related to incorrect current and sometimes solution temperature.

To adapt an analogue electroplating unit e.g. the MICROPLATE, is a relatively simple task using an inexpensive multimeter and some wires.

Connecting up the meter and the plating unit requires almost no changes to the machinery.

CURRENT CONTROL METHOD USING AMPS (PREFERED)



Make the connection as per drawing above, note that different types of multimeter have different configurations but they must have a 5 or 10 amp dc setting.

1. Calculate the area to be plated and multiply it by the amps per square centimetre as per the solution data sheet. Often these are quoted in "amps per square decimetre, A/dm^2 , to convert to amps per square centimetre divide by 100. i.e. $0.8 A/dm^2 = 0.008 A/cm^2$
2. Attach the items to be plated onto the floating connection from the multimeter, marked A
3. Clean the item in the normal way.
4. After rinsing, TURN the CONTROL to zero and place the items into the Gold tank.
5. Using the CONTROL, turn the power up carefully, reading the amps value from the MULTIMETER.

Notes: Do not touch the cathode bar, if fitted, as this will give the wrong amp reading.
It may be necessary to agitate the items if the plating time exceeds 15 seconds
To with a MICROAGITATOR. Plug the connection A into the side of the agitator.