

MICRO-METALLIZER PENS

Ultra-Compact Electroplating System.

A simple, self-contained plating solution with the convenience of a marker pen — environmentally-friendly and ready to use anywhere.

This low-cost system was developed specifically to provide simple, convenient electroplating for scientific and engineering development, electronic repairs, specialized production, dental work, art restoration and more. Completely self-contained and portable, it is equally useful in lab, office, or shop.

Using disposable cartridge-pens, the system permits instantaneous selection from a wide variety

of plating possibilities — without the time, effort, or expense of preparing special plating solutions. Above all, it is simple to use with no special skill required.

A complete selection of pens is available for a wide variety of plating requirements. Power can be supplied by your own variable D.C. supply (up to 12V at 0.1A) or by our optional variable voltage power supply.

SYSTEM FEATURES

- Fully integrated system
- Produces high-quality results
- Solutions sealed in cartridge-pens
- Ultra-compact & portable
- Partial & selective plating
- Protected against contamination
- Can be used anywhere
- Instant selection of plating type
- No skill required · 110V operation

SYSTEM OVERVIEW

A self-contained plating system, in a pen.

Partial plating can be done easily without specialized skill. The scope of use is unlimited — work that requires partial or selective plating of surface, experimental models, various repairs, and any work that requires manual processing such as finishing or repairing craft work and precious metals.

One of the most important features of the system is that each solution is self-contained in its own marker-type pen. There is no need to prepare special plating baths or solutions. Simply connect the desired pen to the power supply and start plating.

The Hunter plating pen is disposable and non-refillable, so the plating solution is fully protected from accidental contamination.

The optional variable voltage power supply is extremely compact and portable. It is normally supplied for 110V, 60Hz operation, but can also be supplied for 230V operation if desired.

NOTE: These units are not applicable for aluminum surfaces.

TYPICAL APPLICATIONS

Where the Micro-Metallizer System is used.

Electronics

- › Repair of P.C. boards
- › Repair of contact fingers
- › Repair of micro-wave components
- › Experimental work on contact surfaces

Optical

- › Replating of frames
- › Instrument repair

General Lab Work

- › Repair of instruments

Jewelry & Arts / Crafts

- › Repair and touch-up
- › Special effects (selective plating of engraved designs)
- › Can be used anywhere
- › Produces high-quality results

Dental Labs

- › Gold plating of crowns and other metal surfaces

PLATING REQUIREMENTS

Pen reference & voltage guide.

| PEN | CATALOG NO. | VOLTAGE (DC) | NOTES |
|-----------------------------|-------------|-----------------------|--|
| Absorbent | PL-1002 | 10V – 12V | For cleaning all metals, except stainless steel, prior to plating. |
| Gold-24K | PL-1003 | 6V – 8V | Plates over gold, nickel and silver. |
| Gold-18K | PL-1004 | 6V – 8V | Plates over gold, nickel and silver. |
| Gold-14K | PL-1005 | 6V – 8V | Plates over gold, nickel and silver. |
| Nickel | PL-1006 | 5V – 6V | Plates over copper. Apply copper flash using copper pen to non-copper surfaces. |
| Black Nickel | PL-1007 | 8V – 10V | Same as nickel. |
| Silver | PL-1008 | 5V – 6V | Plates over any metallic surface except aluminum or chromium. |
| Chrome-Color | PL-1009 | 6V – 8V | Plates over copper. Apply copper flash using copper pen to non-copper surface. |
| Copper | PL-1010 | 6V – 8V | Plates over any metallic surface except aluminum or chromium. |
| Rhodium | PL-1011 | 8V – 10V | Plates over nickel. Non-nickel surfaces should be first flashed with copper, then with nickel. |
| Tin | PL-1012 | 6V – 8V | Plates over any metallic surface except aluminum or chromium. |
| Zinc | PL-1013 | 6V – 8V | Plates over any metallic surface except aluminum or chromium. |
| Absorbent (Stainless Steel) | PL-1014 | 10V – 12V | For cleaning and activating stainless steel. |
| Palladium | PL-1015 | 6V – 8V | Plates over nickel. Non-nickel surfaces should be first flashed with copper, then with nickel. |
| Gold 24K — Heavy | PL-1016 | 6V – 8V | Plates over gold, nickel and silver. |
| Gold 18K — Heavy | PL-1017 | 6V – 8V | Plates over gold, nickel and silver. |
| Silver — Heavy | PL-1018 | 5V – 6V | Plates over any metallic surface except aluminum or chromium. |
| Copper — Heavy | PL-1019 | 6V – 8V | Plates over any metallic surface except aluminum or chromium. |
| Nickel — Heavy | PL-1020 | 5V – 6V | Plates over copper. Apply copper flash using copper pen to non-copper surface. |
| Connector Cables | PL-1001 | — | For use with power supply. |
| Power Supply (Optional) | PL-1000 | 110V 60Hz / 220V 50Hz | Variable voltage supply for plating operations. |

NOTE: In the case of zinc die-castings or steel, it is recommended that a copper flash be applied prior to the application of any other plating.

SPECIAL OFFERS — SAVE \$\$\$

Pre-configured kits.

Save when you order one of our pre-configured kits. Each kit ships complete with power supply, connector cables, and the pens listed below.

Deluxe Kit

PL-1000K

Complete with power supply, connector cables, and the following pens:

- Absorbent
- Silver
- Gold (24K)
- Nickel
- Chrome Color
- Copper

Contact Repair Kit

PL-1000C

Complete with power supply, connector cables, and the following pens:

- Absorbent
- Gold (24K)
- Nickel

Heavy Duty Kit

PL-1000HD

Complete with power supply, connector cables, and the following pens:

- Absorbent
- 24K Gold-Heavy
- Copper-Heavy
- Silver-Heavy
- Nickel-Heavy
- Rhodium

Contact Repair Kit — Heavy Duty

PL-1000CHD

Complete with power supply, connector cables, and the following pens:

- Absorbent
- Gold (24K)-Heavy
- Nickel-Heavy

Custom kits available to your specification. Prices quoted on request. Due to fluctuations in the cost of precious metals, prices are subject to change without notice.

PARTIAL LIST OF USERS

| | | | |
|-------------------------------|--------------------------|---------------------------------|------------------------|
| Advanced Micro-Devices | Intel Corp | Motorola Company | Signal Technology Corp |
| Advanced Semi-Conductors | K & L Microwave | National Instruments | Sovereign Circuits |
| Argonne National Laboratories | K & S Interconnect | North Carolina State University | Spectrum Controls Inc. |
| Boston Scientific | Kings Electronics Co | Penn-Union Corp | Suntron |
| Circuit Components | Kollmorgen | Powerex | Teledyne Electronics |
| Conax Florida | L-3 Communications | Probelogic | Technologies |
| Delta V Instrument | Lemo USA | Raytheon | Tyco |
| Egide USA | Litton Systems | Rucker & Kolls Inc. | Varian Co |
| Exxon Research | Lockheed/Martin | Safetran Traffic Systems | Virtex Assembly |
| G.F. Interlogix | Matrox Electronic System | Sandia National Laboratories | Virtium Technology |
| IBM Corp | Merix Corp | Sanmina-SCI | Wentworth Laboratories |
| IEC Electronics | Micro-Probe | Siemens-Westinghouse | |

DESCRIPTION OF OPERATION

Three simple steps.

- 01 PREPARATION** The operation of the Hunter Mini-Plating System is extremely simple. If the surface to be plated is discolored or oxidized, polish thoroughly with a fine metal polish until discoloration or oxide surface is removed. Wipe the surface well with a clean cloth after polishing.
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- 02 DE-GREASING** Connect the part to be plated to the negative (-) of the D.C. supply. Connect the absorbent pen to the positive (+) of the D.C. supply. Adjust working voltage to 10–12 volts. Hold the tip of the absorbent pen so its entire surface contacts the part, then lightly rub back and forth in a slow stroking action. Small bubbles will form to remove oil and grease. Rinse after completing the degreasing action.
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- 03 PLATING** Working voltage required for plating varies with the type of plating pen used; the voltage required is indicated on each pen. Adjust voltage to indicated value, connect part being plated to the negative (-) and the plating pen to the positive (+) of the supply. Apply the tip of the pen to the object so that its entire surface is in contact. Move the pen lightly back and forth and the plating will be deposited. Finally, rinse the part in water and wipe with a soft cloth.

TECHNICAL DETAILS — PLATING THICKNESS

Maximum plating thickness attainable with standard pens is 1.5 – 1.8 microns. Heavy-type pens can attain 3 – 3.6 microns thickness. Typical times to achieve various thicknesses on a 1" × 1" copper surface:

| PEN TYPE | 2 MINUTES | 3 MINUTES |
|----------------------------------|-------------|-------------|
| Gold | 0.5 microns | 0.8 microns |
| Palladium | 0.5 microns | 0.8 microns |
| Silver | 0.5 microns | 0.8 microns |
| Rhodium | 0.7 microns | 1.0 microns |
| Nickel | 0.4 microns | 0.6 microns |
| Black Nickel | 0.5 microns | 0.6 microns |
| Copper, Zinc, Tin & Chrome Color | 0.3 microns | 0.5 microns |
| Gold Heavy-Rapid Type | 0.8 microns | 1.2 microns |
| Silver Heavy-Rapid Type | 0.8 microns | 1.2 microns |
| Copper Heavy-Rapid Type | 0.6 microns | 1.0 microns |
| Nickel Heavy-Rapid Type | 0.8 microns | 1.2 microns |

Plating Coverage: Each pen contains 10 ml of concentrated plating solution and will plate approximately 300 sq. inches of surface.

CONTACT & ORDERING

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 hunter@hunterproducts.com · www.hunterproducts.com

TERMS

Net 30 days, F.O.B. Flemington, NJ for accredited companies. Prices subject to change without notice due to precious metals fluctuations.