



# The Electropolisher Series

Electropolishing System

## MODEL E399

50 Amp-DC Benchtop Electropolishing Equipment



E399  
Variable voltage control



E399-CC  
Constant current control



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# Features & Specs



## Electropolishing Procedure

1. *Prepare Metal (Pre-cleaning). Ultrasonic cleaning is an excellent way to remove oils, debris and other impediments that will distort the polishing results*
2. *Electropolishing Process*
3. *Post Cleaning (Rinsing and drying). Important to remove the residual electrolyte and clean and rinse the part. Ultrasonic cleaning can again be used for this step, as well as warm air drying*

Electropolishing, sometimes called reverse electroplating, is an electrochemical process which polishes a metal surface by removing microscopic amounts of material from the work piece. Electropolishing is generally used to remove a very thin layer of material from the surface of a metal part. The process is of interest because of its ability to enhance the material properties of metal parts in addition to changing their physical dimensions.

Electropolishing offers a number of benefits to metal surfaces such as:

- Removal of impurities and improvement of corrosion resistance of a metal surface. (PASSIVATES)
- Improvement of the appearance of a metal surface (HIGH LUSTER)
- Improvement of the surface resistance to stain and bacteria.
- The microstructure of the surface can be more accurately inspected.
- Removal of surface defects improving the strength of certain metals.

In general the polishing process requires three important steps:

1. **Pre-Cleaning (Prepare Metal).** Ultrasonic cleaning is an excellent way to remove oils, debris and other impediments that will distort the polishing results
2. **Electropolishing Process.** Passage of direct electric current through part while submerged in electrolytic bath.
3. **Post Cleaning (Cleaning and Rinsing).** Important to remove the residual electrolyte and clean and rinse the part. Ultrasonic cleaning and rinsing should again be used for this step.

Some of the features of our equipment are as follows:

- 304 stainless steel cabinet
- Digital controls.
- Thermostatically controlled electrolytic bath.
- Inert cathodes
- 50 amps maximum current capacity

### Esma brand electrolytes include:

- Esma-Brite E272 electrolyte for cobalt-chrome
- Stainless Steel Electropolish E972 for Stainless steel (300 series)
- Nickel Electropolish E581 for high nickel alloys
- Bronze EP E1005 for brass, bronze and other copper alloys v Custom mixing upon request