The Electropolisher Series

Tabletop Electropolishing Equipment

MODEL E1085-1S

MODEL E299

MODEL E399

MODEL E782-EP

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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 dying*

Electropolishing, sometimes called reverse electroplating, is an electrochemical process which polishes a metal surface by removing a 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.

Some of the features of our equipment are as follows:

- 304 stainless steel cabinet
- Digital timer with push button start, capable of controlling down to 0.1 seconds.
- Units have a voltage regulator with digital DC Voltmeter and digital DC Amp meter.
- Digital temperature controller. A cooling fan is also installed to blow ambient air on the side of the tank. This fan can be turned off if not needed.
- Inert cathodes
- The unit will be wired for 120 vac.
- One year warranty on parts and labor

ESMA has developed electropolishing solutions for stainless steel, chrome- co-balt, and high nickel alloys and has experience with electropolishing of small parts in the Dental, Orthodontic and Medical Device Industries. Anode holders and cathodes are made of inert materials and are utilized to prevent contamination of the electrolyte bath.

Units can be modified with Teflon tanks and cooling coils to be used for nitinol which uses electrolytes that require cooling.

Model E782-EP houses an electropolishing cell, dip tank, and 2 ultrasonic rinse tanks in a single tabletop unit, for a complete, self-contained polishing system.

MODEL #	UNIT DIMENSION	TANK CAPACITY	CURRENT CAPACITY
E1085-1S	17"x 11"x 10"	0.5 gallon (6" x 6" x 6")	12
E299	14"x 18"x 17"	1 gallon (6" x 6" x 12")	25
E399	20"x 18"x 17"	2 gallon (6" x 6" x 18")	50
E782-EP	46"x 18"x 12"	1 gallon (6" x 6" x 12")	25 or 50

√UNPRECEDENTED WARRANTY √OVER 30 YEARS OF SUCCESSFUL IN-FIELD HISTORY √ALL STAINLESS STEEL CONSTRUCTION

√SINGLE PUSH-BUTTON ACTIVATION

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INSTRUCTIONS
FOR
ELECTROPOLISHER E299

Introduction

Unit E299 polishes stainless items in seconds with a maximum current carrying capacity of 25amps. The Mark II unit is special with 2 timers and the availability to use fixed or variable voltage.

The unit, constructed of stainless steel, is built to give years of reliable, trouble-free operation. The cathodes and holding assemblies are built of non-corroding alloys. Polishing solution temperature is automatically controlled by heater-cooling fan combination. The unit is designed for production.

The stainless steel liquid, E972, used for polishing, is not phosphoric acid, but a mildly acidic proprietary formulation - the result of ESMA research. Problems of water pick up, clouds of corrosive fumes of concentrated phosphoric acid and corrosion of clips, are eliminated in our system.

PLEASE READ CAREFULLY THE INSTRUCTIONS BEFORE OPERATING

Safety Precautions

Although the system is designed with maximum safety features, certain precautions are recommended:

- Wear safety goggles when pouring E972 liquid (into jar and from it); - rinse off with plenty of water; in case of eye contact - rinse off with plenty of water and seek medical attention.
- Solution will damage cloth and carpeting.
- A small amount of solution mist is emitted during polishing; avoid inhaling, install near exhaust or ventilated area.
- Unplug before removing the back panel. Do not operate with panel off.

Installation

Unpack, place unit on counter, connect black wire on tank to binding post of cabinet. Pour E972 liquid into tank to one inch from top of tank (wear goggles). Connect unit to 120VAC outlet(230VAC for 230V units). The unit is rated at 1200 watts, 120VAC, 50/60HZ. The polishing cell is fused at 5 amp, 250VAC. A 10amp, 250VAC internal fuse protects the heating circuit.

Slide horizontal holding arm (8G) into main post (6D) and fasten with knurled screw (13A) of main post. The arm with clip (13C) is attached to horizontal holding arm, with part to be polished suspended into solution (diagram 1).

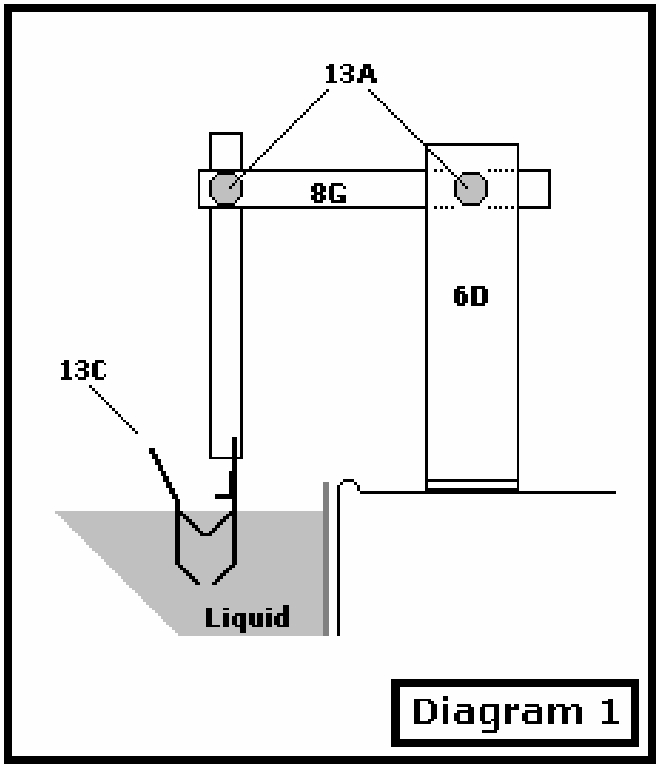
Operation

- Set temperature control at 110 degrees F.
- Turn main switch and heater switch on.

In approximately 30 minutes the temperature will be reached and blower will come on. (We recommend turning heater switch off once temperature is reached).

Polishing

- Suspend part to be polished on clip (13C); immerse end of holder into liquid so treated parts are fully submersed: tighten arm (13C) into horizontal arm with knurled screw (13A).
- Set timer to desired time using the ⇧⇩ arrows.
- Set voltage regulator for desired voltage.
- Press "START/STOP" on timer.
- When polishing is finished (alarm will sound), remove holder with polished parts, rinse in water.
- Neutralize part in baking soda solution (teaspoon of soda per cup of water).
- Rinse under running hot water, then air-dry.



Maintenance

1. Maintain clean cabinet: wipe off with cloth wetted with mild detergent; polish with a polish for stainless appliances (as Sheila Shine).
2. Solution should not be spilled on cabinet; shorting of post 6D may take place- wipe off !
3. Replacement of ESMA E972; during polishing metal and metal oxides are dissolved, some decomposition and drag-out take place. Replace when action gets slow, solution thick, objectionable odor, non-uniform shine and rapid overheating.
4. Cleaning polishing cell:
   - Shut off unit and unplug power cord from outlet
   - Disconnect black wire on tank from black binding post on cabinet.
   - Slowly lift tank out of unit by holding front and back flanges of tank
   - Dispose of solution (dispose properly according to local regulations); rinse tank thoroughly with water, remove any film or build-up from inside, wipe tank walls with soft towel or sponge.

   THE TANK IS COATED, SO DO NOT USE ANY ABRASIVE MATERIAL while cleaning inside the tank. Dry tank with towel, do not pour solution into wet tank.

Trouble Shooting

Problem	Possible Cause	Corrective Measures
Blowing fuse	-Part touching -tank cathode	- Re-position part
	-Solution spilled on cabinet and is wetting base of post	- Remove tank, loosen screw under post, remove post, rinse and dry all parts; reassemble making sure insulating washers are in place
	-None of the above	-Contact manufacturer
Odor emitted during heat up	-Solution present on heating plate	-Shut off unit, remove tank and clean up any solution on heating platform
	-Leaking of tank	-If repeated clean-ups do not eliminate odor tank may be leaking
	-Solution needs exchange	-Replace with fresh solution

For technical assistance please call 1-800-276-2466