

BUEHLER®

PoliMat 2

ELECTROLYTIC POLISHER / ETCHER

- Automatic electrolytic polisher / etcher
- Polished surfaces up to 10 cm²
- Quick polishing results
- Effective cooling of the electrolyte
- Safety features when electrolyte becomes too hot
- Can be used for most homogeneous metals and alloys
- Highly polished, distortion-free surfaces, ideal for microscopic examination
- No deformation layers
- Ease of operation



PoliMat 2 • Electrolytic polisher / etcher

Automatic electropolishing and etching instrument with separate power supply, for polishing and etching. Regulation of electrolyte temperature and power ensures safe operation. Electrolytic cell made of corrosion resistant plastic with separate pump motor. External etching device.

Technical Data:

Power supply:

230 V / 50/60 Hz / 1 Ph, max. 1200 W

Polishing:

0-60 V at 0-20 A and / or 0-120 V at 0-10 A

Etching:

0-15 V at 0-2,5 A

Electrolytic cell:

Base with enclosed pump motor and bowl for electrolyte

Controller dimensions:

500 x 300 x 250 mm (WxDxH)

Electrolytic cell dimensions:

Ø 200 mm, height 320 mm, cont. 1000 mL

Weight:

Controller 22,5 kg, electrolytic cell 4 kg

Delivered:

Complete as above with 4 masks (1, 2 and 10 cm², blind-mask) connecting cables and manual

Electrolytes:

All electrolytes have to be shipped as hazardous goods. We therefore do not offer electrolytes on sale. Buehler provides recipes for the most common materials on request.

Specification:

PoliMat 2.....	51 10 00
Polishing cell, complete.....	51 00 10
Electrolyte cell, 1000 mL.....	51 00 11
Lid with anode for electrolyte container	51 00 12
Set of masks (4 pieces: 1 cm ² , 2 cm ² , 10 cm ² and without hole).....	51 01 00
External etching device comprising: etching beaker and arms of stainless steel and cables.....	51 02 00

Electrolytic polishing profits by the following process: If two electrodes are submerged in an electrically conducting liquid under direct current, a flow of ions takes place from the anode to the cathode. Thus the metal atoms of the anode dissolve in the electrolyte or deposit on the cathode. With electrolytic polishing, this process allows the raised areas of the sample surface, switched as anode, to be removed so that a polished surface will be obtained under certain conditions.

The polishing process usually takes not more than 30 seconds thus saving considerable time compared with mechanical preparation. Electrolytic polishing is suitable for most homogeneous metals and alloys. Due to the varying potential differences between individual phases and/or components, heterogeneous alloys and compound materials are less suitable for electrolytic polishing/etching operations.

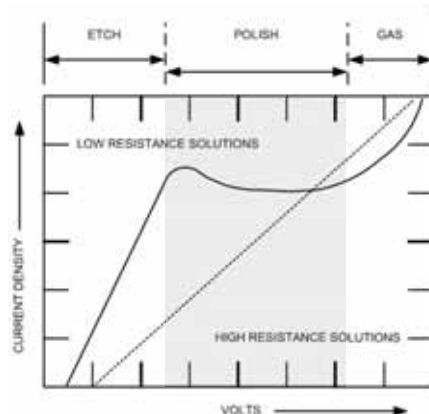
Most metallic material, with the exception of stainless steel, can be etched after the polishing process with the same electrolyte.



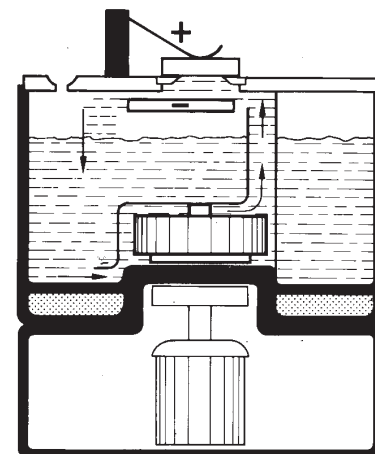
The PoliMat 2 consists of two components, the controller and power supply unit and the electrolytic cell. The controller is built into a robust metal housing. Preparation parameters can be adjusted separately.



The tank mount serves as a platform for the specimen. Easily exchangeable masks allow the preparation of differently sized specimen-areas.



Influence of current density and voltage on the sample. The efficient polishing range is marked grey. At low voltage the sample will be etched. Higher voltage results in vapor locks within the electrolyte and irregular current flow which itself leads to pitting.



The electrolyte flows by means of a pump between cathode (-) and anode (+). The regular flow of the electrolyte removes dissolved particles and wets the specimen surface steadily. An integrated cooling-water hose protects the electrolyte from getting to extreme temperature.

For a complete listing of Buehler consumable supplies and accessories, please refer to Buehler's Buyer's Guide. Buehler continuously makes product improvements; therefore, technical specifications are subject to change without notice

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