

RIAG EPol 880

Electropolishing process of the new generation

RIAG EPol 880 is an electropolishing process largely used for the electrolytic deburring and polishing of V2A and V4A stainless steel as well as other austenitic steels.

Low-alloy steels and carbon steels can also be processed using this system, although the resultant degree of polishing and deburring will vary.

The polish provided by this system is superior to that of any other comparable processes.

Simple to use with low sludging, it is recommended that 10 – 20 % of the volume is replaced with new electrolyte at regular intervals.

Initial bath for 100 litres

RIAG EPol 880 Elektrolyt 99.6 litres (s.g.: 1.66 g/mL)

RIAG EPol 880 Defoamer 0.4 litres

Working environment

Temperature 50 – 65 °C 70 °C for short periods

Voltage 10 – 20 V

Anode current density 5 – 20 A/dm²

Length of exposure 5 – 20 minutes

Specific gravity 1.6 – 1.75 g/mL (according to the mineral acid mix recommended)

Required equipment

Tank material	Steel tanks with lead or plastic lining. Plastic tanks can be used for smaller volumes.
Heating	The electrolyte can be heated either directly or indirectly (preferred). If direct heating is employed, provision must be made for thorough agitation to prevent local overheating of the bath heaters. Satisfactory bath movement can be achieved by using small mechanical agitators. Bath heaters should be made of Teflon-coated stainless steel or porcelain.
Cathode material	The process is anodic, i.e. the components to be polished are connected to the anode. The cathodes used are stainless steel sheets attached to the cathode bars (nickel-plated copper) with copper brackets outside the electrolyte.
Agitation	Gentle air injection or mechanical device(s) (2 – 3 m/minute) must be provided.
Filtration	Not required
Racks	Because of the high current densities involved in electro polishing, good contact is absolutely essential. Burning at the contact points can quickly occur dependent on contact and current density. Racks should be made of copper with copper or titanium clamps. As titanium clamps can attain very high temperatures, the electrolyte may be affected if local overheating becomes excessive. Please pay close attention to cross-sections.
Material removal	For standard stainless steels, material removal is approximately 1 – 1.5 µm/min at a current density of 10 A/dm ² .
Bath load	A bath load of 1 A/litre must never be exceeded. A bath load of 0.5 – 0.7 A/litre is considered average.
Cooling	Some form of cooling must be provided if the bath is used without interruption. Temperatures above 70 °C will destroy the electrolyte.
Consumption	Consumption of RIAG EPol 880 is around 20 – 30 kg per 10 kWh. Please ensure that used electrolyte on polished components and racks are not allowed to return to the bath. Allowing such electrolyte to drip back into the tanks is inadvisable as this solution is saturated.

RIAG EPol 880 Defoamer

A layer of foam may form on the surface of the bath according to working conditions (high temperatures as well as high A/litre loads).

If this foam is considered undesirable (adhering to components on removal from the bath), we recommend the addition of **RIAG EPol 880 Defoamer**. To prevent excess amounts, the defoamer should be applied on the surface of the bath using a spray bottle.

Regular, gentle application will prevent the formation of foam.

Pre-treatment

For perfect polishing results, all components must be clean and most importantly free of grease prior to being placed in the bath.

If this precaution is not taken, polishing will be inconsistent. Additionally, residues collecting on the surface of the bath will adhere to components when the latter are lifted out of the bath. These residues are difficult to remove.

The **RIAG EPol 880** process features a very long solution life. Fresh baths are normally unnecessary; it is advisable to replace 10 – 20 % of the electrolyte with fresh solution at regular intervals.

Waste water

All waste water must be treated in line with ruling legal provisions, prior to disposal in the drainage systems. Water used for rinsing purposes can also be used to neutralise alkali solutions, however.

Safety precautions

Protective goggles, a rubber apron and gloves must be worn when mixing the electrolyte or working with the bath.

An air extraction system **must** be fitted when the equipment is installed. Due to the high current densities used, acidic aerosols must be expected.

Above instructions and information are the results of intensive testing and shop experience. They are for your information only. Our guarantee extends to the continuous quality of our products and not their usage in the field, a factor which is beyond the control of a supplier.

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