



Electropolishing is an electrochemical process that removes surface metal by attacking the high points on the surface. The surface becomes smoother and any contaminants and free irons will be removed. This will improve the corrosion resistance, reduce the product adhesion and contamination buildup, deburr and create a lustrous finish.

Electropolishing is used in the pharmaceutical, electronic, food, beverage, automotive, aerospace and many other industries. New applications for electropolishing are found constantly.

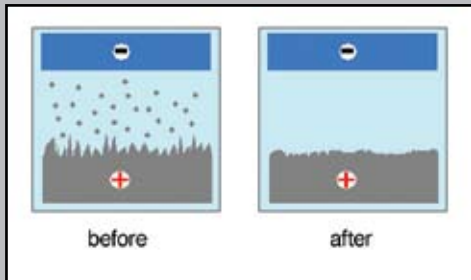
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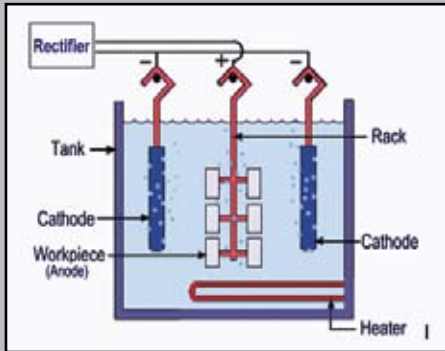
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Electropolishing

Allegheny Surface Technology has been electropolishing for more than a decade. We maintain multiple operation lines containing different electrolytic solutions. We also have developed reliable methods to perform electropolishing without submerging your work piece into a tank. This enables us to electropolish large work pieces and to perform our service On-Site. We do have the necessary electrolytic solutions available to handle the common grades of stainless steel. Allegheny Surface Technology employs experienced and highly skilled craftsmen who have the necessary training and experience to perform electropolishing.



Electropolishing is performed by submerging your work piece into a temperature controlled electrolytic bath. Your work piece is connected to the positive end of a rectifier supplying DC at low voltage and high current. The negative terminal of the rectifier is connected to specially designed cathodes to ensure proper current flow through the electrolytic bath. The design and placement of the cathodes, the design of the rack holding your work piece and the number of contact points on the work piece are critical to ensure a uniform finish.



Applying electric current to the setup will start the electroplishing process. The longer the current is applied the more material will be removed until all high points have been eliminated. Extending the electroplishing process may reveal pores and orange peel, which is an indicator for material defects and reveals the internal structure of the metal. At Allegheny Surface Technology we try to avoid this impact by documenting our processes per application. Our quality control department assures the repeatability of our performance. Our stringent final inspection guarantees that all customer requirements are met.



Advantages of Electropolishing

Polishing - Electropolishing decreases the surface roughness without creating directional lines and creates a lustrous surface. Corrosion resistance will be improved by removing contaminants introduced to the surface during the manufacturing process and handling of the part. Electropolishing also leaves a nickel-chromium enriched surface layer that enhances the metallic properties of stainless allowing the oxide layer to form.

Ease of Cleaning - By attacking the high points, electropolishing levels the surface of the material; thereby reducing product adhesion and contamination build up. Therefore, cleaning can be performed more efficiently and effectively.

Electropolishing has been proven to reduce bacterial bio-film build up, appearance of rouging.

De-burring - Electropolishing is well suited for de-burring. The electropolishing process naturally has greater current densities at high points and less at low points. Due to the higher current densities at the high points the material and burrs, dissolve at a much faster rate, leading to a smooth clean surface.

Aesthetics - Through proper electropolishing the microscopic surface become smooth and clean, containing a nickel-chromium enriched surface that results in a lustrous finish. This allows a visual inspection to be completed since imperfections will be magnified.



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