

ELECTROPOLISHING



FOR DCI STAINLESS STEEL VESSELS

WHAT IS ELECTROPOLISHING?

An electrochemical process for providing surface integrity beyond available conventional mechanical finishes. Surface imperfections are removed from stainless steel surfaces by anodic dissolution in an electrolyte solution with an imposed electrical current. This process is considered the reverse of electro-plating where metal from the anodes is deposited onto the metal surface. During the electro-polishing process, electrical charges are drawn from the high points on metal surfaces, removing burrs, sharp edges, and other imperfections present on the stainless steel surface. The metal atoms are stripped away quickly resulting in a leveling effect on the metal surface. The high points are reduced first and microscopic nicks are removed last, along with any modified metal surface structure from the mechanical polishing process, resulting in improved surface measurements.



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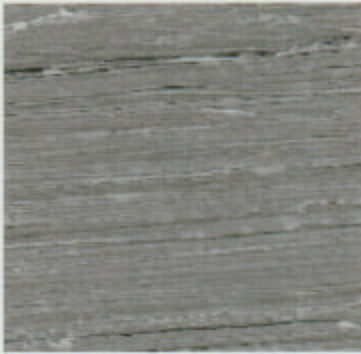
DCI ELECTROPOLISHING IS AVAILABLE ON VESSELS FABRICATED FROM THESE ALLOYS:

304 304L 316 316L Other chrome-nickel and nickel-based alloys

SURFACE MEASUREMENTS COMPARISON

MECHANICAL FINISH ONLY		MECHANICAL FINISH WITH FINAL ELECTROPOLISH	
GRIT SIZE	RA (MICRO-INCH) STANDARD 316L	RA (MICRO-INCH) STANDARD 316L	RA (MICRO-INCH) ESR 316L
80	71	52	48
120	52	39	34
150	42	30	28
180	30	22	20
240	20	12	10
320	12	10	8

These values are the average data of many tests. Therefore, slight deviations from the norm do exist. However, because of the number of tests performed, reasonable accuracy is assumed. Because of the many variables which create this data, deviations of 5% would be considered well within good measurement parameters.



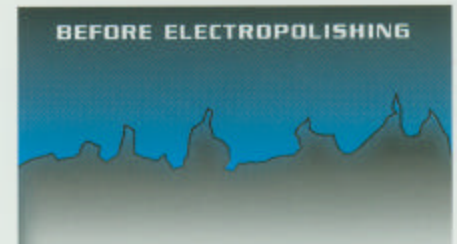
316L STAINLESS STEEL

Mechanically polished surface appears rough as viewed under 1000x magnification on Scanning Electron Microscope (SEM). View shows the "buttering" or metal smearing from mechanical abrasive polishing.



316L STAINLESS STEEL

Electropolished surface appears smooth as viewed under 1000x magnification on Scanning Electron Microscope (SEM).



CONSIDER THE BENEFITS OF ELECTROPOLISHING DCI VESSELS

- Removes metallic and non-metallic surface inclusions.
- Reduces the exposed product contact surface area.
- Improves surface cleanability.
- Improves corrosion resistance and life expectancy of vessel.
- Provides passive product contact surfaces.

Combining DCI electropolishing with our established procedures of material selection, controlled fabrication techniques and continuous quality control, assures superior craftsmanship. Vessels with capacities to 20,000 gallons can be electropolished at DCI.



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