



ELECTROPOLISHED

Valex

Tube & Pipe

Processing Capabilities





Tube & Pipe Processing Capabilities



Valex processed tubing is service-ready, without the need for additional finishing or cleaning.

Valex cleaned for oxygen-grade service (CFOS) and electropolished, small to large diameter tube and pipe are designed to perform in an extensive array of applications. In situations where very low surface finish (Ra) and high purity cleanliness or passivated tube is key, Valex has the product and process to meet your needs. Innovative manufacturing techniques and strict process control methods allow for repeatable precision cleaning and finish polishing of these materials. Our electropolishing and mechanical polishing capabilities minimizes process variability to achieve the highest standards of performance and efficiency.

Product Description

- Alloys include:
 - 304, 304L, 316 and 316L Stainless Steel
 - Alloys 625, 718, Hastelloy® alloys, Valex V22 and other materials such as Nickel-Chromium-Molybdenum-Tungsten Alloy
 - Customer supplied raw material for toll processing
- Electropolished surfaces as small as .070" inside diameter through 24" for tube and pipe products
- Cut and faced lengths available in various increments up to 20' long
- Material wall thickness ranges from .010" and larger
- ISO-9001 Certified
- For product and material details, reference Valex's Tube, Pipe & Fittings Catalog.

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Testing & Inspection Capabilities

- Surface roughness measurement (Ra)
- Visual inspection by highly trained and skilled inspectors
- Scanning Electron Microscopy (SEM)
- Auger Electron Microscopy (AES)
- Election Spectroscopy for Chemical Analysis (ESCA or XPS)
- Particle testing
- Moisture testing

Marking & Traceability

Material is traceable to its producing mill and heat, and marked with a traceable identification number on the tubing.

Labeling

Bag is affixed with a label identifying the part number, date and Valex lot number.

Documentation

A quality inspection certificate is furnished with each shipment. The report contains the following information:

- Surface Finish Results
- Nominal outside diameter
- Chemical composition
- Quality assurance testing
- Inspection Certificate type 3.1 per EN 10204:2004
- Lot & heat identification for traceability
- Material composition & applicable specification designation

Packaging

Tube and pipe are purged with UHP nitrogen, capped, double-bagged.



Peaks are more aggressively removed due to higher current density



Microscopic surface profile before electropolishing



Microscopic surface profile after electropolishing

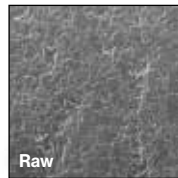
Protective oxide layer

Microscopic surface profile after passivation

Electropolish Inside Diameters as Small as .070"

Electropolished surfaces benefit from increased corrosion resistance and improved surface finish to as low as 5ra. Our EP processes have been refined and tuned over multiple decades to produce the most uniform, repeatable finishes – that are universally accepted as the gold-standard for which to compare.

- Valex EP operators possess, on average, 10 years of experience – guaranteeing an additional level of product quality and performance.
- Valex Quality Inspectors possess, on average, 10 years of tenure at Valex. Inspection points placed strategically throughout the process to control process and maximize detection to deliver highest quality tube.



Raw



Mechanically Polished



Electropolished

SEM photos at 500X magnification

HNO₃
Nitric Acid
20-50%



Passivation

Valex passivates stainless tube and pipe in a nitric acid solution (20% to 50% concentration at 65-85 degrees Fahrenheit) for a minimum of 30 minutes, to remove free-iron, enhancing the corrosion resistance of the surface. During passivation, the tubing surface forms a protective oxide-layer that resists corrosion. We passivate all stainless tube prior to final cleaning, in-house with complete oversight and control of our process.



Valex Corporate Offices & Manufacturing

Valex USA Corporate Headquarters

6080 Leland Street
Ventura, CA 93003
United States of America
Phone: 805-658-0944

Valex USA Round Rock, TX

120 E. Old Settlers Blvd.
Round Rock, TX 78664
United States of America
Phone: 512-212-8100

Valex Korea

32 Hansan-gil, Cheongbuk-eup
Pyeongtaek-si, Gyeonggi-do
Republic of Korea
Phone: 82-31-683-0119

Valex China

358 Zhonggang Road
Haiyan Economic Dev. Zone,
Jiaxing, Zhejiang 314305
People's Republic of China
Phone: 86-573-86868221