

## LOBO Systems Electroplate Process

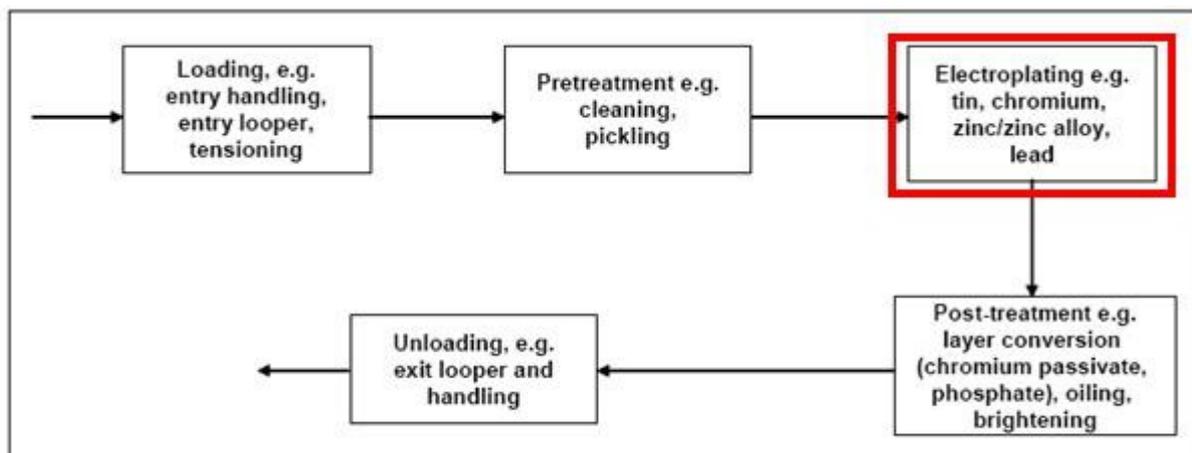
Zinc is a bluish-white metal, which, if mechanically polished, or electrodeposited with appropriate brighteners, somewhat resembles chromium in appearance. However, the reflectivity of the polished surface is soon lost in most atmospheres.

This quick tarnishing and corroding, is the property that makes zinc plating work so well in providing “sacrificial” protection for steel.

The relatively low cost, protective nature and attractive appearance of zinc plating make it a popular coating for nuts, bolts, washers, metal stampings, and automotive components, fabricated parts for industrial applications, and also serves as an effective undercoat for paints.

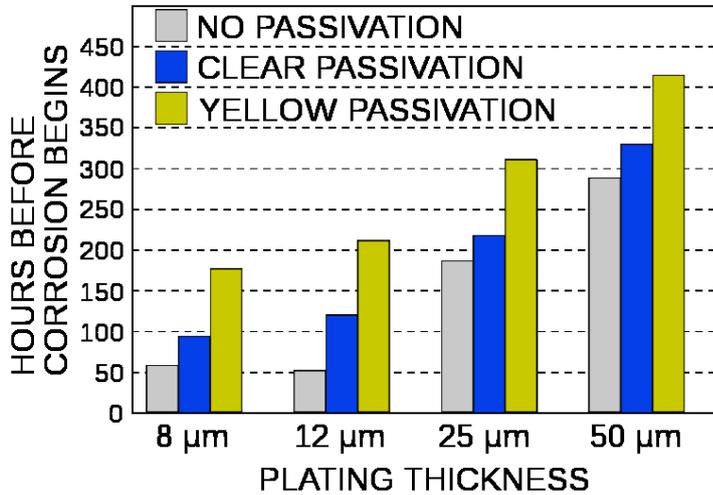
Electrolytic zinc coatings are used to protect and improve the appearance of ferrous metals, (i.e. iron & steel) as a corrosion barrier, and then as a sacrificial coating. The application of chromate conversion coatings over zinc plating, and post-plate sealers, give additional protection against corrosion particularly under high humidity and moisture conditions.

This is the olive passivation coating we discussed.



**Figure 2.11: Outline of typical coil coating process**

This depicts the Zinc plating process which is similar for Chrome or Nickel



In dry air, a protective layer of oxide soon forms on an untreated zinc surface, and subsequent attack is slow. In moist air, zinc hydroxide forms first on the surface, and is then converted to zinc carbonate. If the surface has not been chromate (passivated), the carbonate takes the form of a bulky, loose layer, often described as white rust, or wet storage stain. In confined spaces, zinc is attacked by organic acid vapours emitted by woods, plastics, and various insulating materials.

Commercially, zinc is deposited in thicknesses ranging from 0.0001" - 0.0005", depending upon the intended application and the corrosion protection required, the majority of which is 0.0001" - 0.0003", commonly known as "Commercial Zinc". Commercial Zinc has a high coefficient of friction, low strength, moderate abrasion resistance, poor impact resistance, brittle at room temperature, but malleable at 212-302°F.

We use the Yellow or Olive passivation Table 1 shows the FEZn8 which shows the 8micron thickness

Classification <sup>A</sup> Number and conversion Coating Suffix	Service Condition <sup>B</sup>	Minimum Thickness Inches	m
Fe/Zn 25	SC 4 (very severe)	0.0010	25
Fe/Zn 13	SC 3 (severe)	0.0005	13
Fe/Zn 8	SC 2 (moderate)	0.0003	8
Fe/Zn 5	SC 1 (mild)	0.0002	5

A Iron or steel with zinc electroplate. Numeral indicates thickness in micrometers  
 B See Appendix X2  
 C Where service conditions are valid only for coatings wit chromate conversion coating. Type II for SC 4 and SC 3 and Type III for SC 2 and SC 1.