

HOT DIP GALVANIZING

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Hot-dip galvanizing, also known as dip galvanizing, is a widely used method of protecting steel structures from corrosion.

The origins of this process date back to the 18th century, when the French chemist Malouin, dipping a steel component in liquid zinc, discovered a silvery coating on its surface.

Today, galvanizing is carried out in galvanizing plants with high quality standards. The process consists of several, technologically advanced intermediate stages, as a result of which, by means of degreasing, etching and rinsing, a clean surface ready for immersion in a zinc bath is obtained. The final product of hot-dip galvanizing is a protective coating with a multilayer structure. Its outermost layer (the so-called Gamma layer) is formed by Fe and Zn compounds, in which iron accounts for 25%. The thickness of this layer is about 1 μm . Below this is the Delta layer. The iron content in this sublayer reaches 10%. The next layer is the Zeta layer, in which the proportion of iron is the lowest. Immediately next to the surface of the steel is a layer of almost pure zinc.

The minimum thickness of the zinc coating is calculated based on the following data:

- thickness of the galvanized steel
- the residence time of the charge in the zinc bath
- silicon and phosphorus content of the galvanized material

A properly made zinc coating lasts from 10 to 100 years, depending on the thickness, aggressiveness of the environment and mechanical erosion.

Hot-dip galvanizing is an economical and ecological way to protect steel, resulting in anti-corrosion coatings with high technical and aesthetic qualities.