

SPECIALIZED COATINGS

Variety of in-house coatings provide protection in harsh environments.

Mechanical Galvanization

Has excellent coating uniformity which reduces thread fit issues at assembly, preferable for structural applications. At room temperature, fasteners are placed in a large rotary barrel along with zinc powder, special promoters & glass impact beads. The energy generated from the barrel's rotation causes zinc powder to be mechanically welded on to the surface of the fasteners.

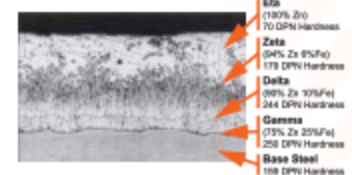
Zinc-Aluminium Flake

Is non-electrolytically applied chromium-free coating. It is a water-based, VOC compliant coating comprised of overlapping zinc and aluminum flakes in an inorganic binder. Significant process advantages here include the HCl-free pre-treatment, the low process temperature (max. 280 °C). Usually coated through a dip-spin process and cured by baking at 300-330°C. Provides excellent corrosion protection & used in demanding conditions like offshore and auto industry.

Hot Dip Galvanization

Is metallurgically bonded to the steel – virtually becoming a part of the steel itself. This coating is relatively maintenance-free and provides excellent corrosion protection for 50-75 years in most atmospheric environments (industrial, marine, urban & rural), depending on coating thickness. Fasteners are completely immersed in a 98% pure zinc molten bath at a temperature 460°C to 525°C, after thorough cleaning & fluxing process. Cannot be used for size M10 or smaller.

A typical micro structure is comprised of three alloy layers and a layer of pure metallic zinc:



Electroplating

Has a smooth & dip-free surface. Because it's thin – it doesn't interfere with fastener threads. Fasteners are dipped in chemical bath containing metal ions. When a direct current is applied, the metal forms a thin coating on the surface of fastener. Different metals can be coated: Zinc, Zinc-Nickel, Cadmium, Chrome or Tin. It is recommended to carry out de-embrittlement baking, to minimize the risk of hydrogen embrittlement.

Passivation

Stainless steel fasteners create galvanic corrosion or oxidation in a joint unless they are passivated prior to assembly. Passivation means removing the free iron from the surface of the metal using an acid solution to prevent rust.

Choosing the **correct coating** will prevent corrosion, enhance aesthetic value & add strength to the fastener, extending its life & performance.



Phosphate Coating

Steel or iron is phosphate coated by treating the material surface with a diluted solution of phosphoric acid, usually by submerging the part in a proprietary bath. The chemical reaction forms a mildly protective layer of crystalline phosphate. The three principal types of phosphate coatings are zinc, iron, and manganese. Phosphate-coated parts are dipped in oil or wax to improve their corrosion resistance.

PTFE (Polytetrafluoroethylene)

The plastic PTFE is often used in combination with metallic corrosion protection to give fasteners low coefficient of friction (generally in the range of 0.05 to 0.20). It has high corrosion resistance, neutral salt spray test up to 3000 hours. It is not broken down by UV rays, is highly resistant to heat, chemicals & has cryogenic stability. Is oleo phobic & hydrophobic. Used mostly in offshore, refineries, petrochemicals, fertilizer and acidic environments.

Unbrako Wiscoat

Environment Friendly: made from renewable and ecologically sustained natural raw material. It is used especially in water treatment plants & fluid transportation systems. Preserves water quality & shows remarkable resistance to chemicals, with salt spray life of 2000 hours (<1mm corrosion). Coated using conventional dipping in fluidized bed and/or electrostatic spraying.



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