DEPTON™

Zinc/tin alloy and metal deposits by mechanical means to protect ferrous alloy parts against corrosion.

Characteristics:
- Good regularity of the deposited thicknesses
- No hydrogen embrittlement
- Ductile deposits susceptible to deformation after treatment
- Good corrosion resistance

Notes :
Possible passivation of deposits and organo-mineral finishing.

Materials suitable for treatment:
All steels, in particular high yield strength steels

Examples of use:
• Automotive fasteners • Springs, washers • Grating fasteners • Forks • Letter box locks • Crankshaft pins • Grommets • Locking collars • Pointed screws • Mirror spindle lugs • Circlips • Mountain climbing accessories • Embedding nails

Particularity of the process
Depton™ is a mechanical plating process. It's carried out at ambient temperature and without electrolysis so we are in the presence of a non-embrittlement process.

Treatment is done in barrel on an automatic line and is intended to apply metal powder on steel substrates. This process allow to obtained layer of zinc or alloy with Tin or Aluminium.
The obtained layer on the parts is uniform; the thickness controlled can vary according to the application, with a minimum of 5µm and a maximum of 60µm.

Associated with passivation, Depton ™ offers salt spray test corrosion resistance up to more than 600 hours. Addition of an organic top coat enable to fix Coefficient friction and increase corrosion resistance

Alternative solution to lamellar zinc and electro-degassed zinc, the Depton™ process is the only one which guarantees that parts with low temperature tempering (< 160°C) keep their mechanical characteristics. Since the temperature of the process never exceeds 60°C. It therefore makes it possible to change de size of the parts for weight gains.

Interests of treatment
- Excellent resistance to corrosion
- No embrittlement due to hydrogen occlusion
- Preserved electrical conductivity
- The components do not stick to each other during the treatment
- No alteration of the heat treatment
- Coefficient of friction controlled by the use of film-forming agent
- No edge effect
- Crimping possible
- Low impact on the environment (air, water, waste ...)
- Meets all environmental requirements (RoHS, VHU, Reach ...)

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Examples of applications

The preferred field of applications of DEPTON is the one in which we are looking to a very good corrosion resistance of parts and on which we want to avoid any risk of FRAGILIZATION by hydrogen or delayed RUPTURE:

- Automotive/fixation:
  - Spring Washer, circlips: No bonding
  - Rivet: Galvanic coupling
  - Screw: No change of Mechanical characteristics, possibility of Section reduction for Weight gain
- Electrical and electronic:
  - Spring blade, cable clips: No change of conductivity
- BTP: (nails) Excellent penetration coefficient / excellent resistance to tearing.
- Etc.

Standard process

- Cf. Table below
- Finishes:
  - Copper
  - Passivation chrome III
  - Passivation + Top coat (Coefficient friction 0.12 to 0.18 or 0.08 to 0.14)
- Thickness control by X-ray fluorescence or magnetic method
- Bulk processing of small and medium
  - Weight <200g / Length <200 mm

Table of characteristics of the different layers:

NAME	COMPOSITION	THICKNESS	CORROSION (SALT SPRAY)	APPEARANCE	COMMENTS
DEPTON Cu	Copper	< 1 µm	/	Copper	Keyed
DEPTON Z	Zinc	5 – 15 µm	➤ 200 h	Grey	+
		15 – 25 µm	➤ 400 h		
		➤ 25 µm	➤ 600 h		
DEPTON ZS	Zinc + tin	10 – 20 µm	➤ 800 h		Conductibility
DEPTON ZA	Zinc + alumina	10 – 20 µm	➤ 600 h		Galvanic coupling

Standards and references:

DeptonTM is a zinc mechanical plating treatment which can be found under differents appelations :

- Mechanical plating, Zinklad 250M, Matoplastie, Macuguard, Inverplex, Almack, Transiflo…

Iso standard: NF EN ISO 12683

International standard: ASTM B695-85

Ford Specification: WSS-M21P17-B4 / S437M

General Motors: GM 3044

Volkswagen: TL 155

John Deer, Chrysler, Caterpillar, General Electrique, TRW, Hilti, Arcelor, Spit…

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