

Hot dip galvanizing

Hot dip galvanized products are often used in outdoor environments or in demanding indoor environments. Hot dip galvanizing gives a long corrosion protection for a relatively low price. Hot dip galvanized screws in property class 8.8 are available from stock. Higher strengths should not be hot dip galvanized due to the annealing effect and risk for embrittlement. This means that the strength decreases and the steel loses its tenacity. Here follow some screws that should not be hot dip galvanized.

- Screws with inner key grips.
 - Cross-slotted screw.
 - Socket head cap screw.
 - Sixpoint socket grip.
- Case-hardened screws due to decreased surface hardness.

Environmental aspects:

Emissions of flux smoke, which amongst other things contains zinc chloride.

Environmental effects:

Zinc chloride is poisonous for humans.

Hydrogen embrittlement

The harder a detail is, the more sensitive it becomes for hydrogen absorption in connection with an electrolytic treatment. Details with hardness above HRC 31, HV 300, HB 300 or a tensile strength above 1000 N/mm² should be baked after electrolytic treatment. Baking is a heat treatment that is performed at a temperature of approximately 200°C.

The corrosion characteristics of the chrome layer is heavily decreased if exposed to temperatures above 70°C. That makes it necessary to perform the chromation after the baking.

When it comes to screws you get a concentration of hydrogen in the transition between stem and head. This shows as an indication of fracture which leads to the screw's head coming loose.

We do not recommend electrolytic treatments on property class 10.9 or above. This is due to that baking cannot completely guarantee embrittlement from arising.

Zinc (coatings of zinc)

Decorative appearance and corrosion protection in one.

Corrosion protective surface treatments that can be coated with glossy-, yellow-, green-, or black chromate. Satin-zinc has a decorative tarnish similar to aluminium. It is performed on steel and zinc.

Areas of application: Interior design- and consumer products which require a decorative appearance and protection against corrosion.

Environmental aspects:

Chromating may, depending on colour and method, involve coating with sexivalent chrome, which is prohibited according to RoHs directives.

Environmental effects:

Allergenic, bio accumulating. Sexivalent as well as trivalent chrome are poisonous. The sexivalent chrome is very acute poisonous. The alternative with trivalent chrome is available for all colours except green.

Zinc-Nickel

Galvanic bath with zinc-nickel.

Zinc-nickel gives a significantly better corrosion protection than zinc only.

Salt spray chamber tests show that zinc-nickel lasts twice the time of zinc-iron. The proportion of nickel makes the coating harder and therefore resistant against surface damage. The combination counteracts galvanic corrosion in connection with stainless steel and aluminium. Can be coated with transparent (=grey/blue) or black passivation.

Environmental aspects:

Chromating may, depending on colour and method, involve coating with sexivalent chrome, which is prohibited according to RoHs directives.

Environmental effects:

Bio accumulating. Sexivalent as well as trivalent chrome are poisonous. The sexivalent chrome is very acute poisonous, but is in this treatment in a fixed form.