



Material data and care instructions

Hot dip galvanized steel

Notes on using products made of hot dip galvanized steel from Richard Brink GmbH & Co. KG

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As standard, the galvanized materials from our company are always hot-dip galvanized steels with a thick coating of zinc. In contrast with products with a thin galvanized coating, this means that a clearly superior protection of the surface is ensured. Depending on the product and area of use, coatings made from pure zinc (e.g. Z275) or specialist coatings with additional material components (e.g. Magnelis® ZM310) are used. Appropriate information on the product-related coatings can be requested at any time. Except as noted otherwise, we galvanise according to DIN EN ISO 1461.

**Do you have any questions?
We will be pleased to help you!**

1. Where does the corrosion resistance come from and are there limitations?

In contrast to stainless steel, where the corrosion protection depends on the material itself, with galvanized sheet metal, the corrosion protection depends on the type and thickness of the coating. The basic principle of the corrosion protection which is achieved in this way is similar to stainless steel. In the top coating of the galvanization, a chemical transformation takes place (oxidation of zinc), which leads to the creation of a protective, matt, zinc oxide- and zinc carbonate coating ('passive coating'). For this transformation to occur, the environmental air has to contain carbon dioxide. A transformation in the case of surfaces that are damp or wet does not work, and white rust develops instead of a protective passive coating. A transformation into white rust erodes the zinc coating more quickly and does not protect the surface.

2. What happens at the cut edges?

The zinc coating can, however, develop more than just a single passive protection due to the coating. Since zinc is a less noble material than the base material, it can also actively protect the steel. If zinc and steel are freely exposed to each other, zinc is a sacrificial anode. This means that the zinc is attacked first and the steel is only attacked once the zinc has been exhausted. This principle is known as cathodic edge protection. It works with exposed cut edges (e.g. blanking) and also with scratches. This means that an infiltration of the zinc coating through corrosion, such as with varnish for instance, is impossible. At the same time, the width of the exposed areas of the steel should not exceed 1.5-2 mm. With extensive erosion (areas of abrasion, exposure to chemicals,...), however, this principle does not take effect.

3. Changes to the surfaces

When using galvanized materials, changes to their appearance can occur over time which usually does not, however, have any influence on the functioning of the components:

Matt surface	Hot-dip galvanized surfaces which are exposed to weathering become matt over time. This effect is related to the development of a protective passive coating on the surface and is to be welcomed.
White spots	Under certain circumstances (lack of CO ₂ , environments containing chloride or sulphur,...) the development of so-called white rust can occur. This is the result of a chemical transformation. A widespread development of white rust should be looked at in closer detail. In this context it is always necessary to ensure that galvanized surfaces can regularly dry off, and that the protective coating on the galvanized area is able to form or regenerate.



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Brown colouration of punched edges With the material strengths that are used, a brown tarnishing can occur to the edges. The edges remain protected due to the surrounding galvanizing.

4. The cleaning, care and treatment of galvanized products:

- Do not use any aggressive cleaning products for cleaning purposes. Check the compatibility of the cleaning products with hot-dip galvanized metals before use.
- Do not use any abrasive or scouring cleaning materials.
- Avoid exposing the material to high levels of heat (*e.g. through processing with an angle grinder, drilling without drilling emulsion, plasma cutter, impact of fire, etc.*), as this destroys the protective coating.
- Prevent sparking occurring on the surfaces.
- Do not weld galvanized materials.
- Subsequently treat damaged galvanized areas.
- Prevent flash rust and remove it immediately.
- Prevent sustained damp occurring on galvanized surfaces.
- Rinse away alkaline and acidic liquids immediately with clean water.
- Check the compatibility with road salts.
- Rinse away salt and road salt solutions immediately with clean water.
- Avoid the combination of galvanized components and stainless steel components because under certain circumstances, this can lead to electro-chemical corrosion.
- Avoid contact with industrial and cooking salts
- Check the compatibility of road salts with galvanized materials.

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