

Galvanizing is one of the best and most durable anti-corrosion protection technologies. In hot-dip galvanizing, coatings with a thickness from 45 microns (a galvanized product wall < 1.5 mm) to 85 microns (for a wall > 6 mm) are obtained. In technical terms, **hot-dip galvanizing is superior to other anti-corrosion protection technologies.**

Advantages of hot dip galvanizing

Extended protection period (up to 50 years)	No need for maintenance	High mechanical strength	Optimal for voids and edges	Cathodic protection	Environment friendly
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The degree of durability depends on the thickness of the coating and the corrosivity category of the environment in which the products are used. The downside of hot dip galvanizing is the visual effect, i.e. the **coating appearance**. In the case of the hot-dip galvanized coating, there are various thickenings of the coating, icicles, small hard zinc lumps, local coating dimmings due to the influence of hot-galvanizing ashes, uneven colour or local under-galvanization. The quantity and size of the surface are strictly defined by the **PN-EN ISO 1461 standard**.

Coating thickenings	White rust	Hard zinc lumps	Local coating dimming	Uneven colour	Local under-galvanization

The above-mentioned defects, apart from uneven colour and local dimmings, are removed. Some of the defects are removed mechanically, and under-galvanization and damage to the coating are repaired by applying paint or paste with a high content of zinc in its composition.

During operation, as a result of „aging“ of the zinc, the coating colour changes from lighter to darker, while the shades become uniform. It is a **passivation** process. In the case of zinc, the passivation layer is naturally produced shortly after the galvanizing process completion, it takes several weeks to obtain the appropriate thickness and protect the coating from the influence of the atmosphere. The passivation process can be accomplished artificially by bathing the galvanized product in a chemical preparation solution. The zinc coating with artificial passivation is resistant to weather conditions in a much shorter time and to a greater extent than the coating without passivation.

Fresh, newly produced, non-passivated zinc coating is vulnerable to unfavourable weather conditions, in particular high humidity and temperature fluctuations which cause moisture condensation on the galvanized surface of the product. The product of this interaction is **white rust**. The name comes from the white colour of corrosion products formed on the surface of the zinc, creating an easy-to-remove coating. The **PN-EN ISO 1641 standard** does not qualify white rust as a defect and does not constitute a basis for complaint, as long as the coating thickness is above the specified minimum value.

It is important to protect galvanized products in the initial period, regardless of passivation:

Do not store galvanized steel parts in moist grass, puddles or mud	Place the galvanized steel elements on dry spacers with a distance of approx. 150 mm from the ground	Avoid making cardboard packagings damp or wet, which will trap moisture inside the packagings	Do not use tarpaulins or foil (because the formation of water vapour increases the humidity level)
Store elements with a gentle slope to allow water to drain	Avoid contact of freshly galvanized surface with salt solutions	Avoid contact of the various galvanized elements on their entire surface	In case of getting wet or damp, remove the packaging and dry the products

The **advantage of the zinc coating** is that in the case of damage in the form of scratches, local cracks or a loss in the zinc coating (depletion), the surface of the product is still protected and does not corrode. This is called **cathodic protection**.