

HDG DATASHEET: 13

Renovation of Hot Dip Galvanized Steel

The galvanized coating applied by immersion in a bath containing molten zinc not only provides a high level of corrosion protection but is also very robust, such that it will normally withstand handling and erection. However, the coating may occasionally be subject to small areas of mechanical damage typically as chips at edges or corners when mishandled. In such instances it is necessary to repair the galvanized coating.

Repair to Galvanizing

Where an article is subject to sufficient impact to damage, the galvanized coating repair may be conducted in line with the requirements of BS EN ISO 1461: 2009 which are summarised below:

- Area up to about 10 cm² (e.g. 2 cm x 5 cm) may be repaired
- Larger areas may be repaired by agreement within the supply chain otherwise the article should be regalvanized
- If more than one area requires repair on an article the total area for repair should not exceed 0.5% of the article's total surface area
- Repair techniques include the application of a good quality zinc-rich paint or paste, use of a low melting point zinc stick or zinc thermal spraying
- After cleaning, sufficient repair product should be applied to achieve a minimum coating thickness of 100 µm

In practice, most repairs are conducted using a zinc-rich paint or paste which might be brush or aerosol applied. Ideally the product used should contain at least 90% zinc by weight, the key being to follow the manufacturer's instructions and ensure sufficient coatings are applied to achieve the 100 µm repair coating thickness requirement.

Low melting point zinc sticks are used infrequently and tend to be limited to application on horizontal surfaces as difficulty is found in achieving the required coating thickness on vertical surfaces. Although zinc thermal spraying provides the best repair, its use is very limited as it requires specialist equipment, so it is typically only used if there are very large areas of mechanical damage well in excess of 10 cm².

A typical repair procedure involves cleaning of the affected area followed by application of a suitable zinc-rich paint or paste as summarised below. This procedure is for renovation of uncoated or damaged areas under controlled conditions to comply with BS EN ISO 1461 : 2009.

Points to Consider

- Individual uncoated areas may be up to 10 cm² (2 cm x 5 cm) but the sum of all uncoated areas must not exceed 0.5% of the total surface area
- Renovation coating thickness shall be:
On work that is to be subsequently over-coated with a paint system, the renovated coating may be built-up until it is level with the surrounding galvanized coating, by agreement within the supply chain
On all other work, the renovated coating shall have a thickness of at least 100 µm

- Observe all Health and Safety instructions as supplied with renovation material (see manufacturer's instructions)

Renovation Material

- Base coat(s) - A zinc-rich paint or paste
- Over coat - A zinc-aluminium paint (as appropriate)

Procedure

- If there are signs of the galvanized coating flaking around an uncoated area then it should be feathered back to a sound surface
- All areas for renovation should be thoroughly cleaned to remove rust/scale, dirt/contaminants and soluble zinc salts
- Agitate and mix the paint by shaking of the aerosol can or paint tin
- For an aerosol-applied product, spray the uncoated area from approximately 25-30 cm in short bursts to produce the required coating. Over-spray may occur but this should be minimised. Non-aerosol applied products may be brush applied
- Build-up the renovated coating to the required thickness by applying a series of base coats (with a final finish coat if required) allowing sufficient time between application of base coats for drying (see manufacturer's instructions).

