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INDUSTRIAL
GALVANIZERS
CORPORATION

Tech Tips

Galvanized coatings are NOT all the same.

WHY GALVANIZE?

Hot dip galvanized coatings are applied to steel to improve the anti-corrosion performance of the steel to ensure that it lasts as long as possible with a minimum of maintenance

COATINGS DIFFER

Only hot-dip galvanizing gives a coating that can reach the 50 year life of structural building products.

THICKNESS COUNTS

Compared to other zinc-rich coatings, hot-dipped galvanizing is:-

- THICKER
- HARDER
- FULLER

HOT-DIP GALVANIZED PRODUCTS LAST LONGER...

Hot-dip galvanized pipes. The thicker coating of hot-dip galvanized products provides added

There are many types of coatings that are specified as hot-dip galvanized. The process involves immersing steel in molten zinc. The zinc reacts with the steel to form the galvanized coatings. The time the steel is immersed in the zinc—along with post-galvanizing treatment—controls the coating thickness, appearance and other characteristics.

Hot dip galvanized coatings are applied to steel to improve the anti-corrosion performance of the steel to ensure that it lasts as long as possible with a minimum of maintenance.

Standards currently being developed for the housing industry have set a benchmark of at least 50 years as the acceptable life of structural building products. Only hot dip galvanized steel products with the heaviest galvanized coatings are capable of meeting this requirement.

The Australian Standard AS 4680 :2006 - Hot Dipped Galvanized Coatings on Ferrous Articles, includes galvanized coating standards on sheet, wire, tube and general articles. A great deal of confusion exists through the inclusion of galvanized coatings with significantly different coating characteristics within the same Australian Standard.

Coating Thickness Counts ...

All sheet, wire and many tube products are CONTINUOUSLY galvanized. This means that the coating is applied at high speed and the coating thickness is controlled by the process. Immersion time in the zinc is measured in seconds.

Alternatively, in the BATCH hot-dip galvanizing process steel items are immersed for periods ranging from 3-10 minutes, depending on the mass of the items being galvanized.

These completely different methods of applying galvanized coatings produce different types of coatings.

There are four main differences that impact on anti-corrosion performance of BATCH galvanized steel compared to CONTINUOUSLY galvanized steel. These are:

1. Coating **thickness** - BATCH galvanized items of the same section thickness are typically at least 3 TIMES thicker than similar CONTINUOUSLY galvanized coatings on sheet and tube.

2. Coating **hardness** - BATCH galvanized items have much thicker zinc/iron alloy layers in the coatings which gives BATCH galvanized items 5 TIMES the abrasion resistance of CONTINUOUSLY galvanized coatings.

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Galvanized coatings are NOT all the same.

TRIED & PROVEN

150 years of field testing shows that all things being equal, galvanized coating life is proportionate to galvanized coating thickness.

CUT EDGE PROTECTION

The thicker coating of hot-dip galvanized products provides added protection for exposed cut edges.

WHY GALVANIZE WITH INDUSTRIAL GALVANIZERS?

For steel users requiring fast, proven corrosion protection for local or national projects Industrial Galvanizers is the established hot dip galvanizer with nationwide coverage.

Coating Thickness Counts ...

3. Coating **integrity** - BATCH galvanized coatings apply a uniform heavy coating to all internal and external surfaces, edges and cavities. CONTINUOUSLY galvanized coating will always have exposed bare steel at cut edges. CONTINUOUSLY galvanized hollow sections are fully galvanized on the external surfaces only.
4. Coating mass - The cathodic protection of exposed steel by zinc depends of the mass of the zinc in relation to the area of exposed steel. Because of the drainage characteristics of BATCH galvanized coatings, the coating mass on BATCH galvanized products is significantly higher (typically 3-5 times) in proportion to thickness than CONTINUOUSLY galvanized coatings. Hot rolled medium structural sections commonly achieve coating mass levels exceeding 1000 g/m2. More Coating Thickness = Longer Coating Life.

150 years of field testing has determined that all things being equal, galvanized coating life is proportionate to galvanized coating thickness. When comparing BATCH galvanized coatings to CONTINUOUSLY galvanized coating, all things are not equal.

The Cut Edge Factor

All CONTINUOUSLY galvanized sections have exposed steel at cut edges and rely on the adjacent zinc in the coating to provide cathodic protection to the bare steel. This requirement accelerates the rate of corrosion of the galvanized coating at cut edges.

The thicker the CONTINUOUSLY galvanized section, the faster the rate of coating corrosion at cut edges because of the greater area of bare steel exposed. Even if it was possible to apply a CONTINUOUSLY galvanized coating to a steel item to the same thickness as a BATCH galvanized item, the cut edge factor gives the BATCH galvanized coating a life typically 1.5 TIMES greater.

Comparison of Galvanized Coatings CONTINUOUSLY galvanized coatings comply very closely to their specified coating mass. BATCH galvanized coatings on hot rolled steel sections almost always exceed their minimum specified coating mass.

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