

Double Dip

The new galvanising process with outstanding long-term protection



Double Dip

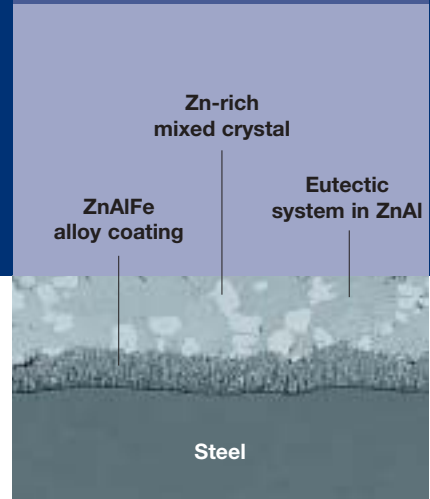
Innovative coating process for OBO cable support systems offers many advantages

Steel is a material which is more indispensable than ever in modern cable supports. Its outstanding use and processing properties and the exceptional value for money make steel an irreplaceable construction material in almost every area.

Surface of a Double Dip coating



Layer structure of Double Dip



Development of galvanising

Modern steel materials are constantly being further developed, with particular attention to corrosion protection. Hot dip galvanising has proved an excellent method since 1860. Since 1959 strip galvanised sheet has been produced continuously in Germany. Zinc-aluminium alloys have been used since the early 1980s, while in 1998 OBO supplied the first components for cable support systems made from Galfan.

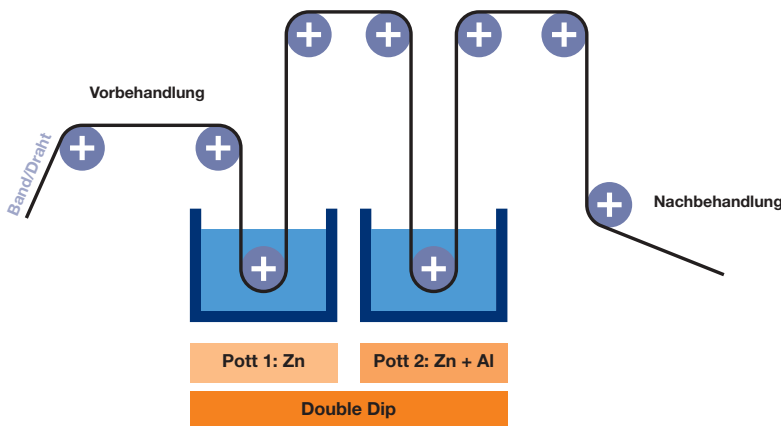
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Development and process

A further development of this coating process was achieved two years ago by a subsidiary of the Thyssen Krupp Group. By contrast with the previous coating systems, in this "Double Dip" process the strip to be galvanised passes through two zinc baths in succession with different contents. The first bath contains pure zinc, the second a zinc-aluminium alloy.

Layer structure

With this innovative process ZnAl coatings of 70 µ per side or 1,000 g/m² on both sides are achieved, with at the same time excellent plasticity and high adhesion of the coating. The coating produced in this way is made up from a eutectic zinc-aluminium structure and a zinc-aluminium-iron alloy coat.



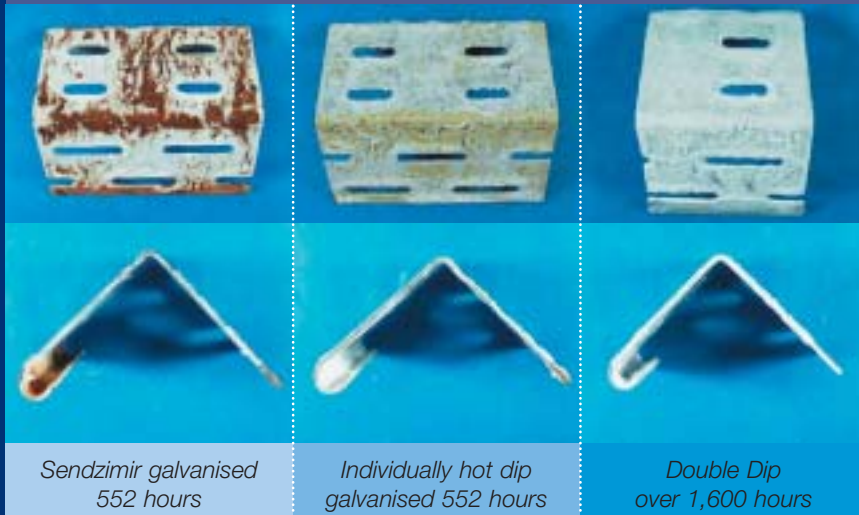
Ball impact test



The main advantages:

- ▶ Ease of installation – no material distortion.
- ▶ No risk of injury to the fitters and no more cable damage from burrs and zinc projections.
- ▶ No after-treatment needed on site.
- ▶ Greater corrosion protection – longer service life for the same price.
- ▶ Very good adhesion of the zinc coating – no flaking under impact stress.
- ▶ Lead-free zinc coating.

Salt-spray-mist test



Sendzimir galvanised
552 hours

Individually hot dip
galvanised 552 hours

Double Dip
over 1,600 hours

Double Dip in tests

Tests on sample components of cable support systems in the Dortmund Surface Coating Centre and internally in the BET Institute confirm the outstanding corrosion protection properties as compared with conventional zinc coatings.

After 552 hours in a salt spray mist the sendzimir and also the hot dip galvanised samples showed clear signs of corrosion, while no red rust formation could be detected even after over 1,600 hours in the Double Dip samples in spite of bare cut edges. Outdoor weather tests with Double Dip protected components

confirmed these outstanding results. The wear rates for Double Dip wires have already been extrapolated to 15 years. They were lower by a ratio of 1:5 than for thick galvanised (330 g/m^2) surfaces.

Standards

Zinc-aluminium alloys have been in use for over 20 years. The Double Dip process for sheet metal is still so new that it has not yet been described in standards. The standard EN 10244-2 (2:2001) contains requirements for wire coatings in ZnAl. All standards for hot dip galvanised steel strips are being revised at an international level. A new com-

bined standard will be produced from the three existing ones. It will also contain higher zinc-aluminium coat thicknesses, as are already offered by the Double Dip process. The DIN ISO 12944 series contains in six parts topics on the coating systems for steel structures and can also be applied to cable support systems. It records different types of surfaces, environmental conditions, service life, structural features and laboratory tests.

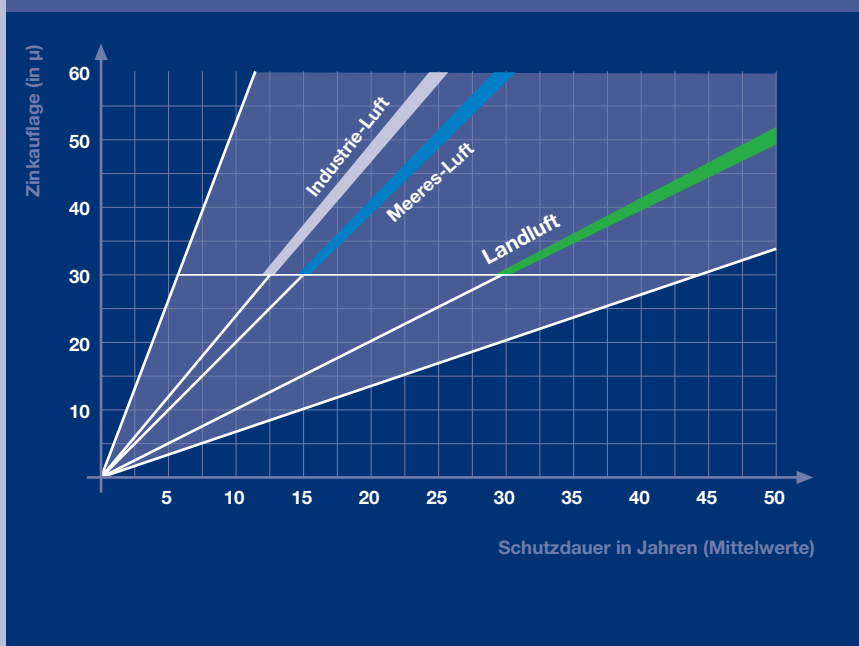
Corrosion class

In respect of the features described in this series of standards, Double Dip can be classified in the highest corrosion class. In the still valid product standard DIN VDE 0639 a corrosion protection classification is described, while a revised classification will follow in the newly published IEC/EN 61537 (9:2001).







Wherever extreme corrosion protection is needed, cable support systems with Double Dip coatings are an economical and ecologically convincing solution.

OBO Bettermann will gradually provide part of its cable support system product group and the associated fixing materials with Double Dip galvanising.

Protection duration of Double Dip



OBO's networked systems.

<p>VBS Connection and fastening systems</p>		<p>Connection systems Fastening systems Beam clamp systems Rail systems Screw-in and knock-in systems</p>
<p>TBS Transient voltage and lightning protection systems</p>		<p>Surge protection systems Equipotential bonding systems Earthing systems Lightning protection systems</p>
<p>KTS Cable support systems</p>		<p>Mounting systems Cable tray systems Mesh cable tray systems Cable ladder systems Vertical ladder systems Modular systems Luminaire support systems Distribution boxes Stainless steel components</p>
<p>BSS Fire protection systems</p>		<p>Cable insulation Function maintenance Fire protection ducts</p>
<p>LFS Cable routing systems</p>		<p>Installation duct systems Skirting duct systems IBIS Integral Media columns</p>
<p>UFS Underfloor systems</p>		<p>Underfloor installation systems ISO A duct system Cavity and false floor systems</p>