

ZINGA RELOADING AND ZINGA ON (OLD) HDG

Information given in this document is to complement the technical specifications given in the technical data sheet of ZINGA.

SURFACE PREPARATION

GENERAL

When applying ZINGA on a Zinc surface (HDG, metallisation or ZINGA), it has to come in contact with pure metallic Zinc to ensure a good electrochemical connection and hence a cathodic protection of the substrate. If a Zinc substrate is exposed to the environment, it will form Zinc salts (zinc oxides, zinc carbonates and others) which form a barrier.

This zinc salt barrier has to be removed before applying ZINGA in order to obtain a perfect electrical continuity.

Additional to this, the surface has to be **rough and clean to obtain maximum bond strength.**

It is very important to keep the following working order in mind:

1. Eliminating all dirt, grease, oil and salts
2. Total removal of all old paint and rust
3. Roughening (not necessary for Zinganised surfaces)
4. De-dusting

ZINGA RELOADING

NEVER APPLY NEW ZINGA ON AN OLD ZINGANISED SURFACE THAT SHOWS FAILURE (CRACKS, DELAMINATION, PINHOLES, CRATERS, BLISTERING, ...) DUE TO BAD SURFACE PREPARATION/ APPLICATION (SALT CONTAMINATION, INADEQUATE ROUGHNESS, HEAVY BRUSH MARKS, ...). IN THIS CASE, THE ZINGA LAYER SHOULD BE COMPLETELY REMOVED.

The surface should **first be cleaned** to remove dirt, oils or greases by **steam cleaning** at 140 bar at 80°C. If steam cleaning is not an option, all surfaces must be cleaned by water-blasting at a min pressure of 150 bars.

Old weathered ZINGA has a layer of Zinc salts which form a passive barrier on ZINGA. These should be removed by one of these methods:

- **Sweep blasting:** sweep-blasting the surface with angular non-metallic grit. This standard of blasting will remove approximately 10 to 15 µm of zinc as well as all the surface contaminants. It will also provide an acceptable profile for the ZINGA to bond with. If the blast angle exceeds 45°, the blast profile will be too deep. The nozzle size must be a minimum of 10 mm. Regulate the blast-nozzle pressure at 3 bar. A test section should be done to measure the zinc thickness before and after the blast. Once the sweep-blasting is completed the surface should be de-dusted with non contaminated compressed air according to the standard ISO 8502-3 (class 2).
- **Sponge blasting:** the pliant nature of Sponge Media abrasives allow its particles to flatten on impact, exposing the abrasive. After leaving the surface, the media expands, creating a vacuum – entrapping most of what would normally have become airborne contaminant. Up to 95% of the abrasives is recyclable.
- **Bristle blasting:** mechanical abrasion cleaning process that is performed on metallic surfaces by a brush-like rotary power tool. A bristle blaster tool is the only power tool which can obtain proper SA 2.5 cleaning, suitable for application of ZINGA (or any high performance coating). **Recommended for use of small applications and touch up.**
- Steel brush (less optimal - not advised).

Ensure the **surfaces are completely free of surface contamination**, including chloride ion levels not exceeding 50 mg/m² (when tested accordance with ISO 8502).

To **test** if all Zinc salts are removed: rub a clean test area with a clean, white, lint-free cloth dipped in Zingasolv. If the white cloth shows some grey colour, the surface is ready to coat. If the cloth remains white, the surface must be given more preparation by the chosen option.

ZINGA ON NEW HDG OR NEW METALLISATION

The newly hot-dipped or metallised substrate should **first be degreased**, preferably by steam cleaning at 140 bar at 80°C or by **solvent cleaning** (Zingasolv).

Normally a newly metallised surface is rough enough for the application of a ZINGA layer but **newly hot-dipped galvanised substrates have to be roughened** (30-70 µm) in order to obtain a good adhesion.

There are different options (see ZINGA reloading):

- **Sweep blasting**
- **Sponge blasting**
- **Bristle blasting (smaller applications or touch up)**
- Steel brush (less optimal - not advised)

Once completed the surface should be de-dusted as described.

After the surface preparation the total surface must be completely coated with ZINGA up to the required DFT.

ZINGA ON OLD HDG

See ZINGA on new HDG.

HP water-jetting or steam cleaning is necessary to remove dirt, grease, oil, salts, paint and rust. The rust can also be removed manually with a rotating abrasive disk or a chipping hammer (less optimal).

If the structure to be treated shows over 5% of rust, then this means that the cathodic protection of the steel is for over 50% used and local touch-ups will not be sufficient.

A surface preparation using blasting techniques is preferred. Follow the general guidelines to obtain cleanliness and roughness.

After the surface preparation the total surface must be completely coated with ZINGA up to the required DFT.

APPLICATION

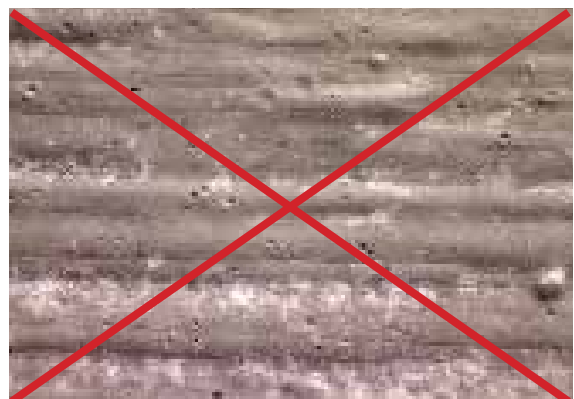
The application of ZINGA on (old) hot-dipped or Zinganised surfaces is possible with brush, roller, conventional or airless spray.

It is to be noted that **the first layer of ZINGA should never be applied by roller**. The roller application doesn't allow the ZINGA to penetrate sufficiently into the roughness profile of the steel.

For the same reason, the first layer of ZINGA should be diluted a little more than indicated on the Technical Data Sheet.

For brush application, it is advised to **dilute the first layer of ZINGA 5 to 10% with Zingasolv** to allow a brush smooth finish and a good penetration into the roughness.

Heavy brush marks (insufficient dilution and strong handling) which leave some parts of the structure too heavily coated (creation of pinholes and craters) and others not enough (insufficient protection - spot rusting), **should be avoided at all costs**.



STRIPE COAT

It is recommended to apply a stripe-coat of ZINGA by brush **on all sharp edges, nuts and bolts and weld areas** before the application of the first full layer of ZINGA to ensure that all these areas have a similar DFT to that of any adjacent surface. Please note that on new steel the **sharp edges may need to be rounded off to a minimum radius of 4 mm** prior to the gritblasting and the application of a stripe-coat. After the stripe-coat has dried completely, the first full coat can be applied to all surfaces.

SYSTEM RECOMMENDATIONS

A ZINGA unique system offers good cathodic protection, is easy in application and can be reloaded. Therefore it is the preferential system for pylon protection.

In a ZINGA unique system, ZINGA is applied **in two layers**. The second layer is applied after a **minimum drying and curing period of 2 hours after touch dry** of the first layer. The application of the second layer should be done within a reasonable timeframe after the first layer, preventing the formation of Zinc salts between the first and second layer of ZINGA.

Therefore, if the conditions for Zinc formation are favourable (humid, warm, salty, ...), the application of the second layer should be within 24 hours of the first layer.

ZINGA is used as a stand-alone system, applied in **2 layers of 60 or 90 µm DFT**. Care should be taken that the individual layer thickness are not below 80% of the specified DFT and not above 120 µm DFT for 1 layer.

Both systems are recommended for corrosive environments and tested according ISO 12944:

- ZINGA 2 x 60 µm DFT
 - » **ISO 12944-6**: C4-High, C5M/I-Medium
 - » **NORSOK M-501** syst. 7, syst. 1
- ZINGA 2 x 90 µm DFT
 - » **ISO 12944-6**: C5M/I-High

With (ISO 12944):

- C5I: industrial zones with high humidity and aggressive environment (continuous condensation and high pollution)
- C5M: Coastal zones and marine zones with high salinity (continuous condensation and high pollution)
- C4: industrial or coastal (with moderate salinity) zones (chemical factories, swimming pools, shipyards)
- Medium: life expectation between 5 and 15 years
- High: life expectation >15 years

It is therefore necessary to choose the system **according to the environment specifications and the lifetime expectancy**.