

# Datasheet – zinc/nickel



Zinc/nickel is a surface treatment process where steel items are given a 5-15 µm zinc alloy surface coating. The coating protects against corrosion and provides a high level of corrosion protection, in combination with passivation and perhaps a sealer.

## Specification

Midtjysk Fornikling (MFF) specifies Zn/Ni in accordance with the *DS/EN ISO 19598* standard. As an example, the Zn/Ni coating on a steel item with a minimum layer thickness of 8 µm, silver passivation without sealer, is marked as follows: *DS/EN ISO 19598 – Fe//ZnNi8//Cn//T0*

Table 1 lists the Zn/Ni specifications, where X is the desired minimum thickness. Table 1 also lists the ISO minimum requirements to protection against the formation of white and red rust in a salt spray test.

**Table 1** – List of passivation types offered by MFF and the salt spray test minimum requirements

Colour	Specification	Designation	Type	Minimum test hours			
				White rust	Red rust		
					5 µm	8 µm	12 µm
ISO standard DS/EN ISO 19598:2016							
Silver	Fe//ZnNiX//Cn/T0	Zinc/nickel passivation w/o sealer	Hanging	192	600	720	720*
	Fe//ZnNiX//Cn/T2	Zinc/nickel passivation w/ sealer	Hanging	360	720	720*	720*

\* Duration has been limited to 720 hours in order to limit the cost of the salt spray test.

## Corrosion protection

Due to recurrent impact from water and humidity, surface coatings will change appearance with time. This change is caused by disintegration of the passivation layer with the effect that the Zn/Ni coating is exposed to corrosion. This is seen as white rust where the surface takes on a grey colour, in some cases with some white stains. Red rust develops in the same manner when the Zn/Ni coating disintegrates and the iron surface below is exposed to corrosion.

The required layer thickness or the required protection against white and red rust formation in corrosion testing must be observed at the significant surface of the item. If not otherwise agreed, this is made up by the part of the item which can be touched by a Ø20mm ball. This requirement concerns only the exposed surface of the items. This means that the requirement does not apply to internal surfaces in piping or internal cavities which are electrically shielded during plating and hence not plated with Zn/Ni.

MFF performs the salt spray test in accordance with *DS/EN ISO 9227* and tests the various coatings on a regular basis. For items coated by MFF, the lifetime is typically considerably longer than required by the standard.

For further information, please contact our technical department.



**Table 2 – Zn/Ni coating properties**

<b>Typical composition</b>	12 – 16% Ni / 84 – 88% Zn
<b>Typical layer thickness</b>	5 – 15 $\mu$ m
<b>Hardness</b>	HV 390 – 550
<b>Fusing point</b>	750 – 800°C
<b>Heat stability</b>	Excellent
<b>Suitability for welding</b>	Good
<b>Suitability for subsequent painting</b>	Good

MFF offers to provide items in the sizes listed in Table 3 with Zn/Ni coatings.

**Table 3 – Maximum dimensions**

	<b>Facility no.</b>	<b>Max. item size</b>	<b>Max. weight</b>
<b>Hanging</b>	25	3000 x 1500 x 750 mm	750 kg

To arrange a non-binding visit by consultants please contact Midtjydske Fornikling or call us for further information.