GUARANTEE CONDITIONS FOR CORROSION PROTECTION

for hot-dip galvanized/painted steel structures

FAM Sp. z o.o. provides a guarantee for the anti-corrosive protection service for the period of 2 years in the scope of:

1. Hot dip galvanizing according to EN ISO 1461
2. Powder coating in accordance with EN 13438 only when using the two-coat system (with zinc powder primer).
3. A duplex system manufactured in accordance with the above-mentioned standards for galvanization and painting

The use of a single-layer powder coating on non-hot-dip galvanized steel may have insufficient corrosion resistance for possible mechanical damage to the coating may lead to rapid peeling of the coating from the substrate.

So-called white corrosion (white-grey spots caused by weathering) does not constitute grounds for a complaint about the zinc coating.

The durability of the coating depends on the degree of aggressiveness of the environment in which the aforementioned structures will be stored, assembled and operated according to the principles set out in the table below:

Table No. 1. Type of atmosphere and corrosivity categories according to **EN ISO 14713-1**

No.	Type of atmosphere	Description of type of atmosphere		Corrosivity category	Annual Coating Loss [µm]
		Outside	Inside		
1	Minor corrosion load	Dry or cold zone, atmospheric environment with very low pollution and wet time e.g. some deserts, central Arctic / Antarctic	Heated rooms with low relative humidity and low pollution, e.g. offices, schools, museums	C1	≤ 0.1
2	Small corrosion load	Moderate zone, atmospheric environment with low pollution (SO2 <5 µg / m^3), e.g. rural areas, small towns. Dry or cold zone, atmospheric environment with short periods of moisture, e.g. deserts, subarctic areas	Unheated spaces with variable temperature and relative humidity. Low frequency of condensation and low pollution, e.g. warehouse, sports halls	C2	0.1 - 0.7
3	Medium corrosion load	Moderate zone, atmospheric environment with average pollution (SO2: 5 µg / m3 to 30 µg / m^3) or some chloride impact, e.g. urban areas, coastal areas with low chloride deposition. Subtropical and tropical zones with low pollution atmospheres.	Areas with moderate frequency of condensation and moderate contamination from production processes, e.g. food plants, laundries, breweries, dairies	C3	0.7 -2.1
4	Large corrosion load	Temperate zone, atmospheric environment with high pollution (SO2: 30 µg / m3 to 90 µg / m^3) or high chloride impact, e.g. polluted urban areas, industrial areas, coastal areas without salt water spray, exposure to strong de-icing salts. Subtropical and tropical zones with medium pollution atmospheres	Areas with high frequency of condensation and high pollution from production processes, e.g. industrial processing plants, swimming pools	C4	2.1-4.2

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5	Very large corrosion load	Temperate and subtropical zones, atmospheric environment with very high pollution (SO2: 90 µg / m3 to 250 µg / m^3) and/or significant chloride impact, e.g. industrial areas, coastal areas, sheltered coastal areas	Areas with very high frequency of condensation and/or with high pollution from production processes, e.g. mines, caves for industrial purposes, unventilated sheds in subtropical and tropical zones	C5	4.2 -8.4
6	Extreme corrosion load	Subtropical and tropical zones (very long periods of moisture), atmospheric environment with very high pollution (SO_2) (above 250 µg / m^3), including associated and production factors and/or strong chloride impact, e.g. extreme industrial areas, coastal and marine areas, occasional contact with salt spray	Areas with almost continuous condensation or extensive periods of exposure to extreme humidity and/or with high pollution from the production process, e.g. unventilated sheds in humid tropical areas with penetration of external pollutants including airborne chlorides and corrosion-inducing particulates	CX	8.4 -25

NOTE 1 Chloride deposition in coastal areas is strongly influenced by variables affecting the transport of sea salt inland, such as wind direction, wind speed, local topography, wind-protected islands behind the coast, distance of land from the sea, etc.
NOTE 2 The classification of corrosivity in specific working atmospheres, e.g. in the chemical industry, is outside the scope of the standard.
NOTE 3 Sheltered and unwashed surfaces, in a marine atmospheric environment where chlorides are deposited, may be subject to a higher corrosivity category due to the presence of hygroscopic salts.
NOTE 4 In environments with an expected "CX category" it is recommended to determine the corrosivity classification of the atmosphere based on annual corrosion losses.
NOTE 5 The concentration of sulfur dioxide (SO_2) should be determined for at least 1 year and expressed as an annual average.
NOTE 6 The classification criterion is based on methods for determining the corrosion rate of standard samples for corrosion assessment (see ISO 9226).
NOTE 7 Corrosion rates exceeding the upper limits in category C5 are considered extreme. The CX corrosivity category applies to specific marine and offshore/industrial environments.
NOTE 8 To a first approximation, corrosion of all zinc metal surfaces occurs at the same rate in a given environment. Iron and steel typically corrode 10 to 40 times faster than zinc, with higher ratios typically found in high chloride environments.
NOTE 9 Changes in atmospheric environments occur over time. In many regions, concentrations of pollutants (especially SO_2) in the atmosphere have decreased over time. This has led to a reduction in the corrosivity category in these regions. This in turn has led to a reduction in the corrosion rate of zinc coatings compared to historical corrosion performance data. Other regions have experienced increases in pollution and industrial activity and are therefore expected to develop environments more accurately described by higher corrosivity categories.
NOTE 10 The corrosion rate for zinc and for zinc-iron alloy layers is approximately the same.

The guarantee shall be granted subject to the following conditions:

a) Storage, assembly and operation of the constructions will take place in an environment with the corrosive aggressiveness category specified in Table 1 for the relevant guarantee period.
b) The Ordering Party shall permanently mark the elements in a visible place after installation of the structure according to the following code: year of delivery, month of delivery e.g. 15/10 which means year 2015/October
c) If the requirements of item (b) is not fulfilled, the guarantee shall not be granted/validated.
d) The guarantee period starts from the date of acceptance of the elements.
e) Before accepting the order, the customer shall determine the corrosive aggressiveness category of the atmosphere in accordance with **EN ISO 14713-1.**
f) Construction elements during the storage period will be stored on sleepers in a way that prevents contact with the ground, accumulation of precipitation and mechanical dirt on them.
g) During operation, paintwork should be cleaned by the Ordering Party with water without chemical additives at least once every six months. This will prevent the formation of a chemically and biologically active layer on the surface of the protective system accelerating the corrosion process. Cleaning during the guarantee period must be confirmed by means of a protocol. Failure to comply with this condition will result in the loss of the guarantee.
h) When painting spatial constructions, for products not exceeding 0.6 m in width.

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i) The Customer will, after 12 months of receipt of the order, not later than within 21 days, order a coating condition review service from FAM against payment.

The guarantee becomes invalid in the following cases:

1. The cases of specific corrosive exposures as defined in **EN ISO 14713-1** (in these cases the warranty periods are to be agreed individually in writing).
2. Failure on the part of the Ordering Party to report defects as soon as they are discovered, but not later than within 7 days.
3. Mechanical damage of anticorrosive coating resulting from handling, transport and assembly outside the premises of FAM.
4. Mechanical and thermal damage to the anti-corrosion coating caused by cutting, welding, reaming of holes and any modifications to the structure after the coating has been applied resulting in damage to the coating.
5. Mechanical, thermal and chemical damage during operation.
6. Damage caused by random events.
7. Structural changes to components made after applying anticorrosive protection coating.
8. Defects in areas of the coating where the Ordering Party has mechanically interfered, e.g. the Ordering Party's machining at execution standard A.
9. Coating defects due to leakage of process baths from crevices as a result of non-tight welds or non-WTO compliant material design.
10. Defects caused by improper and excessive storage or improper preservation or handling of the Materials or Products respectively
11. Coating defects caused by surface preparation (treatment) after galvanizing outside of FAM.
12. The guarantee does not cover defects in the paint finish applied with the paint provided by the customer.

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