

High Corrosion Protection – HCP

Description by Corrosivity Categories to EN ISO 12944

Any kind of systematic corrosion protection planning would require a thorough analysis of the climatic conditions the construction is exposed to. This has to be done according to the European Norm (EN) “Corrosivity categories for atmospheric environment”. These categories are defined according to EN ISO 12944-2 and reflect six different groups of atmospheric environmental conditions, ranging from “insignificant” up to “very high”.

The norm recommends using these categories and it’s examples in order to establish the corrosivity at a certain location, the table below illustrates this. There are always additional factors impacting corrosivity, i.e. mechanical, thermal, chemical, micro-climatic and design-related influences. Exemplifying these here however, would be beyond the scope of this brochure.

Corrosivity category	Corrosion-levels	Outdoors	Indoors
C1	Insignificant		Heated buildings with neutral environment, e. g. offices, shops, schools, hotels.
C2	Low	Atmosphere with low-level pollution. Mostly rural areas.	Unheated buildings where condensation could occur, e.g. warehouses, sports facilities.
C3	Moderate	Town- and industrial atmosphere, moderate pollution by sulphur dioxide. Coastal areas with low level of atmospherical salt.	Production facilities with high humidity and some environmental pollution, e.g. food plants, laundries, breweries and dairy plants.
C4	High	Industrial areas and costal areas with moderate levels of salt in atmosphere.	Chemical plants, swimming pools, boat sheds above sea level.
C5-I (Industrial)	Very high	Industrial areas with high humidity and aggressive atmosphere.	Buildings or areas with almost permanent condensation or high level of pollution.
C5-M (Sea)	Very high	Coastal and off-shore areas with high level of atmospherical salt.	Buildings or areas with almost permanent condensation or high level of pollution.

Besides the corrosivity categories, which are solely referring to the location of the application, there is also relevance in connection with the required lifetime, when a suitable corrosion protection must be selected. In order to approach this systematically, the duration has been segmented into different intervals.

Term of Protection until first maintenance according to EN ISO 14713-1 (Draft)

VS	very short	up to 2 years
S	short	2 up to 5 years
M	medium	5 up to 10 years
L	long	10 up to 20 years
XL	very long	more than 20 years

We are your competent partner in terms of corrosion protection, contact us now!

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sikla



If the right coating becomes

A Challenge

Corrosion Protection

The surface of steel frames must usually be protected in order to avoid corrosive damage during the required lifetime. Corrosive damage is diagnosed when corrosion in progress jeopardises the functionality of a component or of a structural system.

Unlike façades that have to meet additional aesthetic requirements, support structures are primarily looked at in terms of their unchanged load capacity over the duration of their lifetime.

The status quo in terms of specifications is that the goal of any corrosion protection can only be found in an abstract form, i.e. a general description of surface treatment and protection layer's thickness. It would make far more sense to include the local conditions and the latest development of technical progress.

Sikla HCP Protection Systems

Under the umbrella term “High Corrosion Protection” – HCP we are offering you the most effective corrosion protection. HCP is not a particular method but it stands for the following claim:

The protection's performance equals or outperforms the one of hot-dipped galvanisation.

Contemporary zinc coatings, e.g. lamella-barrier in combination with aluminium and magnesium, enhance the protection through an ideal adaption to products that are made from high-tensile base-materials. Furthermore they are environmentally friendly and lower coating process temperatures continue the innovation process by maintaining the mechanical strength.

Sikla determines the protection method on a product-to-product basis according to the individual requirements. These comprise the protection effect, maintain the products functionality (e.g. smooth-running threads and nuts), market requirements and economic considerations.

Our preference is on state-of-the-art technologies that are environmentally friendly and that guarantee the most efficient and comfortable installation performance.



Cantilever Bracket 41/41 after 1,440 h salt spray test;
Above: zinc-lamella coated
Below: zinc-galvanised



The complete range of standard HCP products can be found on our website.

Sikla HCP Customised – for highest demands

For special applications, e.g. outdoors, in coastal areas or in aggressive atmosphere, there are higher demands than usual in terms of corrosion protection. Sikla can offer you an individually customised anti-corrosion solution for such applications. Furthermore it is even possible to consider aesthetic requests. Feel free to choose from or to combine with different types of coating:

Zinc-lamella Coating (High-performance Protection)

Zinc and aluminium lamellas are applied by dip-spin process and are finally burned-in.

Advantages

- Cathodic protection by ‘sacrifice anode’ of zinc
- Seal effect against oxygen and electrolyte by overlapping zinc and aluminium flakes
- Resistant against organic solvents
- No hydrogen embrittlement
- Thin layers preserve the functionality of small parts, e.g. Self-forming Screw FLS
- Free of Chrome VI and heavy metals

CDP Coating (Cathodic Dip Painting)

The material is dipped in electrically conductive paint. A direct current field is applied between the material and a counter electrode. A closed paint film with excellent adhesive properties is created by the process.

Advantages

- Outright and even coating even in cavities, at corners and edges
- Scratch, impact and hydrochloric acid resistant
- Clean-exhaust painting process
- CDP coated surfaces have ideal characteristics for follow-on layers like powder coating

Powder Coating

The paint powder is sprayed to the metal part using an electrostatic gun. The object is then heated to 180 °C and the powder melts into a uniform film. It is finally cooled to form a hard coating that has a high bonding and durability performance.

Advantages

- Scratch and impact resistant
- Resistant against chemicals
- Weatherproof
- Free of solvents, environmentally friendly
- Great variety of colours, variable shininess



The Framo section is a product that offers customised-layer coating possibilities.



For our modular box-section system Framo 80 with customised multi-layer coating, we received a proof certificate confirming compliance with environment category/corrosion risk C5-I (very high), based on a salt spray test duration of 1,500 h.

Therefore the protection system is suitable for the following environmental conditions according to EN ISO 12944 II:

- Outdoor air: very humid industrial atmosphere
- Buildings or areas with permanently present condensation and pollution