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VIKØrsta



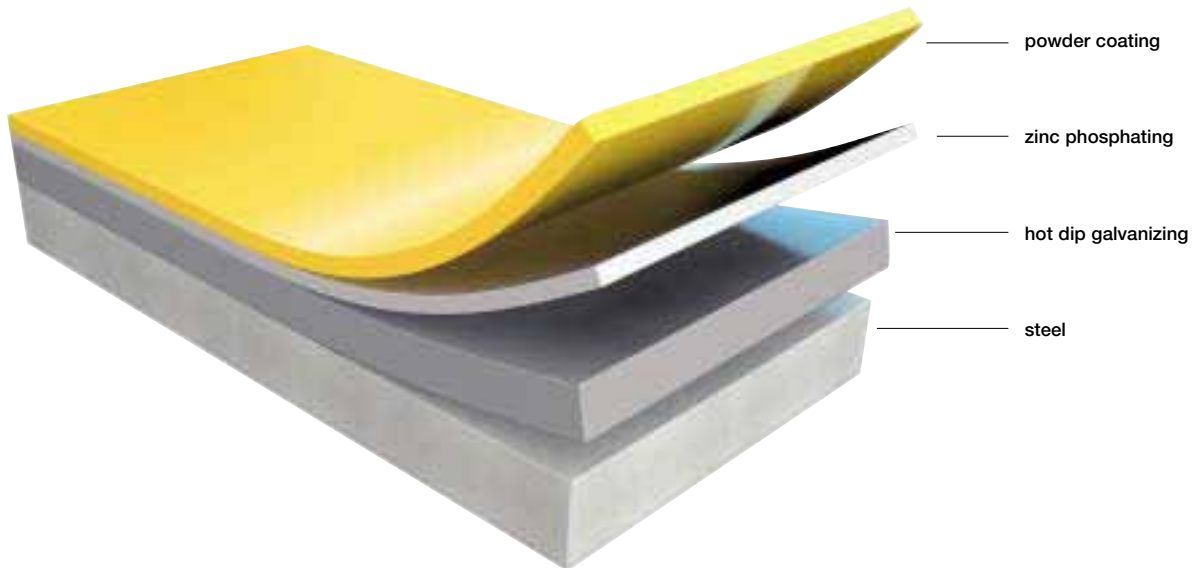
Combi Coat®

P r o t e c t s . C o n s e r v e s . B e a u t i f i e s .

www.vikorsta.no

a **SAFEROAD** company

What is Combi Coat® ?



Combi Coat® combines the two protective methods of surface treatment, hot-dip galvanizing and powder coating, by which the powder is hardened onto the surface. The result is a coating that does not peel. The processes guarantee the product a long working life, also in extreme corrosive environments. The finished product lasts and retains a perfect finish year after year.

**Combi Coat® =
Hot-dip galvanizing
+ zinc phosphating + powder coating**

Hot-dip galvanizing

Hot-dip galvanizing has been used since 1743 as corrosion protection, and the basic principles are the same today as they were then. In most cases hot-dip galvanizing is the best and cheapest method of protecting steel against corrosion. During the process, zinc and iron react together and form an alloy. Hot-dip

galvanizing is normally carried out in accordance with EN ISO 1461, and according to technical terms of delivery issued by the Nordic Galvanizers Association.

Powder coating

Powder coating is a modern industrial process for untreated or galvanized surfaces. Combi Coat® is ideal where the demands for corrosion protection are high, or where a better surface finish and colour are required. Our plant can handle steel constructions with lengths of up to 12 metres and with a weight of up to 1000 kg.

Colour

Since Combi Coat® can be supplied in all available RAL- and NCS-colours in accordance with your wishes, the customer is at liberty to stamp the finished product with his or her own distinctive personal look.

Environment

Coating with zinc is the best method of protecting iron and steel against rust, both for economic and ecological reasons. In a society preoccupied with sustainable development, the metal zinc will always play a key role. Powder coating is the most environmentally-friendly alternative that exists to provide zinc coating with added protection and colouring. The coating powder is entirely free from solvents, requires less energy in the production process and can be applied to the products with less waste than any other coating. Almost 100% of waste spray material can be recycled.



References
Hot-dip galvanizing has been carried out by our company since it was established in 1947. Powder coating as an additional process was established at Vik Ørsta AS in 1987. The following series of photos illustrates typical applications for CombiCoat®.





Working life

Tests carried out in Holland have indicated that the working life of the system can be calculated according to the formula:

$$LT = K(LZn+LM)$$

LT = the duplex system's working life in years

LZn = the zinc coating's working life in years in the environment in question and with hot-dip galvanizing alone

LM = the paint coating's estimated working life if it is applied directly to the steel

K = Environmentally-dependent synergy factor with a value set at:

- 1.5 when the system is exposed in environmental category C4 and C5 or is permanently immersed in salt water.
- 1.6 – 2.0 for exposure to environmental category C3 or when the system is damp less than 60% of the time.

- 2.1 – 2.3 when exposed in environmental category C2.

Corrosion categories

Atmospheric corrosion categories and examples of typical environments (ISO 9223)

Corrosion category	Mass loss per surface unit/reduction in thickness (after one year's exposure)				Examples of typical environments in a temperate climate (merely as information)
	Unalloyed carbon steel		Zinc		
	Mass loss g/m ²	Reduction in thickness µm	Mass loss g/m ²	Reduction in thickness µm	Outdoors
C 1 Very low	≤ 10	≤ 1,3	≤ 0,7	≤ 0,1	
C 2 Low	> 10 to 200	> 1,3 to 25	> 0,7 to 5	> 0,1 to 0,7	Atmosphere with low level of pollution. Mainly land atmosphere.
C3 Medium	> 200 to 400	> 25 to 50	> 5 to 15	> 0,7 to 2,1	Urban and industrial atmosphere. Moderate pollution with sulphur dioxide. Coastal areas with low salt content.
C4 High	> 400 to 650	> 50 to 80	> 15 to 30	> 2,1 to 4,2	Industrial and coastal areas with moderate salt content.
C5 Very high (industry)	> 650 to 1500	> 80 to 200	> 30 to 60	> 4,2 to 8,4	Industrial areas with high relative humidity and aggressive atmosphere.
C5-M Very high (marine)	> 650 to 1500	> 80 to 200	> 30 to 60	> 4,2 to 8,4	Coastal and sea areas with high salt content

Example: The working life of Combi Coat®-treated steel constructions in environmental category C4, where we assume that zinc alone has a working life of 20 years and powder coat alone lasts for 10 years, will then be: $1.5 (20+10) = 45$ years. In other words, the working life is more than doubled compared to zinc alone.

Link to technical approval:
www.vikorsta.no/en/Products/Surface-treatment/CombiCoat/

Link to information on the hot-dip galvanizing process: www.zincinfo.se

Use of paint applied directly to steel

The illustrations show products that would have benefited from Combi Coat® treatment.

Combi Coat® is a method of treatment that is extremely cost-effective, combining a long working life with good aesthetics. The products function and remain maintenance-free year after year.





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