

ISO 12944 CORROSION RESISTANT ENCLOSURES & JUNCTION BOXES



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WE PUT AT YOUR DISPOSAL

We offer over **45 years** providing solutions to demanding customers who require very specific characteristics and behaviour according to the sector and their needs.

WHEREVER YOU GO

We are committed to working closely with our customers, providing them with **exceptional service** and offering an advanced and extensive range of products with very competitive prices.

HIGH STANDARD OF QUALITY AND SERVICES

We only use materials provided by companies who offer the very **highest quality**, suitable and certified products. Our success is due to top quality assurance: ISO 9001, SGS, UL, TÜV, ISO 14000 and Ohsas 18001.

CUSTOMIZE TOTALLY YOUR ENCLOSURE

Our production systems can give custom-made solutions **on demand**. Every colour from RAL chart is available to be personalized. A variety of protection standards thanks to our own painting facilities.

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Please contact our technical sales department

A team of professionals with high experience and ability to solve all your queries



ISO 12944 ENCLOSURES & JUNCTION BOXES

The ISO 12944 standard is intended to assist engineers and corrosion experts in adopting best practice in corrosion protection of structural steel with coatings at new construction of industrial panel enclosures. C1, C2, C3, C4, C5I and C5M enclosures any of the models in our catalogue

The ISO 12944 standard is intended to assist engineers and corrosion experts in adopting best practice in corrosion protection of structural steel with coatings at new construction and repairs. ISO 12944 is progressively superseding regional standards to become a truly global benchmark in corrosion control.

Correct application of the anticorrosion coating system is vital in the performance long-term.

The long-term protection against corrosion depends on many factors:

- The design of the structure, the base material and the coating system
- The support and the environment in which it is placed
- The operating environment and maintenance

The Delvalle system has been subjected to extensive testing enclosures such as water condensation.

We are the manufacturer that can guarantee these certifications for your outdoor boxes and cabinetry installations. We have a highly qualified technical team to answer all your questions about the choice and maintenance of your wardrobe.



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CLASSIFIED ACCORDING CORROSIVITY UNE EN ISO 12944

The standard considers 6 categories of corrosivity for atmospheric environments:

CORROSIVITY CATEGORY		TYPICAL ENVIRONMENTS		MASS LOSS PER UNIT OF SURFACE / LOSS OF THICKNESS			
CATEGORY	DURABILITY	OUTDOOR	INDOOR	LOW CONTENT STEEL IN CARBON		ZINC	
				LOST OF DOUGH G/M ²	LOST OF THICKNESS μM	LOST OF DOUGH G/M ²	LOST OF THICKNESS μM
C1	Low (2 to 5 years)		Heated buildings with clean atmospheres. Ex: offices, schools, shops, hotels	≤10	≤1,3	≤0,7	≤0,1
C2	Low (2 to 5 years)	Atmospheres with low level of pollution. Mostly rural areas	Unheated buildings where condensation may occur. Ex: depots, warehouses, sports halls	>10 to 200	>1,3 to 25	>0,7 to 5	>0,1 to 0,7
C3M	Medium (5 to 15 years)	Urban and industrial atmospheres, moderate sulfur dioxide pollution. Coastal areas with low salinity	Production rooms with high humidity and some air pollution (food processing plants, laundries, breweries, dairies)	>200 to 400	>25 to 50	>5 to 15	>0,7 to 2,1
C3H	High (more than 15 years)			>400 to 650	>50 to 80	>15 to 30	>2,1 to 4,2
C4M	Medium (5 to 15 years)	Industrial areas and coastal areas with moderate salinity	Chemical plants, swimming pools, coastal shipyards	>650 to 1.500	>80 to 200	>30 to 60	>4,2 to 8,4
C4H	High (more than 15 years)			>650 to 1.500	>80 to 200	>30 to 60	>4,2 to 8,4
C5IM (industrial)	Medium (5 to 15 years)	Buildings or areas with almost permanent condensation and high pollution. Industrial areas with high humidity and aggressive atmosphere	Industrial areas with high humidity and aggressive atmospheres	>650 y hasta 1.500	>80 y hasta 200	>30 y hasta 60	>4,2 y hasta 8,4
C5IH (industrial)	High (more than 15 years)						
C5MM (marine)	Medium (5 to 15 years)	Buildings or areas with almost permanent condensation and high pollution. Coastal and offshore areas with high salinity	Marine, offshore, estuaries, coastal areas with high salinity	>650 y hasta 1.500	>80 y hasta 200	>30 y hasta 60	>4,2 y hasta 8,4
C5MH (marine)	High (more than 15 years)						

Also 3 categories for structures for environments in water or buried in the ground:

CATEGORY	ENVIRONMENT	EXAMPLES OF ENVIRONMENTS AND STRUCTURES
IM1	Sweet water	Riparian facilities, hydroelectric plants
IM2	Seawater or brackish water	Port areas with structure such as containment doors, locks, docks, overseas structures
IM3	Floor	Buried tanks, steel piles, steel pipes

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DURABILITY

Remember, when selecting the most cost effective system for your project, durability does not equate to a guarantee time. Durability relates to the performance duration of the coating system before first major maintenance. Regular minor maintenance should always be anticipated in order to achieve the required life to first major maintenance.

After exposure, the coating is evaluated reflecting in a life expectancy of:

- Low (L) life expectancy less than 5 years
- Medium (M) life expectancy between 5 and 15 years
- High (H) life expectancy more than 15 years

SURFACE PREPARATION

The standard defines the degrees of preparation of the surface, but not the condition of the substrate prior to preparation:

- Sa: preparation by blasting or shot blasting
- St: cleaning with manual or mechanical tools
- Fl: cleaning with flame
- Be: acid pickling

Standardized surface preparation grades:

GRADE OF PREPARATION	ESSENTIAL FEATURES OF PREPARED SURFACES	COUNTRYSIDE OF APPLICATION
Sa 1	Light blast-cleaning When viewed without magnification, the surface shall be free from visible oil, grease and dirt, and from poorly adhering mill scale, rust, paint coatings and foreign matter*	The preparation of surfaces of: a) uncoated steel surfaces b) coated steel surfaces, if the coatings are removed until the specified degree of preparation is reached
Sa 2	Thorough blast-cleaning When viewed without magnification, the surface shall be free from visible oil, grease and dirt, and from most of the mill scale, rust, paint coatings and foreign matter. Any residual contamination shall be firmly adhering	
Sa 2½	Very thorough blast-cleaning When viewed without magnification, the surface shall be free from visible oil, grease and dirt, and from mill scale, rust, paint coatings and foreign matter. Any remaining traces of contamination shall show only as slight stains in the form of spots or stripes	
Sa 3**	Blast-cleaning to visually clean steel When viewed without magnification, the surface shall be free from visible oil, grease and dirt, and shall be free from mill scale, rust, paint coatings and foreign matter. It shall have a uniform metallic colour	
St 2	Thorough hand and power tool cleaning When viewed without magnification, the surfaces shall be free from visible oil, grease and dirt, and from poorly adhering mill scale, rust, paint coatings and foreign matter*	
St 3	Very thorough hand and power tool cleaning. As for St 2, but the surface shall be treated much more thoroughly to give a metallic sheen arising from the metallic substrate	
Fl	Rolling scale, rust, paint coatings and foreign matter are eliminated. Any remaining residue should be presented, only, as a discoloration of the surface (shades of different colors)	
Be	The lamination scale, rust, paint coatings and foreign matter are completely eliminated. Paint coatings must be removed before acid pickling by suitable means	For example, before hot dip galvanization

(*) It is considered that the lamination scale is weakly adhered if it can be removed without effort with a spatula or cutting instrument that detaches it.

(**) This degree of surface preparation can only be achieved and maintained under certain conditions that can not be achieved on site.

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EXAMPLES OF CATEGORIES

These environments are based on experiments that have measured the rate of metal loss for uncoated steel. The classification of environments applies to structural steel exposed to ambient (less than 120°C) conditions.



C1 - Shop

School, offices, shops, hotels,...



C2 - Warehouse

Warehouses, sports halls,...



C3 - Food factory

Food processing plants, laundries,...



C4 - Ports

Chemical plants, swimming pools,...



C5I - Refinery

Industrial areas with high humidity and aggressive atmospheres



C5M - Sea offshore wind farm

Marine, offshore, estuaries, coastal areas with high salinity



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CLIMATE CONTROL COOLING FOR ELECTRICAL ENCLOSURES



NEMA ELECTRICAL ENCLOSURE TYPE 1-3R-4X-12



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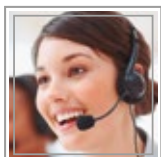


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