



STAINLESS STEEL

Stainless steel is an alloy which contains, minimum, from 10.5 to 11% of Chrome in its composition. This element forms a passivating layer on the surface of stainless steel and makes it highly resistant. The stainless steel used in Emac® products is AISI-304, an austenitic steel which belongs to 300 series, with IIID surface (high brightness) and a foil resistant to UV. This stainless steel has an excellent corrosion resistance, excellent hygiene and cleaning factor, easy transformation, excellent weldability and can be used in a wide temperature range satisfactorily.

Technical Features

Mechanical

Elongation (%)	< 60
Brinell hardness	160-190
Izod impact (J*m ⁻¹)	20-136
Elastic modulus (MPa)	190-210
Tensile strenght (MPa)	460-1100
Corrosion resistance	+ 504 hours without change (s.steel)
Saline mist test	+ 650 hours without change (s.steel with titanium)
UNE 112017:92	



Physical

Density	7,93 g*cm ⁻³
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Thermal

Thermal expansion coefficient (10 ⁻⁶ *K ⁻¹)	18
Thermal conductivity at 73,4°F / 23°C	16,3

Applications

Stainless steel is a high resistant material against corrosion wich, with the rest of its properties, makes their applications nearly infinite. We can find the stainless steel in homes (for example: kitchenware, ovens, garden equipment, furniture), in the city (phone boxes, street furniture, elevators, infrastructures) or in industry (automotive parts, chemical plants, water treatment plants) etc.

Due to its excellent properties and its unsurpassable aesthetic appearance, Emac® offers options made in stainless steel in all of its families of product, from those who have a decorative function (such as listellos) to the most functional (such as expansion joints or stair nosing).

The stainless steel of Emac®'s products is highly durable and it stands in optimal conditions while are followed the installation and cleaning instructions indicated for each case. The posterior maintenance is also important. The stainless steel of Emac®'s products is available in different finishes which allow multiple decorative possibilities.

Finishes of stainless steel used in Emac®

The stainless steel products of Emac® are available in two basic finishes: high brightness and brushed, as well as in four special finishes belonging to Futura range.

- *High brightness*: Unbeatable finish high brightness with a slightly porous and smooth surface which allows its cleaning. All the Emac® products made in stainless steel are IIR surface except Novopeldaño® 4 which is IIR.
- *Brushed*: Finish matte one-way, not reflector, excellent for public areas or indoors because doesn't leave fingerprints on the surface.
- *Futura range*: Finishes available in brushed titanium, bright titanium, oxide brushed and bright oxide. These finishes are made with a cover containing titanium. This covering, increase the superficial hardness, the corrosion resistance and provides a brightness and color very attractive.

Cleaning

It's essential the immediate cleaning of the material after its installation to avoid that the mortar remaining, concrete or the iron particles from scourers or tools can cause pitting corrosion.

For outdoor applications such as facades, the rainfall is an efficient cleaner. Pay special attention to areas of difficult access and be sure you remove all the dust and other elements remainings. You can do this cleaning once per month.



For indoor applications, you can use water with dishwashing detergent, liquid soap or similar to remove dirtiness and the possible fingerprints marked on the surface of the profile. In high brightness finishes you can use a glass cleaner. There are special cleaners for stainless steel in the market that clean the material and reduce the appearance of possible stains. Whenever you clean the stainless steel, remember rinsing well and drying totally to prevent fogging.

Steel wool or similar products are not recommended because they could scratch the surface and cause pitting corrosion. Pay special attention with the use of materials containing chlorides. Those materials are contraindicated because they oxidize the material. The hydrochloric acid or iron products in prolonged contact with the profile, are not recommended. Do not use common steel cleaners for the cleaning of stainless steel.

Maintenance

- *Dust and dirtiness*: clean with water and/or detergent. You can use pressure water or steam.
- *Inclusions of iron particles*: Use an appropriate cutting tool to guarantee the better conservation of the profile. If the profile is damaged, treat the surface with nitric acid 20% and then rinse and dry. Check the result with the ferroxilo test. If the treatment does not work, apply a solution of nitric acid and hydrofluoric one.
- *Mortar and concrete remainings*: Clean the surface with a specific remover diluted in a small quantity. Then, rinse and dry the profile.
- *Oxidized areas*: Clean well the surface, let it dry and after treat it with a solution of nitric acid 20% for 20 minutes. Depending on the oxidation degree and the time it has been oxidized, the recovering will be total or partial.
- *Oil and grease*: Remove these stains with solvents based alcohol or alkaline cleaners and rinse with plenty of neutral water. Be careful with these products, since they can spread the stains and make difficult their elimination.

- Adhesives remainings: Remove them by using solvents.

- Paint, chalk, crayon: Clean with water or alkaline cleaners. For paint stains, you can use solvents with the same base than the paint. Do not use abrasive tools.

*The results from the application of these techniques will depend on the degree affectation of the material and the time elapsed since its exposition.

Links

- www.wikipedia.org
- www.goodfellow.com
- www.euro-inox.org
- www.emac.es

Technical information

You can amplify information about the technical features of Emac®'s products by downloading their Technical File from **www.emac.es**.

If you have any query please contact our Technical Department in **tecnico@emac.es**