

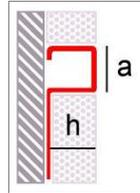
Novolistel[®] 3 Stainless Steel

h: 8, 10, 12,15 mm.

a: 10 mm.

Length: 250 cm.

Material: Stainless steel



® Patented Model as industrial design.
Registration number: 0504253-0006(4)

NOVOLISTEL[®] 3, the 7 in 1 profile

Decorative listel to coatings made of ceramic and other materials.

This profile has only one fixation wing, so it is also ideal to tiled finish or close. It can be also used as edge to protect corners, as divider between two pavements, as bank finish or as step in stairs.

Novolistel[®] 3 has the quality, resistance, durability and beauty of a noble material as stainless steel.

It is protected by a plastic film to guarantee its best appearance after installation.



PROPERTIES OF STAINLESS STEEL

CHARACTERISTICS

- Emac[®] profiles are made of with AISI 304 Stainless Steel, austenitic steel with an IIID surface and a protective layer resistant UV according to EN 10088-2 and EN 10259, EN 1.4301.
- Its excellent appearance and its high resistance to characterize stainless steel, which provides profiles qualities and a high durability to withstand the weather without imperfections. The stainless steel will not darken over time.
- This is a material recommended for public establishments, for its extreme chemical and mechanical strength. Very popular in the current construction, fulfilling the expectations of architecture more demanding.

MECHANICAL properties

- Good resistance to corrosion and atmospheric oxidation due to the ownership of these alloys to create a protective layer in the presence of an oxidizing environment. The formation of a chromium oxide film distributed uniformly throughout the material surface, invisible and strongly adhering to it, which is capable of self-regenerate if he loses his serve for the protection of stainless steel. Thus stainless steels can maintain their resistance to corrosion, even if they had been produced mechanical damage (eg, scratches, bumps, abrasion, cutting or machining), and to count as well with its own system of self-protection of repairer to corrosion:



- It has a high mechanical strength, to shocks and structural stability.
- Its high tensile strength and impact resistant that may arise dents or grated. No scale

FIRE RESISTANCE

Fire resistance classification as **A1** according to the current standard UNE EN 143501-1:2007. This classification corresponds to the class as **M0** according to NBE-CPI-96 (in accordance with the previous standard UNE 23727:1990), corresponding to a non-combustible material against the thermal action.

CORROSION RESISTANCE TEST

Stainless steel Emac[®] profiles have been tested in **Natural Salt Spray test** by the metal-mechanic technological institute AIMME, according to the UNE 112017:92 (ISO 9227:90).

Samples responded positively. After more than 500 hours of exposure, there were no changes in the samples.



SURFACE TREATMENTS

High Brightness

High brightness finishes of the stainless steel profiles of Emac[®] are unbeatable thanks to heat and mechanical treatments that give to the material a VERY BRIGHT and SMOOTH finish, with a lower susceptibility to accommodate air pollutants and greater ease of cleaning. In addition, to presenting a smooth surface and little porous is extremely hygienic.

Brushed

This surface is achieved with tapes or polishing brush. It's unidirectional, non-reflective, well suited for applications in interior and public facilities, as it was hardly marked by fingerprints.

Future Range: Brushed Titanium, Bright Titanium, Brushed Oxide and Bright Oxide.

These finishes are achieved with an innovative technique that involves the application of a coating containing titanium, in the form of thin layers on the material. This finish gives the material benefits such as:



- Increasing the surface hardness, this translates into greater resistance to abrasion and high wear resistance.
- A high resistance to corrosion.
- Bright and colours very attractive.

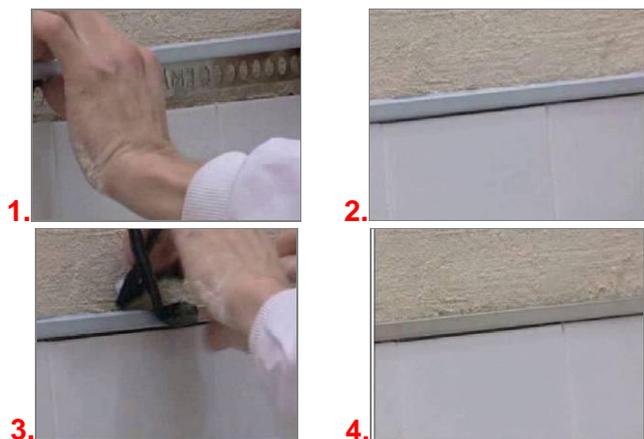
Stainless steel Emac[®] profiles with these finishes have been tested in **Natural Salt Spray** by the metal-mechanic technological institute AIMME. Samples responded positively **without any alterations after more than 650 hours** of exposure.

PLACEMENT

As finishing or decorative listel

When the wall is tiled to the wanted height, place the profile longitudinally setting the fixing wing between the wall and the tile. So the profile will remain as a finish of the tiled wall. If we decide to install another tiled lined, the profile will be subjected between them, as a decorative listel.

Example of installation of Novolistel[®] 3 as a decorative listel



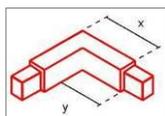
As edge

1. Place the profile perfectly aligned, making sure that the fixing material passes through the holes made in the fixing wing.
2. Then, place the coating pieces, installing firstly the pieces on the fixing wings, pressing to the holed wing to secure a good gripe.
3. Finally clean carefully.

COMPLEMENTARY PIECE

Complement made of injected Zamak to the perfect corner finish.

The angle piece of Novolistel[®] 3 can be adapted to all the applications that this profile offers:

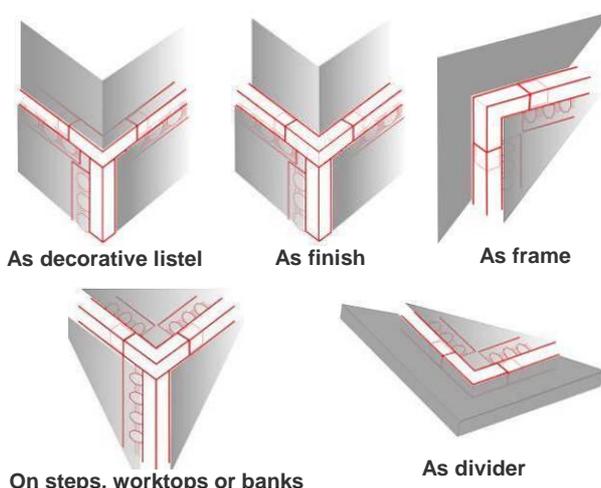
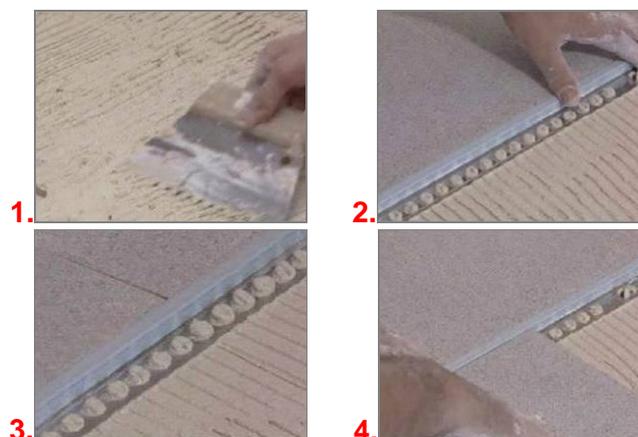


As bank finish (or as step in stairs)

1. Firstly, spread abundant fixing material over the whole step where you want to place the profile. Place the pavement at the riser.
2. Then align the profile on the step vertex, resting on the riser in order to do that the profile is not without support (never let it without support, the lever effect could tear off the step and the tile).
3. Press the profile to secure the perfect fixation, securing that the fixing material passes through the hole.
4. Then, place the pavement on the fixing wing.
5. Finally clean the spare material and remove the plastic film.

As pavement divider

Example of installation of Novolistel[®] 3 as pavement divider



ZAMAK CHARACTERISTICS

Zamak is an alloy, non-ferrous, zinc with aluminium, magnesium and copper (according to UNE-EN 1774), that permits obtain injected pieces to the perfect finish of the corners. It is a persistent material, with high hardness, high mechanical resistance and an excellent plastic deformability. Its properties are regulated according to UNE-EN 12844

The colored Zamak through any of our processes, chrome through electrolithic bath

according to the rules UNE-EN 12.540 or painted, it resists outside, without any degeneration or bleach.

These complements are available in the same colour as the chosen listel, guarantying its durability and colour stability. We do not recommend its purchase in natural finish, because this material with heat and humidity gets dark and loses its homogeneous appearance.

CLEANING AND MAINTENANCE

The first step in the maintaining of appearance of this material is offered by Emac[®], protecting their stainless steel profiles with a protective film, which will protect until the end of the installation.

INITIAL CLEANING

- The stainless steel requires a minimal maintenance. In principle, a correct cleaning will be sufficed to retain the aesthetic appearance of stainless steel.
- We recommend the **immediate cleaning** material fixing at the time of placement to avoid appearance loss. The mortar remains, cement and iron particles from scouring and tools, they can cause corrosion pitting.
- Cleaning can be done with water and/or liquid for dishes, liquid soap or detergent. It is also possible, do it with pressurized water or steam. It recommends regular cleaning of the product once a month. **Important:** To keep a good aspect, it must be dried immediately after rinsing, if not, the water spots will deposit and will ultimately tarnish.

MAINTENANCE

✱ Exterior Applications

In exterior applications, such as outdoors, rainfall are a efficient cleaner opposite accumulations of dirt and other deposits, depending on the amount of material exposed in the building.

As for cleaning, special attention should be given in protected areas or difficult access during the cleaning, to make sure that all traces of dust or other elements are eliminated. This is particularly important in saline and industrial environments, where the concentration of Chlorides SOx and the vast accumulation of particles in suspension may lead to localized corrosion if they are not removed effectively.

The frequency of cleaning depends on the environment that is exposed, but a good practice would be clean elements of stainless steel with the same frequency as the windows of the building.

🏠 Interior Applications

The primary care to be taken, on stainless steel place in interior applications, is the digital brands. Emac[®] presents its profile in attractive stainless steel finishes: Brushed, High Brightness, and the Future range. The first is less sensitive to the fingerprints marks, though all the finishes are a wise choice for interiors. Possible finger marks that can arise during installation will disappear after the material cleaning with water and/or liquid for dishes, liquid soap or detergent.

In the case of Mirror finishes can be cleaned with a crystals-cleaner, providing they are free of chlorides.

There are products on the market for the maintenance of stainless steel, which remove these finger marks, keep the bright of the stainless steel and reduce the tendency of the emergence of these brands.

PRODUCTS TO AVOID

Cleaners

- **Abrasive products:** powdered abrasive cleaners (for example, VIM) can leave scratches.
- Cleaning products containing **hydrochloric acid** corrode stainless steel. Chlorine can attack the stainless steel, and can stain it. Chlorine can be used, but it should not keep in contact with stainless steel for a long time, only needed to fulfil its role disinfectant. For this reason cleaning products containing bleach (sodium hypochlorite) can damage if they are highly concentrated or remain in contact with surfaces for a long time. Salt and other cleaners containing chlorides can also

Curing Accelerators with Chlorides

- The curing accelerators additives for mortars often contain chlorides. If you are going to put a stainless steel profile make sure that these accelerators **NOT CONTAIN CHLORIDES**, because will produce the oxidation of the material by

Utensils

- Never use metal scourers, steel wool (like wool wire) or brushes wires, as well as scratching the surface of metal can leave metallic deposits on stainless steel, they can cause pitting corrosion.
- Never use wool scouring carbon steel. Usual "steel" cleaners (for example shine scouring) are not suitable either for stainless steel, since it eliminated its

CONDITIONS TO AVOID

- Do not place the material into prolonged contact with iron products, since it is possible to generate galvanic corrosion. If the material is going to be in contact with other metal parts, be sure to place non-metallic barrier between both. In case of placing fixation systems, is highly recommended that also are also of stainless steel.
- There will be certain conditions under which they miss the "passive state" that protects the material from corrosion and cannot be retrieved. In this case, the surface becomes "active" and corrosion

cause damage. Dilute always these products "disinfectant" when used, reducing the exposure time to a minimum and clarifying the surface thoroughly with abundant clean water.

- The **silver cleaners** may contain chlorides and strong acids, and are therefore not suitable for stainless steel, since the protective layer of stainless steel may be affected by some acids; giving rise to the iron is oxidized and attacked by mechanisms inter-crystalline or widespread pitting.
- Whenever you use any acid or solvent, rinse well with neutral water.

inter-granular mechanisms or widespread bites.

- There are special versions on the market without chlorides to prevent corrosion of metals.

protective layer and even reduce the surface self-repairing ability.

- Do not use materials containing chlorides.
- To avoid "cross-contamination" by iron particles to avoid that the utensils destined to the cleaning of the stainless steel are also used for the cleaning of the ordinary steel (to carbon).

occurs. These areas may be active in small areas deprived of oxygen of stainless steels, as in mechanical joints, compact corners or incomplete or poorly finished welds. The result may be "localized" areas of crack or pits. These active areas by lack of oxygen may arise after a damaged of the material and a deposition of dirt that prevents surface contact with environmental oxygen, avoiding that can form new protective layer. These less airy areas act as anode, rusting the material which is in contact.

- To avoid this, clean very well the material and dry it, so as not to accumulate the dirt or other material remnants that can avoid self-repair of this protective layer. To avoid this, clean very well the material and dry it, so as not to accumulate the dirt or other

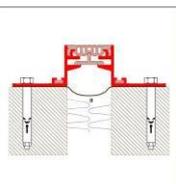
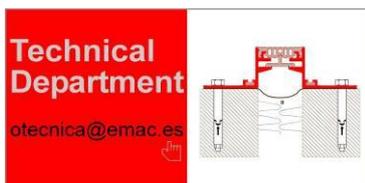
material remnants that can avoid self-repair of this passive layer. If the oxide layer was form, will be necessary sanding the surface to remove it, clean and dry it to encourage the formation of the new protective layer or treat the surface with a nitric acid solution

SOLUTIONS OF POSSIBLE DEFECTS AND TECHNIQUES TO ELIMINATE

- Dust and dirt: Wash with water and / or detergent. If necessary, do it with pressurized water or steam.
- Persistent Stains: The application of soft creams designed to smooth household cleaning should be sufficient. After cleaning, dispose of the waste with water and dry well to avoid streaks and/or water marks. Do not use cleaners or polishing powder because they may scratch the surface of stainless steel.
- Iron particles inclusions: Treat the surface with nitric acid solution to 20%. Rinse with clean water. Confirm elimination with the ferroxile test. If the iron is still present, using a solution of nitric acid and hydrofluoric acid.
- Mortar remains and cement splashes: Treat with a solution containing a small amount of phosphoric acid, then rinse with water and dry very well.
- Scratches, warming stains: Polish the surface with a fine abrasive. Strip the surface with a nitric acid solution to 10% and hydrofluoric acid solutions to 2% to eliminate all traces. Rinse with clean water or electro-polish.
- Rusty Area: Treat the surface with a solution of nitric acid.
- Rug: Polish with a fine grain abrasive.
- Welding splashes: to prevent it using a film adhesive to the welding cord sides, or eliminate them using a fine-grained abrasive.
- Welding flux marks: Remove through fine-grain abrasive.
- Oil and fat: Remove with solvents or alkaline cleaners and rinse with abundant neutral water.
- Stickers waste: Remove with solvents or polished with fine-grain abrasive.
- Paint, chalk and crayon: Rinse with clean water and / or alkaline cleaners.

TIP: Dry very well after cleaning, especially in areas where the water is very hard. If is possible, preferably using des-ionized water (available in supermarkets for use in places of ironing or batteries for cars) because it decreases the risk of stains by etching.

TECHNICAL INFORMATION



You can download more information about the technical characteristics of the material that the Novoliste[®] 3 is

made of in www.emac.es

If you have some query or question, please contact with the technical office: otecnica@emac.es