



Novojunta® Pro Sismo PA



Novojunta® Pro Sismo PA is an already assembled system of profiles for structural joints, made of silver matt anodized aluminum. Its design allows it to absorb the geometric variations and deformations of constructive elements and it is able to resist seismic movements with total security.

This system of profiles for structural joints has been especially designed for areas with high seismic risk. This range of products, a worldwide innovation, has been developed by Emac ® and tested in Technical Independent Institutes of high prestige.

Aplicaciones

Novojunta® Pro Sismo PA is a solution for structural joints, whose main function is to absorb the contraction and expansion movements in three axis, ensuring in this way its optimal performance in earthquakes and avoiding so structural damage in constructions. Its design is adapted to walls and ceilings.



To visualize the presentation video of Novojunta® Pro Sismo just click [here](#) or scan the QR code.

Introduction

The Earth is in constant movement. The lithosphere is the surface layer of the solid earth, with high rigidity that it's constantly moving.

An earthquake or quake is a ground shaking caused by the crash of the tectonic plates and the energy release due to the sharp reorganization of the materials of the Earth's crust when they surpass the state of mechanical balance. The edges of the tectonic plates are areas with high seismic risk, being higher in areas of confluence of several plates.

The seismic hazard or destructive potential of earthquakes, according to Bertero (1992), is determined by 4 conditions which are:

- The severity of the earthquake, its magnitude. The movement induced to the ground that will affect constructions.
- The seismic source and its distance.
- The size, distribution and economic development of the affected populations.
- The preparation against the seism, as the degree of response of the population and the measures of prevention against the possibility of an earthquake to occur.



*Some collapsed buildings after Haiti earthquake.
Puerto Príncipe. 2010.
Source: Wikipedia.*

Against the seismic phenomenon, construction plays an **essential role** to guarantee the security and stability of the infrastructures. This is especially important in necessary places for the livelihoods such as hospitals, firehouses, etc. Some countries as Japan, EEUU or Chile, have developed demanding standards for buildings, that include all the necessary aspects to reduce the impact in the building to the minimum possible during an earthquake.

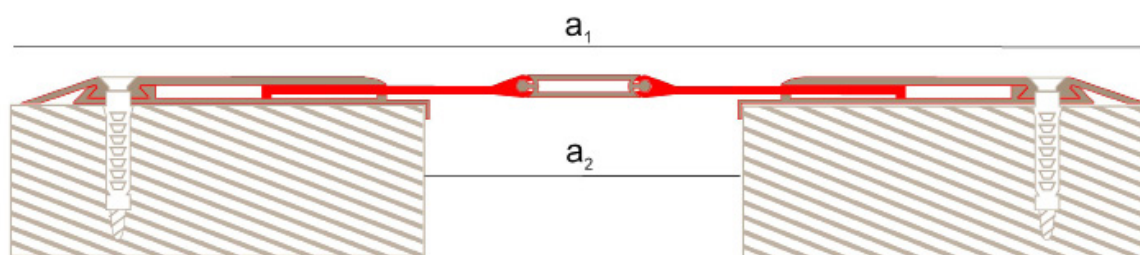
Despite this, the seismic risk exists, lesser extent, in many other countries that also have their own Standards depending on the sismicity degree in their area.

In the Eurocode 8 - Regulations to project earthquake resistant structures - it is indicated the **uniformity and simetry** of constructions as a requirement, to improve its response to earthquakes. This uniformity can be achieved **by subdividing the whole building using seismic joints** in independent and dynamic units. The range of profiles Novojunta® Pro Sismo developed by Emac®, is intended to be installed functionally in these joints in an aesthetic and durable way. It is a carefully designed range which makes easier and faster the installation.

In Spain, there is a seismic hazard map included in the NCSR-02 Standard, where the areas that are more likely to suffer earthquakes are represented. The southern area and Andalucia as well as some areas of the Pyrenees are the most critical ones. Other areas such as area of Levante, interior of Galicia or interior of Navarra and Cataluña have also risk although in a less pronounced way.

General Features

Material:	Anodized aluminum
Length:	8ft2in / 2,5 l.m.
Packaging:	2 u/box
Finishes:	
Dimensions:	13



	a_1	a_2	h	A.M	T.A.M	V.D
Novojunta® Pro Sismo PA	357 ^{.5}	100	-	+/- 65	130	10
	14-4/8"	3-15/16"	-	+/-1.279"	+/- 2.559"	3/8"

A.M: Allowed movement T.A.M: Total allowed movement V.D: vertical difference.

*The ability of movement of Novojunta® Pro Sismo PA is between 165 and 35 mm. (6.496" and 1.377")

Technical Features and Tests

Alloy:	6063 (AA y ASTM) L-3441 (UNE 38-301- 89)
Fire resistance:	M0 (UNE 23-727-90)
Abrasion resistance:	Very good
Lightfastness:	Excellent
Appearance and color:	EN 12373-1



Materials

 Aluminum

Novojunta® Pro Sismo PA is a system of profiles made by extrusion of aluminum. These profiles have been anodized, improving mainly by this process their corrosion and mechanical resistance and their appearance. The anodized applied has the quality seal "Qualanod", which guarantees the quality of the process and the resulting profiles. This seal regulates several tests: appearance and color, thickness measurements, sealing and impregnation control, abrasion resistance, lightfastness, salt spray test and nitric acid immersion.

Aluminum is a material with excellent chemical, physical and mechanical properties. It is lightweight, tough, ductile, malleable and highly durable.

Standards

In Spain, the criteria to be followed for construction and reform, taking into account the seismic action, are under the NCSR-02 Standard: Earthquake Resistant Construction Standard, General Part and Building.

This Standard establishes that buildings have to be protected against the collisions with adjacent structures caused by earthquakes. It is considered protected if the distance from the limit line of the building to the potential impact points is more than the maximum horizontal movement allowed.

With regard to the basic principles to the conception of the project, in the B3 paragraph of uniformity and symmetry, it is indicated that if it is necessary, uniformity can be achieved by subdividing the whole building using seismic joints in quantity directly independent.

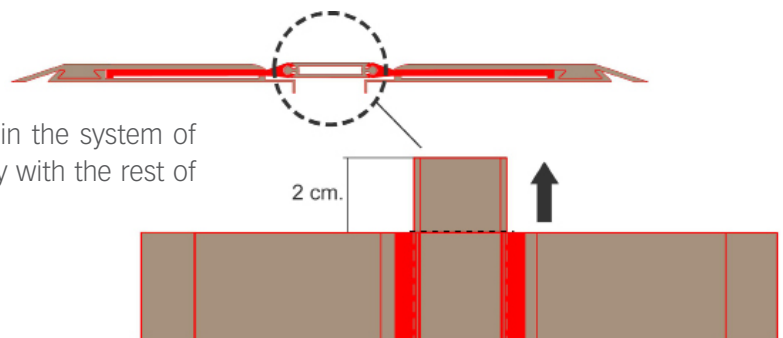
At European level we find references to seismic features in the Eurocodigo 8: Regulations to project earthquake resistant structures. These regulations establish that each construction will be separated from the buildable borders of the adjacent building in all its height. This height will be not less than the maximum lateral movement allowed during an earthquake and not less to 1.5 cm. (5.90") to avoid the possible crashes between structures during earthquakes.

Installation

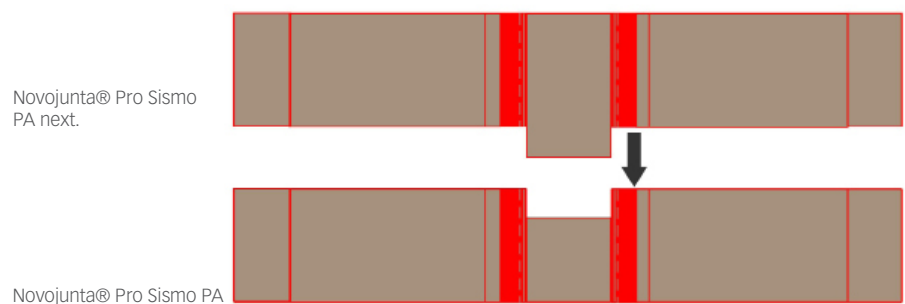
Novojunta® Pro Sismo PA is delivered already assembled and mechanized for the installation of the fastening screws. It is easy and quick to install.

If you are going to install a Novojunta® Pro Sismo PA next to other:

0. Cut the piece that protrudes in the system of profiles so that it flushes correctly with the rest of the pieces.



Once Novojunta® Pro Sismo PA has been installed, this cut will help to accommodate the central profile of the next Novojunta® Pro Sismo PA just to achieve a perfect installation.



If you are installing just one Novojunta® Pro Sismo PA, you should obviate the step 0, so do not cut the profile.

The common steps of installation, in both cases, are the following:

1. Clean well the surfaces where the **Novojunta® Pro Sismo PA** is going to be installed.

2. Put the system of profiles against the wall and align it with one of the edges of the joint.

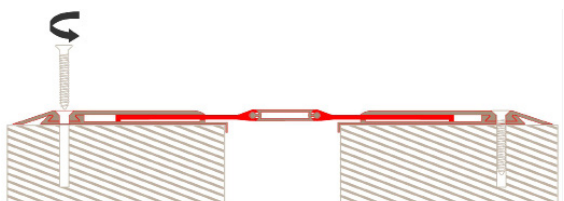
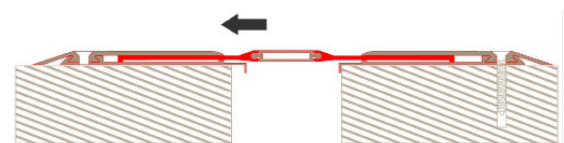
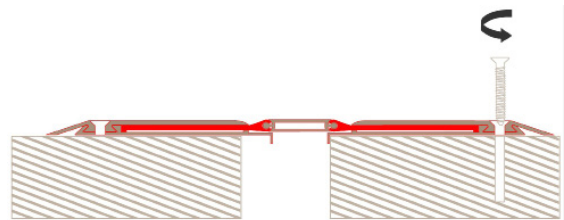
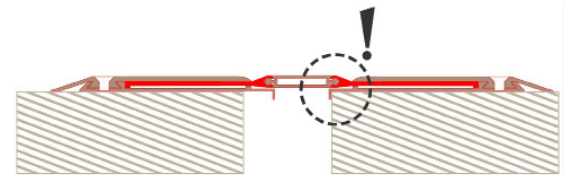
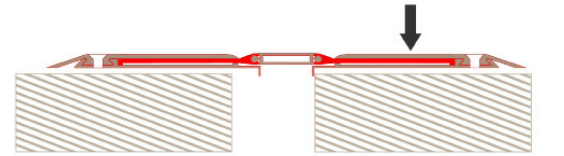
Ensure that they are correctly aligned and that the bottom flange of the profile stops in the edge of the hollow.

3. Make the holes, in the profile already aligned with the hollow of the joint, so that they match with the holes of the profile. Insert the fastening screws under the recommendations of the manufacturer. It is recommended to use Fischer Plug SX 6 x 30 with a n8 DIN7982 screw.

The recommended fastening screws have been dimensioned according to the efforts that the joint will have to support during its utile life. If you choose to install different fastening screws, please, take this into account.

4. Remove the protective film from the surface and slide the rest of the pieces until they stop with the other edge of the joint.

5. Make the holes so that they match with the holes of the profile. Insert the fastening screws under the recommendations of the manufacturer.



The necessary joint width to achieve an optimal performance is 100 mm. (3-15/16"). If you install this profile in slightly higher or lower widths, you should take into account that its allowed movement will vary depending on the joint width where the profile is installed.

Cleaning and maintenance

The cleaning must be done periodically with a soft mop. If you use a neutral liquid cleaner, you must rinse the profile with cold water and dry to remove excess moisture. If dirtiness persists, clean the profile with a solution with clean water and detergent or neutral soap 5%, brushing with a cloth that has no particles that could scratch the finish. Outdoors, rainfall will clean the profile.

Steel wool, abrasive cleaners, souring products as well as strong acids (hydrochloric and perchloric), strong bases (caustic soda or ammonia) or carbonated solutions are not recommended. Citric acid is neither recommended because it dissolves the protective layer of the surface of aluminium. Waxes, petrolatum, lanolin or similar substances are not appropriate. Solvents containing haloalkanes (hydrofluoroether and chlorinated solvents) and curing accelerators containing chlorides should not be used (use special accelerators free of chlorides).

Technical Information

You can find out more information about the technical features of the raw materials in which Emac®'s products are manufactured, by downloading its technical file from www.emac.es. If you have any query, please contact our Technical Department in tecnico@emac.es.

