

## Novojunta® Pro Sismo **SU**



Novojunta® Pro Sismo SU 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 highly prestiged Technical Institutes.

### **Applications**

Novojunta® Pro Sismo SU is a solution for structural joints whose main function is to absorb the contraction and expansion movements of the flooring in six different axis. This ensures its optimal performance in earthquakes, avoiding the structural damage that they usually cause.



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, that has a high rigidity and 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 four 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.

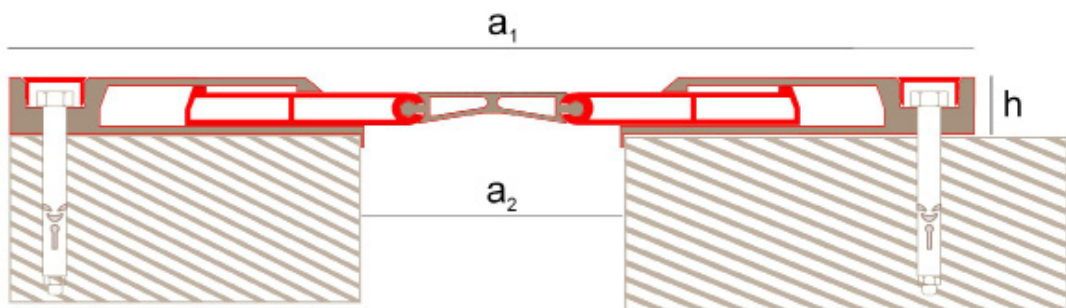
Despite this, the seismic risk exists, lesser extent, in many other countries that also have their own Standards depending on the seismic degree in their area.

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 performance in earthquakes. This uniformity can be achieved **by subdividing the whole building using seismic joints** in independent and dinamic 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 m.l.
Packaging:	1 u./box
Finishes:	
Dimensions:	13



		$a_1$	$a_2$	h	A.M.	T.A.M	V.D
<b>Novojunta® Pro Sismo SU</b>	<b>mm.</b>	367, <sup>7</sup>	100	21, <sup>6</sup>	+/- 65	130	12
	<b>inches</b>	14-1/2"	3-15/16"	7/8"	+/-2.559"	5.11"	1/2"

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

\*The ability of movement of Novojunta® Pro Sismo SU 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
Load on surface 200x200 (pneumatic wheel)	85384 N  Adaptation of section 13.6.1 (Resistance to static loads) from the standard UNE EN 60598-2-13:2007.



### Materials

 Aluminum

Novojunta® Pro Sismo SU is a profile made by extrusion of aluminium. 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

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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.

Regarding 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 of 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.

### Traffic loads supported

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**Novojunta® Pro Sismo SU** is able to support **traffic of semi-heavy loads**.

It allows traffic category G according to ACI Standard, American Concrete Institute, **ACI 302.1R-89** y **ACI 360.1R-92**, for vehicles with net weight  $\geq$  a 30 kN y  $\leq$  a 160 kN, distributed on both axis.

Trucks with rigid or pneumatic wheels classified as FL1, 2, 3 y 4 with net weight up to 60 kN and load up to 40 kN, with a total load per axis of 90 kN, according to standard **ACI 302.1R-89** y **ACI 360R-92**.

It allows static overload less than 5 t/m<sup>2</sup> and the passage of vehicles over pneumatic wheels less than 2,5 t/axis, according to the classification of medium loads over pavements NTE-RSC.

Vehicles for transport up to 38 kN per axis, in models with simple axis. It can achieve 60 kN per axis with slow traffic.

This classification has been obtained from Standards **ACI 302.1R-89** (Guide for concrete floors and construction slabs, referring to the magnitude of the load they can support) and **ACI 360.1R-92** (Design of the different degrees of floors, which describe the six common types of floors for construction referred to the actions induced by trucks and transport vehicles) and the classification of trucks (depending on the net weight, dimensions and load which transport).

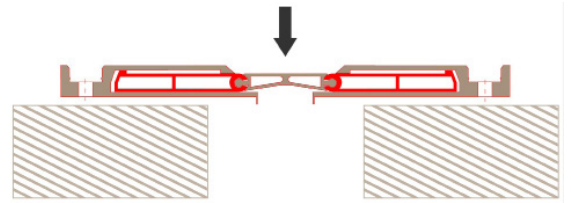
### Installation

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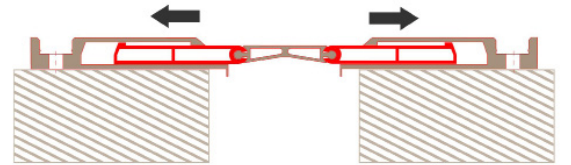
**Novojunta® Pro Sismo SU** is delivered already assembled and pre-drilled for the installation of the fixing screws. It is easy and quick to install.

1. Clean well the surfaces where the **Novojunta® Pro Sismo SU** will be installed and remove the film that keeps the profile wrapped.

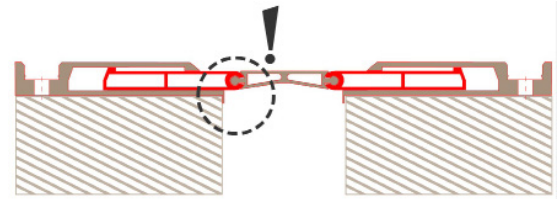
2. Place the **Novojunta® Pro Sismo SU** as you have received it on the hollow of the joint. Do not place the trims in this step.



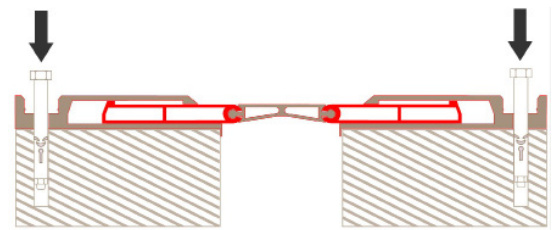
3. Remove the protective film from the surface and slide the side pieces, which will support the profile, until they stop with the edge of the joint hollow.



Ensure that the pieces stop in the edge of the hollow to guarantee a perfect installation.

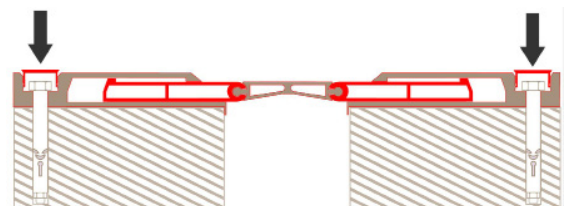


4. Make the holes for the fixing screws so that they match with the holes on the profile's anchoring wing. Insert the fixing screws and fix them under the manufacturer recommendations. It is recommended to install Fischer FSA 40 or similar.



The recommended fixing 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 fixing screws, please, take this into account.

5. Put the trims on the profile and tap them softly with a rubber hammer until they clip. The trims should be correctly flushed with the surface of the profile.



The necessary joint width to get 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 cloth or 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 more information about the technical features of the materials in which the Emac®'s products are manufactured by downloading its Technical File in [www.emac.es](http://www.emac.es).

If you have any query, please contact our Technical Department in [tecnico@emac.es](mailto:tecnico@emac.es).

Emac Complementos, S.L. reserves the right to make at any time modifications to the geometry profile or the specifications of its products.

