

NOVOJUNTA PRO®

PROFILES FOR
STRUCTURAL
JOINTS

INDEX

1. Structural joints – **Novojunta Pro®**

- 1.1 Novojunta Pro® **ALUMINIUM**
- 1.2 Novojunta Pro® **PERIMETER**
- 1.3 Novojunta Pro® **MOBILE**
- 1.4 Novojunta Pro® **NON-SLIP**
- 1.5 Novojunta Pro® **DECOR**
- 1.6 Novojunta Pro® **AL30**

2. Seismic joints – **Novojunta Pro® SEISMIC**

- 2.1 Novojunta Pro® **SEISMIC SU** (Flooring)
- 2.2 Novojunta Pro® **SEISMIC PA** (Cladding)
- 2.3 Novojunta Pro® **SEISMIC PE** (Perimeter)

How to choose the appropriate structural joint.

Trials.

Traffic load classification.

Technical Support & Projects.





STRUCTURAL JOINTS

All buildings and their component elements are subject to movement, deformation and geometric changes stemming from variations in temperature, wind pressure, earth settling, loads and other forces. If such constructions receive frequent heavy traffic, they become even more vulnerable.

Our joints absorb movement to control and prevent fracturing. They also enable you to isolate the meeting point between different structural elements such as walls, pillars, machine foundations, drains, etc., thereby avoiding the transfer of tensions between such elements.

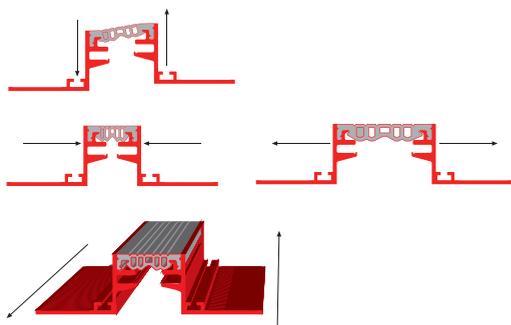
Dispensing with structural joints or distributing them incorrectly can cause all kinds of building pathologies which, once the works are finished, will be extremely difficult to solve and inevitably signify a high cost.

Adequately resolving the most critical meeting points and finishes on a job is the sign of a high-quality project.





THEY ALLOW MOVEMENT THREE-DimensionALLY:



The movement capacity of our entire Novojunta Pro range is characterised in trials performed by the Instituto Tecnológico Metalmecánico (AIMME), a member of the redIT network (Network of Technological Institutes, Valencia, Spain).



NOVOJUNTA PRO®

1.

The Novojunta Pro® series by Emac® is a complete range of profile systems designed to absorb the different types of movement and avoid the appearance of cracks and other pathologies, thereby extending the useful life of these structures.

WHY NOVOJUNTA PRO® BY EMAC® AND NO OTHER PROFILE?

UNLIMITED POSSIBILITIES FOR APPLICATION.

- **All surface types:** flooring, walls, façades or ceilings.
- **All types of materials:** walls and ceilings: concrete, ceramics, terrazzo, granite, marble, other stone...
- **All project types:** airports, shopping centres, hospitals, stations, business centres, universities, warehouses, garages, hotels, sports stadiums, etc.

THEY ALLOW MOVEMENT THREE-Dimensionally:

- **Horizontal movement:** stemming mainly from contraction and dilatation in the heat or cold.
- **Vertical movement:** caused by settling or loads.
- **Differences in the shear direction:** stemming from load-bearing situations, wind or other pressures.

EASY INSTALLATION: Sold pre-assembled, our products are machined for the recommended attachment means, identified by barcode and protected with a film to avoid damage during handling and transport. This translates to a significant reduction in installation time and costs. Furthermore,

THEY REQUIRE NO MAINTENANCE.

TRIALS AND DESCRIPTION: We pay the utmost attention to accurately describing our products. Having access to the fullest, clearest and most detailed information on the market enables you to choose the product that best suits your needs. The features we detail are objective, having been trialed in independent technological institutes belonging to redIT (Network of Technological Institutes, Valencia, Spain).

OWN DEVELOPMENTS PATENTED: as the result of a rigorous R&D&I project.

OBLIGATION-FREE CONSULTATION AND TECHNICAL STUDY: Give us your plans and we will make the calculations regarding distribution of the joints needed for your project.

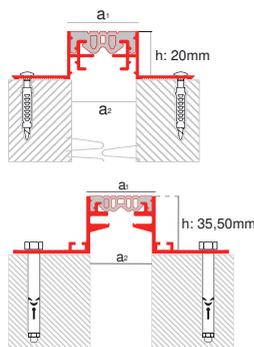
IMMEDIATE SUPPLY: Even directly to the project site.

PRE-SHAPED PROFILES DELIVERED IN 2.5-M LENGTHS.

1.1

NOVOJUNTA PRO® ALUMINIUM

Model registered as EU Community
Design No 869892-5



Novojunta Pro® Aluminium is a pre-shaped profile for structural joints comprising two aluminium profiles joined via a central body of high-quality EPDM rubber, which makes a hidden, clean and aesthetically pleasing joint. It absorbs deformations and geometric variations along three movement axes:

- Horizontal movement, which absorbs the contraction and dilation of walls and flooring;
- Vertical movement caused by settling and/or load deflection on flooring;
- Differential movement in the shear direction.

MAIN FEATURES

- For joint widths **up to 55 mm. (2-3/16")**
- Admission of movement **up to 20 mm. (3/4")**
- For **light and medium** load traffic.
- It is laid **before** the paving or cladding and is **levelled**.
- It can be installed **between paving materials of different thicknesses**.
- **Fast, simple installation**, without the need for skilled labour, meaning **saving in installation and handling costs**.
- It is delivered **pre-assembled**, machined, identified by barcode and with a protective film on the visible face.

1.1 NOVOJUNTA PRO® ALUMINIUM

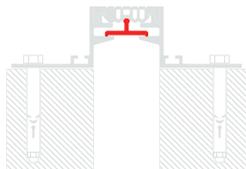


APPLICATIONS

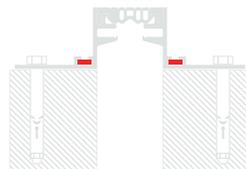
Novojunta Pro® Aluminium can be fitted in the gaps between paving and cladding. The joint's excellent resistance to wear and its non-slip and other properties make it ideal for high traffic areas such as **shopping centres, hospitals, schools or public buildings in general.**

ACCESSORIES

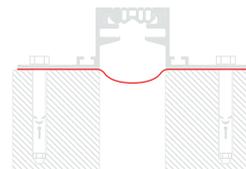
- Reinforcement: offers greater consistency and load capacity. It is recommended for joint widths greater than 40 mm. (1-9/16") and it is necessary for 55-mm. (2-3/16") joint widths.



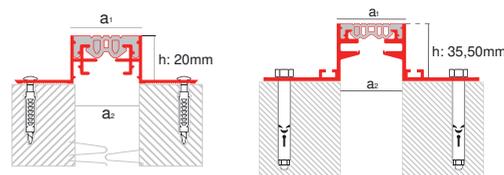
- Alignment shims: enable correct installation and adjustment between adjacent profiles. Option not available for joints of h:20 mm. (3/4")



- Watertight membrane: a flange of rubber that ensures a hermetic seal on the joint. It is easily installed using the self-adhesive strips on its inner face.



1.1 NOVOJUNTA PRO® ALUMINIUM



NOVOJUNTA PRO® ALUMINIUM SELECTION TABLE

h: Height of installation	a2: Width of joint	a1: Width of visible profile	Movement contraction/dilatation	Movement total	Reinforcement	Loads supported	References
20 mm. (3/4")	30 mm. (1-3/16")	34 mm.(1-5/16")	+/- 5 mm. (13/64 ")	10 mm. (3/8")	No	Light	NJPAL2034
	40 mm. (1-9/16")	44 mm. (1-3/4")	+/- 7 mm. (9/32")	14 mm. (35/64")	No	Light	NJPAL2044
35 mm. (1-3/8")	30 mm. (1-3/16")	34 mm. (1-5/16")	+/- 5 mm. (13/64")	10 mm. (3/8")	No	Light	NJPAL3534
					Yes	Medium	NJPAL3534 Reinforcement NJPALRE26
	40 mm. (1-9/16")	44 mm. (1-3/4")	+/- 7 mm. (9/32")	14 mm. (35/64")	No	Light	NJPAL3544
					Yes	Medium	NJPAL3544 Reinforcement NJPALRE26
	55 mm. (2-3/16")	59 mm. (2-5/16")	+/- 10 mm. (3/8")	20 mm. (3/4")	No	Light	NJPAL3559
					Yes	Medium	NJPAL3559 Reinforcement NJPALRE44
50 mm. (2")	30 mm. (1-3/16")	34 mm. (1-5/16")	+/- 5 mm. (13/64")	10 mm. (3/8")	No	Light	NJPAL5034
					Yes	Medium	NJPAL5034 Reinforcement NJPALRE26
	40 mm. (1-9/16")	44 mm. (1-3/4")	+/- 7 mm. (9/32")	14 mm. (35/64")	No	Light	NJPAL5044
					Yes	Medium	NJPAL5044 Reinforcement NJPALRE26
	55 mm. (2-3/16")	59 mm. (2-5/16")	+/- 10 mm. (3/8")	20 mm. (3/4")	No	Light	NJPAL5059
					Yes	Medium	NJPAL5059 Reinforcement NJPALRE44

TECHNICAL FEATURES

Alloy	6063	AA y ASTM
	L-3441	UNE 38-301-89
Flame resistance	M4	UNE 23-727-90
Abrasion resistance	Very high	
Weather resistance	Very high	
Ozone resistance	Yes	ASTM D1149
Plastic deformation	< 25%	ASTM D395
Elongation at break	>300%	ASTM D412
Working temperature	-40°C / +120°C	UNE 53535
Thermal air aging (70°C/70 h.)	Variation of hardness: 5 shA	ASTM D573
	Break load: -15%	
	Elongation: -40%	
Pneumatic tyre track load	46345 N	
Loads supported	Light loads	ACI 302.1R-89
	Medium loads	ACI 360R-92
Traction / Compression	+/- 5 mm. (13/64") +/- 7 mm. (9/32") +/- 10 mm. (3/8")	AIMME
Resistance to chemical agents	Very high to acids, bases, hot water and steam.	

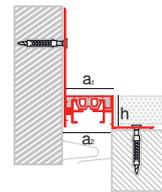
1.2

NOVOJUNTA PRO® PERIMETER

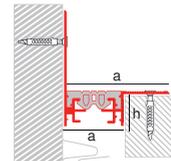
Model registered as EU Community
Design No 869888-1



**Novojunta Pro®
Perimeter Upper**



**Novojunta Pro®
Perimeter Overlay**



Novojunta Pro® Perimeter upper is a pre-shaped profile for structural joints on perimeters and meeting points between building elements. It consists of two aluminium profiles joined via a central body of high-quality EPDM rubber, which makes a hidden, clean and aesthetically pleasing joint. It absorbs deformations and geometric variations along three movement axes:

- Horizontal movement, which absorbs the contraction and dilation of walls and flooring;
- Vertical movement caused by settling and/or load deflection on flooring;
- Differential movement in the shear direction.

MAIN FEATURES

- For joint widths **up to 42 mm. (1-5/8")**
- Admission of movement **up to 14 mm. (35/64")**
- For **light-load** traffic.
- 2 instalment options: **overlaid or levelled** (2 different models).
- **Fast, simple installation**, without the need for skilled labour, meaning **savings in installation and handling costs**.
- It is delivered **pre-assembled**, machined, identified by barcode and with a protective film on the visible face.

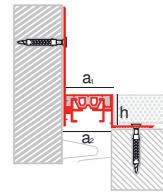
APPLICATIONS

Novojunta Pro® Perimeter is a joint designed to be installed on perimeters or meeting points between building elements, both horizontal and vertical. It can be installed in **schools, hospitals, parking buildings, public buildings**, etc. because it possesses a high durability and its central rubber can be replaced once its useful life is over.

1.2 NOVOJUNTA PRO® PERIMETER

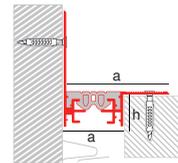
NOVOJUNTA PRO® UPPER PERIMETER SELECTION TABLE
(Install prior to paving/cladding)

a2: Width of joint	a1: Width of visible profile	Movement contraction/dilatation	Movement total	Loads supported	h: Heigh of installation	References
32 mm. (1-1/4")	32 mm. (1-1/4")	+/- 5 mm. (13/64")	10 mm. (3/8")	Light	20 mm (3/4")	NJPPS2032
					35 mm (1-3/8")	NJPPS3532
					50 mm (2")	NJPPS5032
42 mm. (1-5/8")	32 mm. (1-1/4")	+/- 7 mm. (9/32")	14 mm. (35/64")	Light	20 mm (3/4")	NJPPS2042
					35 mm (1-3/8")	NJPPS3542
					50 mm (2")	NJPPS5042



NOVOJUNTA PRO® PERIMETER OVERLAY SELECTION TABLE
(Install after paving/cladding)

a2: Width of joint	a1: Width of visible profile	Movement Contraction/dilatation	Movement total	Loads supported	h: Heigh of installation	References
34mm. (1-5/16")	58 mm. (2-5/16")	+/- 5 mm. (13/64")	10 mm. (3/8")	Light	-	NJPPS2058
44 mm (1-3/4")	68 mm (2-45/64")	+/- 7 mm. (9/32")	14 mm. (35/64")	Light	-	NJPPS2068



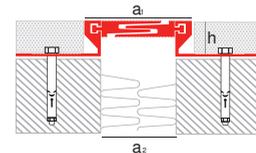
TECHNICAL FEATURES

Alloy	6063	AA y ASTM
	L-3441	UNE 38-301-89
Flame resistance	M4	UNE 23-727-90
Abrasion resistance	Very high	
Weather resistance	Very high	
Ozone resistance	Yes	ASTM D1149
Plastic deformation	<25%	ASTM D395
Elongation at break	>300%	ASTM D412
Working temperature	-40°C / +120°C	UNE 53535
Thermal air aging (70°C/70 h.)	Variation of hardness: 5 shA	
	Break load: -15%	ASTM D573
	Elongation: -40%	
Loads supported	Light loads	ACI 302.1R-89 ACI 360R-92
Traction / Compression	+/- 5 mm. (13/64") +/- 7 mm. (9/32")	AIMME
Resistance to chemical agents	Very high to acids, bases, hot water and steam.	

1.3

NOVOJUNTA PRO® MOBILE

Model registered as EU Community
Design No 869889-2



Novojunta Pro® Mobile is the pre-shaped profile for structural joints comprised of two aluminium profiles with a non-slip, striated outer face, for joints that require the capacity to support semi-heavy loads. It absorbs deformations and geometric variations along three movement axes:

- Horizontal movement, which absorbs the contraction and dilation of walls and flooring;
- Vertical movement caused by settling and/or load deflection on flooring;
- Differential movement in the shear direction.

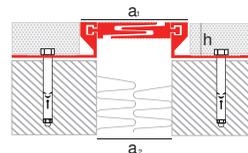
MAIN FEATURES

- For joint widths **up to 50 mm. (2")**
- Admission of movement **up to 10 mm. (3/8")**
- For **semi-heavy load** traffic.
- It is laid **before** the paving or cladding and is **levelled**.
- It can be installed between paving materials of different thicknesses.
- **Fast, simple installation**, without the need for skilled labour, meaning **savings in installation and handling costs**.
- It is delivered **pre-assembled**, machined, identified by barcode and with a protective film on the visible face.

APPLICATIONS

This joint is especially designed for paving that supports traffic bearing semi-heavy loads although it can also be installed in cladding. It can be installed in **airports, parking buildings, public buildings, etc.** and, in general, in intense traffic areas exposed to wear. It is also available in an anodised matt silver finish for greater resistance of the whole and a more aesthetic appearance.

1.3 NOVOJUNTA PRO® MOBILE



NOVOJUNTA PRO® MOBILE SELECTION TABLE

h: Height of installation	a2: Width of joint	a1: Width of visible profile	Movement contraction/dilatation	Movement total	Loads supported	Finish	References
20 mm. (3/4")	50 mm. (2")	71 mm. (2-3/16")	+/- 5 mm. (13/64")	10 mm. (3/8")	Semi-heavy	Natural	NJPMAL2071
						Anodised matt silver	NJPMAL2071PL USA reference: NJPMAL207113
35 mm. (1-3/8")	50 mm. (2")	71 mm. (2-3/16")	+/- 5 mm. (13/64")	10 mm. (3/8")	Semi-heavy	Natural	NJPMAL3571
						Anodised matt silver	NJPMAL3571PL USA reference: NJPMAL357113
50 mm. (2")	50 mm. (2")	71 mm. (2-3/16")	+/- 5 mm. (13/64")	10 mm. (3/8")	Semi-heavy	Natural	NJPMAL5071
						Anodised matt silver	NJPMAL5071PL USA reference: NJPMAL507113
70 mm. (2-3/4")	50 mm. (2")	71 mm. (2-3/16")	+/- 5 mm. (13/64")	10 mm. (3/8")	Semi-heavy	Natural	NJPMAL7071
						Anodised matt silver	NJPMAL7071PL USA reference: NJPMAL707113

TECHNICAL FEATURES

Alloy	6063	AA y ASTM
	L-3441	UNE 38-301-89
Flame resistance	M0	UNE 23-727-90
Abrasion resistance	Very high (*)	
Opacity to light	Excellent (*)	
Appearance and colour	EN 12373-1 (*)	
Traction / Compression	+ /- 5 mm. (13/64")	AIMME
Solid wheel track load	7263 N	AIMME
Pneumatic tyre track load	45102 N	AIMME

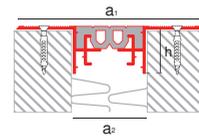
(*) With an anodised matt silver finish

ACCESSORIES

- Watertight membrane: a flange of rubber that ensures a hermetic seal on the joint. It is easily installed using the self-adhesive strips on its inner face.

1.4 NOVOJUNTA PRO® NON-SLIP

Model registered as EU Community
Design No 869891-4



Novojunta Pro® Non-slip is a pre-shaped profile for structural joints comprising two aluminium profiles joined via a central body of high-quality EPDM rubber. It is installed as an overlay onto paving or cladding, and has non-slip properties that make it suitable for all traffic types. It absorbs deformations and geometric variations along three movement axes:

- Horizontal movement, which absorbs the contraction and dilation of walls and flooring;
- Vertical movement caused by settling and/or load deflection on flooring;
- Differential movement in the shear direction.

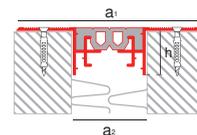
MAIN FEATURES

- For joint widths up to **34 mm or 44 mm. (1-5/16" to 1-3/4")**
- Admission of movement **up to 14 mm. (35/64")**
- For **light-load** traffic.
- It is laid **after** the paving or **cladding** and is overlaid.
- It can be installed **between paving materials of different thicknesses**.
- **Fast, simple installation**, without the need for skilled labour, meaning **savings in installation and handling costs**.
- It is delivered **pre-assembled**, machined, identified by barcode and with a protective film on the visible face.

APPLICATIONS

Novojunta Pro® Non-slip can be laid on paving joints of any thickness, thanks to its overlaid attachment flange. The joint's excellent resistance to wear and its non-slip properties make it ideal for high traffic areas such as **shopping centres, hospitals, schools or public buildings in general**. The central rubber strip can be replaced easily once its useful life is over. Aluminium pieces can be selected anodised for greater resistance of the assembly.

1.4 NOVOJUNTA PRO® NON-SLIP



NOVOJUNTA PRO® NON-SLIP SELECTION TABLE

h: Height of installation	a2: Width of joint	a1: Width of visible profile	Movement contraction/dilatation	Movement total	Loads supported	Finish	References
20 mm. (3/4")	34 mm. (1-5/16")	87 mm. (3-15/32")	+/- 5 mm. (13/64")	10 mm. (3/8")	Light	Natural	NJPADAL2087
						Anodised matt silver	NJPADAL2087P USA reference: NJPADAL2087A
20 mm. (3/4")	44 mm. (1-3/4")	97 mm. (3-7/8")	+/- 7 mm. (9/32")	14 mm. (35/64")	Light	Natural	NJPADAL2097
						Anodised matt silver	NJPADAL2097P USA reference: NJPADAL2097A

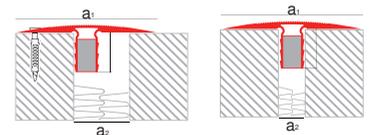
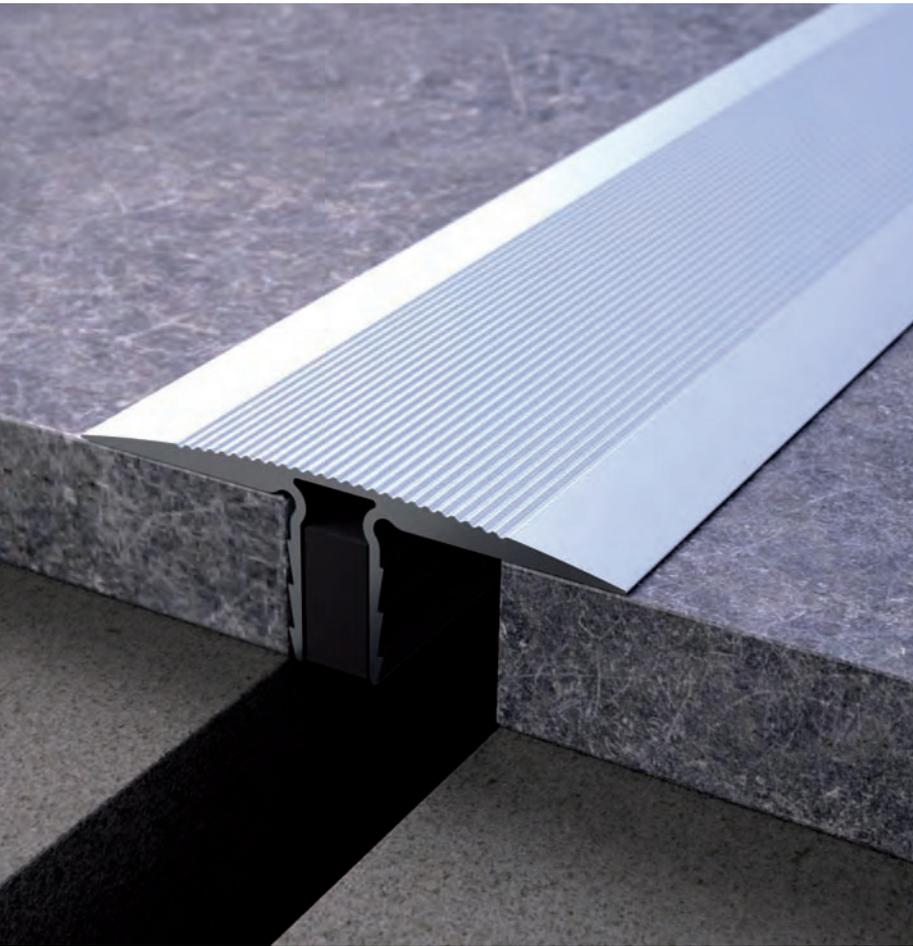
TECHNICAL FEATURES

Alloy	6063	AA y ASTM
	L-3441	UNE 38-301-89
Flame resistance	M0	UNE 23-727-90
Abrasion resistance	Very high (*)	
Opacity to light	Excellent (*)	
Appearance and colour	EN 12373-1 (*)	
Weather resistance	Very high	
Ozone resistance	Yes	ASTM D1149
Plastic deformation	<25%	ASTM D395
Elongation at break	>300%	ASTM D412
Working temperature	-40°C / +120°C	UNE 53535
Thermal air aging (70°C/70 h.)	Variation of hardness: 5 shA	ASTM D573
	Break load: -15%	
	Elongation: -40%	
Loads supported	Light loads	ACI 302.1R-89 ACI 360R-92
Traction / Compression	+/- 5 mm. (13/64") +/- 7 mm. (9/32")	AIMME
Resistance to chemical agents	Very high to acids, bases, hot water and steam.	

(*) On anodised profiles

1.5 NOVOJUNTA PRO® DECOR

Model registered as EU Community
Design No 869890-3



Novojunta Pro® Decor is a joint manufactured in aluminium with an inner body of EPDM spongy rubber. This profile, which can be overlaid paving or cladding, possesses non-slip properties due to its striated visible face. It is suitable for light-load traffic.

It absorbs deformations and geometric variations along two movement axes:

- Horizontal movement, which absorbs the contraction and dilation of walls and flooring;
- Differential movement in the shear direction.

MAIN FEATURES

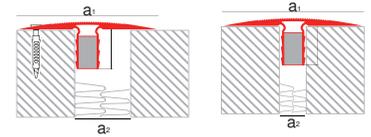
- For joint widths **from 12.6 mm to 30 mm. (1/2" to 1-3/16")**
- Admission of movement **up to 29.1 mm. (1-5/32")**
- For **light-load** traffic.
- It is installed after **paving or cladding** as an overlay.
- **Fast, easy installation**, without the need for skilled labour.
- It is delivered **pre-assembled**, identified by barcode and with a protective film on the visible face.

APPLICATIONS

Novojunta Pro® Decor can be laid on paving or cladding joints of any thickness because it is installed as an overlay. This is a light profile that can be installed on floors, walls or ceilings, acting to beautify the structural joints. To attach on façades it should be fixed using screws on one side.

The joint's excellent resistance to wear and its non-slip and other properties make it ideal for high traffic areas such as **shopping centres, hospitals, schools or public buildings in general.**

1.5 NOVOJUNTA PRO® DECOR



NOVOJUNTA PRO® DECOR SELECTION TABLE

h: Height of installation	a2: Width of joint	a1: Width of visible profile	Movement contraction/dilatation	Movement total	Loads supported	Finish	References
20 mm. (3/4")	12,6 mm. (1/2")	87 mm. (3-15/32")	+/- 1,7 mm. (1/16")	3,4 mm (1/8")	Light	Natural	NIPDAL2070
						Anodised matt silver	NIPDAL2070PL USA reference: NIPDAL207013
20 mm. (3/4")	30 mm. (1-3/16")	87 mm. (3-15/32")	+19,1/- 8 mm. (3/4") / (5/16")	29,1 mm (1-5/32")	Light	Natural	NIPDAL2070
						Anodised matt silver	NIPDAL2070PL USA reference: NIPDAL207013

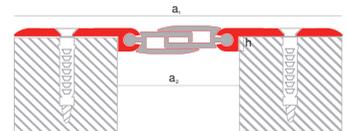
TECHNICAL FEATURES

Alloy	6063	AA y ASTM
	L-3441	UNE 38-301-89
Total flame resistance	M0	UNE 23-727-90
Abrasion resistance	Very high (*)	
Opacity to light	Excellent (*)	
Appearance and colour	EN 12373-1 (*)	
Loads supported	Light loads	ACI 302.1R-89 ACI 360R-92
Traction – Compression in joint width 12.6 mm. (1/2")	+/- 1.7 mm. (1/16")	AIMME
Traction – Compression in joint width 30 mm. (1-3/16")	+19,1 / - 8 mm. (3/4") / (5/16")	
Resistance to compression at 50% deformation	80 - 160 kPa	

(*) On anodised profiles

1.6 NOVOJUNTA PRO® AL30

Patent Pending



Novojunta Pro® AL30 is a pre-shaped profile system designed for 30-mm structural joints, manufactured in matt silver anodized aluminium. It is overlaid after the laying of paving or cladding and is suitable for medium-load traffic. It absorbs deformations and geometric variations along the three movement axes, with six degrees of freedom:

- Horizontal movement, which absorbs the contraction and dilation of walls and flooring;
- Vertical movement caused by settling and/or load deflection on flooring;
- Differential movement with a shear effect;

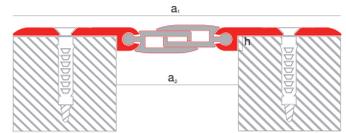
MAIN FEATURES

- For joint widths **from 25.3 mm. to 34.7 mm. (1" to 1-3/8")**
- Admission of movement **up to 9.4 mm. (3/8")**
- For **medium load** traffic.
- It is installed **after** paving or cladding as an **overlay**.
- **Fast, simple installation**, without the need for skilled labour, meaning **savings in installation and handling costs**.
- It is delivered **pre-assembled**, identified by barcode and with a protective film on the visible face.

APPLICATIONS

Novojunta Pro® AL30 is a joint especially designed for installing in walls and ceilings or applications on façades, even if its excellent behaviour makes it perfect for installing on paving that bears medium-load traffic. It is manufactured wholly in anodised aluminium, which gives it additional resistance. Its striated surface has non-slip properties. This system of profiles is light and resistant. It is easily handled and installed, which translates into important cost savings. It is perfect both for **public buildings (hospitals, parking buildings, schools...)** and for residential use.

1.6 NOVOJUNTA PRO® AL30



NOVOJUNTA PRO® AL30 SELECTION TABLE

h: Height of installation	a2: Width of joint	a1: Width of visible profile	Movement contraction/dilatation	Movement total	Difference Vertical	Loads supported	References
3,8 mm (3/16")	30 mm (1-3/16")	82 mm (3-1/4")	+/- 4,7 mm. (3/16")	9,4 mm (3/8")	5 mm. (13/64")	Medium	NJPAL30PL25 USA reference: NJPAL3013
3,8 mm (3/16")	25,3 mm (1")	77,3 mm. (3-3/32")	+ 9.4 mm. (3/8")				
3,8 mm (3/16")	34,7 mm (1-3/8")	86,7 mm. (3-7/16")	- 9.4 mm. (3/8")				

TECHNICAL FEATURES

Alloy	6063	AA y ASTM
	L-3441	UNE 38-301-89
Flame resistance	M0	UNE 23-727-90
Abrasion resistance	Very high	
Opacity to light	Excellent	
Appearance and colour	EN 12373-1	
Loads supported	Medium loads	ACI 302.1R-89 ACI 360R-92
Traction / Compression	+ /- 5 mm. (13/64")	AIMME
Solid wheel track load	6000 N	AIMME
Pneumatic tyre track load	50000 N (without break)	AIMME

PLANET EARTH

The earth is alive. The lithosphere (the Earth's solid outer mantle) is in constant movement. There is no region of the planet that is exempt from the risk of a possible earthquake.

An earthquake or earth tremor is a shaking of the ground that occurs due to the grinding together of the tectonic plates and the releasing of energy through an abrupt reorganisation of materials in the earth's crust as it overcomes its point of mechanical stasis.

The borders of the tectonic plates represent the zones of greatest seismic hazard. This hazard is higher where several of these converge.

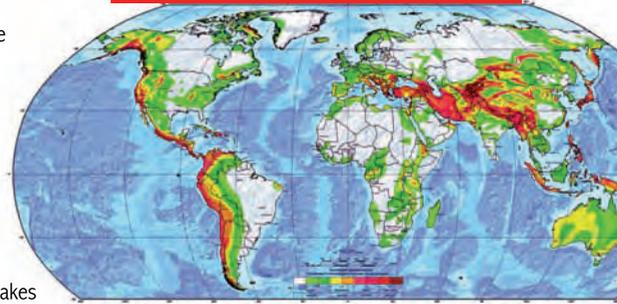
According to Bertero (1992), seismic hazard or the destructive potential of earthquakes is determined by four conditions:

- The earthquake's severity, or magnitude; The earth movement that has occurred, which affects constructions.
- The epicentre and one's distance from it.
- The size, distribution and economic development of the affected populations.
- **Preparation against the quake** is defined as the population's response capability and the preventative measures that are taken against the risk of an earthquake.

Regarding the phenomena of earthquakes, **construction plays a fundamental role** in guaranteeing the safety and stability of buildings. This is especially important in buildings that are needed for the population to survive, such as hospitals, fire stations, etc. Countries such as Japan, the USA and Chile have developed extremely strict regulations to ensure that buildings survive seismic events without failure or collapse.

For the development of Novojunta Pro® SEISMIC range, our technical department has studied the most representative regulations concerning earthquake-resistance construction: ISO 3010, NCh433 (Chile), SDB-Seismic Design for Buildings (EE.UU.), Eurocode 8 (European Union), and the compilations made by IAEE (International Association for Earthquake Engineering), which in its Regulations for Seismic Design includes regulations for earthquake-resistance construction of more than 30 countries (including Japan), and PEHA (Practice of Earthquake Hazard Assessment) which includes up to 88 countries.

These regulations specify that all constructions must be separated from each other a minimum distance to avoid the shock effects of a seismic tremor. This distance must be two times greater than the maximum movement of the building during an earthquake. These distances of predictable movement are calculated by taking into account many factors such as the type of structure, building height, type of subsoil and seismic hazard of the area, among others. This movement is what the seismic joint should allow for, to avoid collapse and to ensure proper functionality of the building.



In Europe, earthquake protection is regulated by **Eurocode 8: Design of structures for earthquake resistance**, which indicates the requirements on Uniformity and Symmetry of constructions, to improve response to seismic movements. Therefore, a cubic design for buildings is recommended, without irregular geometry. Uniformity can be achieved by subdividing the building using seismic joints.

The Novojunta Pro® SEISMIC range by Emac® has been designed specifically to avoid as far as possible any structural damage to constructions in seismic hazard zones. During design, all the directives set by regulations concerning earthquake-resistant construction have been followed.

The system was subjected to demanding characterisation trials in independent technological institutes, and obtained a special mention in the Construmat Awards 2011 in the category "Products for Structures and Enclosures".

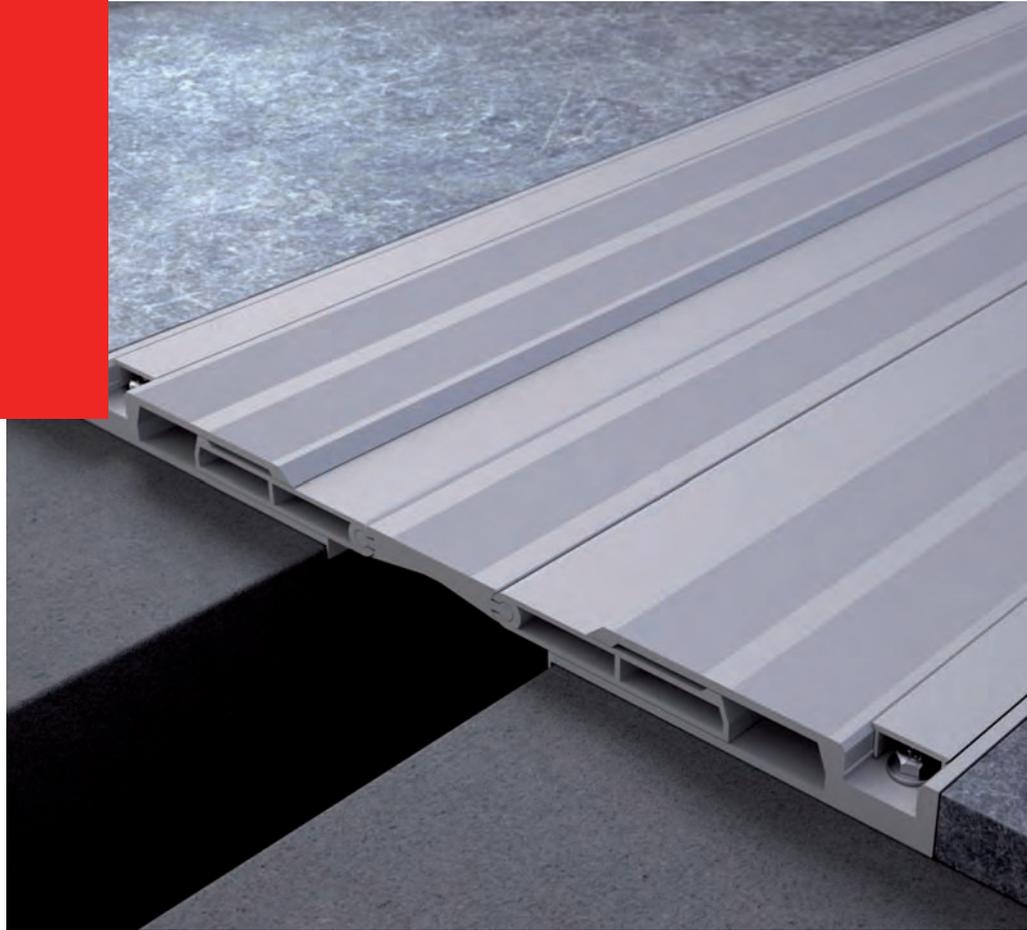
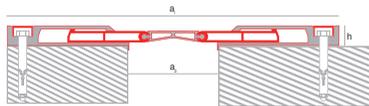
NOVOJUNTA PRO® SEISMIC

2.

2.1

NOVOJUNTA PRO® SEISMIC SU

Patent Pending



Novojunta Pro® Seismic SU is a pre-shaped profile system for structural joints in paving, especially designed for areas of seismic hazard. Manufactured in matt silver anodised aluminium with a non-slip surface. It absorbs deformations and geometric variations along three movement axes:

- Horizontal contraction and dilation movements;
- Differential movement with a shear effect;
- Vertical movement.

Furthermore, **it can overcome seismic vibrations without collapse** while remaining functionally sound.

MAIN FEATURES

- For joint widths **from 35 mm to 165 mm. (1-3/8" to 6-9/16")**
- Admission of movement **up to 130 mm. (5-13/64")**
- For **semi-heavy** load traffic.
- To be installed **prior** to the paving, then once installed it remains **levelled** with the same.
- **Fast, simple installation**, without the need for skilled labour, meaning **savings in installation and handling costs**.
- It is delivered **pre-assembled**, machined, identified by barcode and with a protective film on the visible face.

APPLICATIONS

Novojunta Pro® SEISMIC SU was developed to be installed in the paving of all building types located in **earthquake risk zones**.



See our explanatory video by capturing this QR code on your Smartphone or going to our corporate channel on YouTube (<http://www.youtube.com/user/emaccompanentes>).

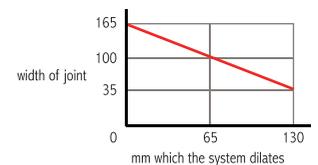
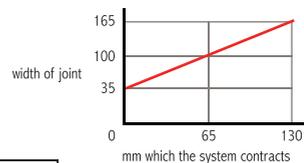
2.1 NOVOJUNTA PRO® SEISMIC SU



NOVOJUNTA PRO® SEISMIC SU SELECTION TABLE

h: Height of installation	a2: Width of joint	a1: Width of visible profile	Movement Contraction/dilation	Movement total	Difference Vertical	Loads supported	Reference
21,6 mm. (7/8")	100 mm. (3-15/16")	367,7 mm. (14-15/32")	+/- 65 mm. (2-9/16")	130 mm. (5-1/8")	12 mm. (15/32")	Semi-heavy	NIPSUALPL25 USA reference: NIPSU13

In the event of installing other joint widths, you can check the system's contraction and dilation movement on these graphs:



TECHNICAL FEATURES

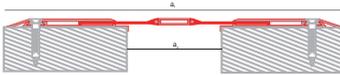
Alloy	6063	AA y ASTM
	L-3441	UNE 38-301-89
Flame resistance	M0	UNE 23-727-90
Abrasion resistance	Very high	
Opacity to light	Excellent	
Appearance and colour	EN 12373-1	
Loads supported	Loads*	ACI 302.1R-89 ACI 360R-92
Traction / Compression	+ /- 65 mm. (2-9/16")	AIMME
Solid wheel track load	6000 N	AIMME
Pneumatic tyre track load	50000 N (without break)	AIMME

*Loads:
Heavy weight for slow or static traffic
Semi-heavy weight for dynamic traffic

2.2

NOVOJUNTA PRO® SEISMIC PA

Patent Pending



Novojunta Pro® Seismic PA is a pre-shaped profile system for structural joints in walls and ceilings, especially designed for areas of seismic hazard. Manufactured in matt silver anodised aluminium. It absorbs deformations and geometric variations along three movement axes:

- Horizontal contraction and dilation movements;
- Differential movement with a shear effect;
- Vertical movement.

Furthermore, **it can overcome seismic vibrations without collapse** while remaining functionally sound.

MAIN FEATURES

- For joint widths **from 35 mm to 165 mm. (1-3/8" to 6-9/16")**
- Admission of movement **up to 130 mm. (5-13/64")**
- To be installed **after** the cladding. Once installed, it is **overlaid** over the cladding.
- **Fast, simple installation**, without the need for skilled labour, meaning **savings in installation and handling costs**.
- It is delivered **pre-assembled**, machined, identified by barcode and with a protective film on the visible face.

APPLICATIONS

Novojunta Pro® Seismic PA was developed to be installed in the cladding of all building types located in **earthquake hazard zones**.

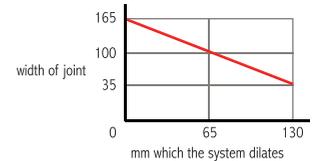
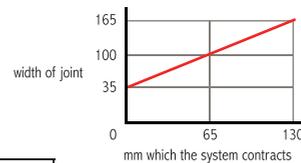
2.2. NOVOJUNTA PRO® SEISMIC PA



NOVOJUNTA PRO® SEISMIC PA SELECTION TABLE

a2: Width of joint	a1: Width of visible profile	Movement Contraction/dilation	Movement total	Difference Vertical	Reference
100 mm. (3-15/16")	357,5 mm. (14-1/16")	+/- 65 mm. (2-9/16")	130 mm. (5-1/8")	10 mm. (3/8")	NJPPAALPL25 USA reference: NJPPA13

In the event of installing other joint widths, you can check the system's contraction and dilation movement on these graphs:



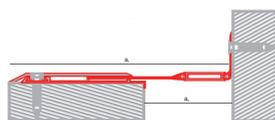
TECHNICAL FEATURES

Alloy	6063	AA y ASTM
	L-3441	UNE 38-301-89
Flame resistance	M0	UNE 23-727-90
Abrasion resistance	Very high	
Opacity to light	Excellent	
Appearance and colour	EN 12373-1	
Traction / Compression	+ /- 65 mm. (2-9/16")	AIMME
Solid wheel track load	6000 N	AIMME
Pneumatic tyre track load	50000 N (without break)	AIMME

2.3

NOVOJUNTA PRO® SEISMIC PE

Patent Pending



Novojunta Pro® Seismic Pe is a pre-shaped profile system for structural joints in perimeters and gaps between building elements, especially designed for areas of seismic hazard. Manufactured in matt silver anodised aluminium. It absorbs deformations and geometric variations along three movement axes:

- Horizontal contraction and dilation movements;
- Differential movement with a shear effect;
- Vertical movement.

Furthermore, **it can overcome seismic vibrations without collapse** while remaining functionally sound.

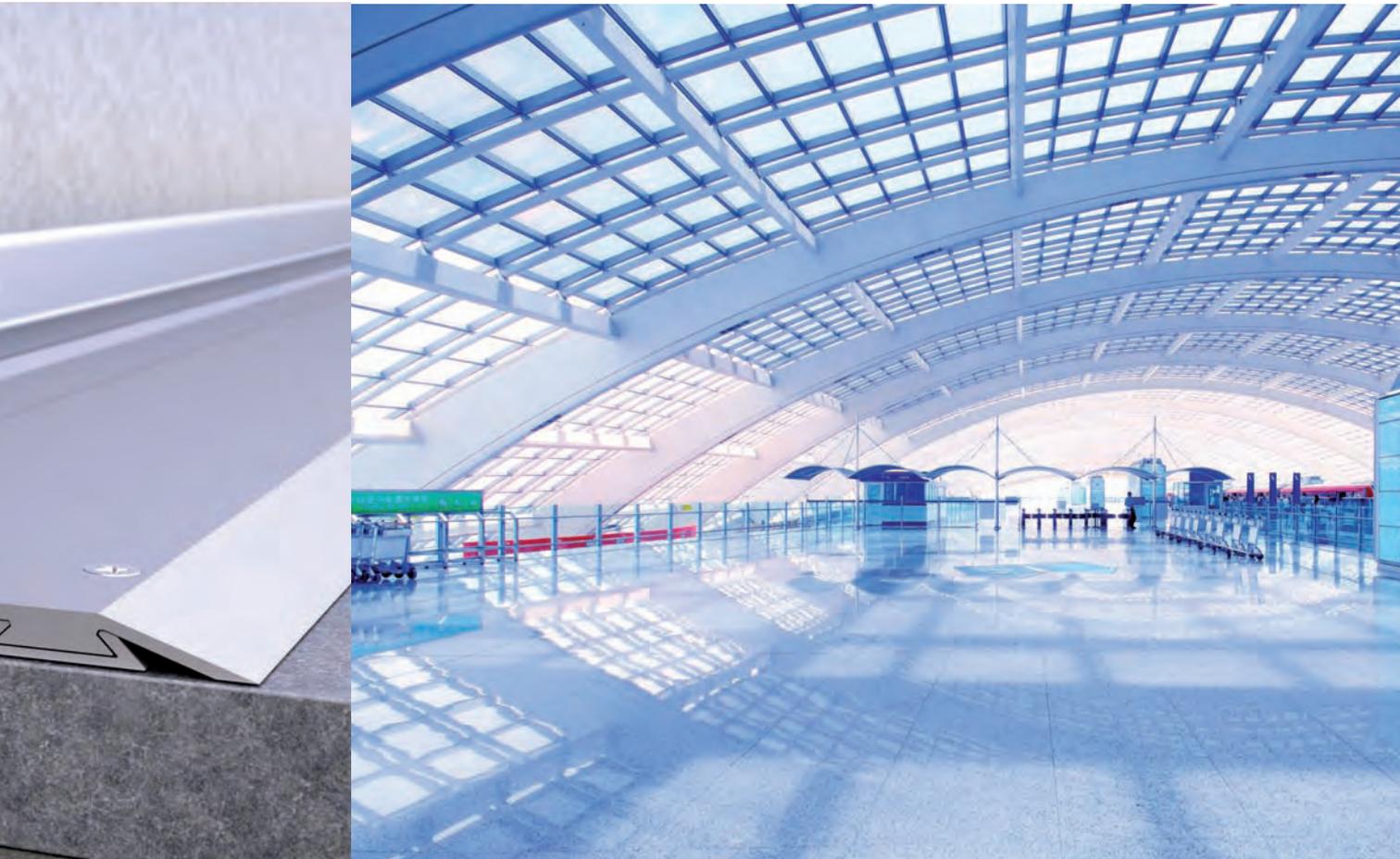
MAIN FEATURES

- For joint widths **from 74 mm to 106.5 mm. (2-15/16" to 4-3/16")**
- Admission of movement **up to 65 mm. (2-9/16")**
- It bears vertical movement **up to 10 mm. (3/8")**
- To be installed **after** the cladding. Once installed, it is **overlaid** over the cladding.
- **Fast, simple installation**, without the need for skilled labour, meaning **savings in installation and handling costs**.
- It is delivered **pre-assembled**, machined, identified by barcode and with a protective film on the visible face.

APPLICATIONS

Novojunta Pro® Seismic PE was developed to be installed in the perimeters and gaps between construction elements of all building types located in **earthquake hazard zones**.

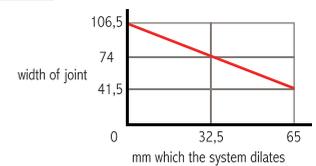
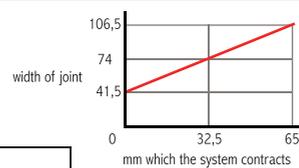
2.3 NOVOJUNTA PRO® SEISMIC PE



NOVOJUNTA PRO® SEISMIC PE SELECTION TABLE

a2: Width of joint	a1: Width of visible profile	Movement Contraction/dilation	Movement total	Difference Vertical	Reference
74 mm. (2-15/16")	193,5 mm. (7-5/8")	+/- 32,5 mm. (1-9/32")	65 mm. (2-9/16")	10 mm. (3/8")	NJPPEALPL25 USA reference: NJPPE13

In the event of installing other joint widths, you can check the system's contraction and dilation movement on these graphs:



TECHNICAL FEATURES

Alloy	6063	AA y ASTM
	L-3441	UNE 38-301-89
Flame resistance	M0	UNE 23-727-90
Abrasion resistance	Very high	
Opacity to light	Excellent	
Appearance and colour	EN 12373-1	
Traction / Compression	+ /- 35 mm. (+/- 32,5mm.)	AIMME
Solid wheel track load	6000 N	AIMME
Pneumatic tyre track load	50000 N (without break)	AIMME

HOW TO CHOOSE THE APPROPRIATE STRUCTURAL JOINT

What kind of joint is?	Is the floor finished?	What width of joint do you need?	What kind of traffic is?	Emac® suitable profile
Floor - wall	Yes (the joint shall be overlapped)	Aprox. 1-5/16"-1-3/4" (34 - 44 mm.)	No traffic	Novojunta Pro® Perimeter Overlapped
		2-15/16" / (74 mm.)	No traffic	Novojunta Pro® Seismic PE
	No	Aprox. 1-5/16"-1-3/4" (34 - 44 mm.)	No traffic	Novojunta Pro® Perimeter Upper
Floor - Floor	Yes (the joint shall be overlapped)	Less or equal than 1-3/16" (30 mm.)	Traffic of light loads	Novojunta Pro® Decor
			Traffic of medium loads	Novojunta Pro® AL30
	No	Between 1-3/16"-1-3/4" (30 - 44 mm.)	Traffic of light loads	Novojunta Pro® Non-slip
			Traffic of light loads	Novojunta Pro® Aluminium
			Traffic of medium loads	Novojunta Pro® Aluminium + Reinforcement
			Traffic of medium loads	Novojunta Pro® Aluminium + Reinforcement
No	Between 2" - 2-3/16" (50 - 55 mm.)	Traffic of medium loads	Novojunta Pro® Aluminium + Reinforcement	
		Traffic of semi-heavy loads	Novojunta Pro® Mobile	
Wall - Wall	Yes (the shall will be overlapped)	Less or equal than 1-3/16" (30 mm.)	No traffic	Novojunta Pro® Decor
			No traffic	Novojunta Pro® AL30
		Aprox. 1-5/16"-1-3/4" (34 - 44 mm.)	No traffic	Novojunta Pro® Non-slip
Wall - Wall	Yes (the shall will be overlapped)	2-15/16" / (74 mm.)	No traffic	Novojunta Pro® Seismic PA

TRAFFIC LOAD CLASSIFICATION



LIGHT WEIGHT

- It allows traffic of F Category following the ACI (American Concrete Institute) standards, ACI 302. 1R-89 and ACI 360R-92, for light vehicles with a net weight < 30KN and < than 8 seats disregarding the driver's one.
- FL1 classification carts following the ACI (American Concrete Institute) standards, ACI 302. 1R-89 and ACI 360R-92 with pneumatic or inflexible wheels, with a net weight of 21KN and a total load up to 10 KN.
- It allows static overload less than 1t/m2 and the vehicle crossing with pneumatic wheels with less than 1t/axle following the NTE-RSC classification as light weight load upon bottom plate.
- Central and lineal weight of 0.5KN.



MEDIUM WEIGHT

- It allows traffic of G Category following the ACI (American Concrete Institute) standards, ACI 302. 1R-89 and ACI 360R-92, for light vehicles with a net weight < to 30KN and < than 160KN divided between both axes.
- Inflexible and pneumatic wheeled carts with FL 1, 2 and 3 classifications with a net weight of 44KN and a load up to 25KN, with a total weight per axle of 63 KN following the ACI (American Concrete Institute) standards, ACI 302. 1R-89 and ACI 360R-92.
- It allows static overload less than 5t/m2 and vehicle crossing with pneumatic wheels with less than 2.5t/axle following the NTE-RSC classification as light weight load upon the bottom plate.
- Central and lineal weight of 0.8KN

TRIALS



The entire **Novojunta Pro®** range is the result of a rigorous **R&D&I** project. It is **Emac®'s own project**, protected by registered patent.

We place special importance on the characterisation of our products in order to offer the fullest, clearest and most detailed information. That is why all its properties have been tested at independent technological institutes belonging to the **REDIT** (Network of Technological Institutes, Valencia, Spain).

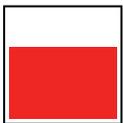
Our various solutions have been **subjected to load trials** where the weight pressure of forklifts and vehicles was applied using the corresponding tyres to guarantee the quality and safety of its installation.

It has also **passed tests on permitted movement capacity**, checking that it can return to its initial position without plastic (permanent) deformation.

The EPDM rubber was subjected to a diversity of trials to confirm its high resistance to abrasion, its mechanical properties, **its adequate performance at high temperatures** and other trials stemming from the regulations on the characterisation of vulcanised rubbers.

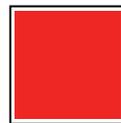
We maintain a close, constant relationship with **technological institutes** and continue to research and perform new trials.

At www.emac.es you will find the most updated information in this regard.



SEMI-HEAVY WEIGHT

- It allows traffic of G Category following the ACI (American Concrete Institute) standards, ACI 302. 1R-89 and ACI 360R-92, for light vehicles with a net weight < to 30KN and < than 160KN divided between both axles.
- Inflexible and pneumatic wheeled carts with FL 1. 2 and 3 classifications with a net weight of 60KN and a load up to 90KN, with a total weight per axle of 63KN following the ACI standard, American Concrete Institute ACI 302. 1R-89 and ACI 360R-92.
- It allows static overload less than 5t/m2 and vehicle crossing with pneumatic wheels with less than 2.5 t/axle following the NTE-RSC classification as light weight load upon the bottom plate.
- Transport vehicles up to 38KN per axle, in simple axle models. It can support up to 60KN per axle with slow traffic.



HEAVY WEIGHT

- It allows traffic of G Category following the ACI (American Concrete Institute) standards, ACI 302. 1R-89 and ACI 360R-92, for light vehicles with a net weight < to 30KN and < than 160KN divided between both axles.
- Inflexible and pneumatic wheeled carts with FL 1. 2 and 3 classifications with a net weight of 60KN and a load up to 90KN, with a total weight per axle of 63KN following the ACI standard, American Concrete Institute ACI 302. 1R-89 and ACI 360R-92.
- It allows static overload less than 5t/m2 and vehicle crossing with pneumatic wheels with less than 2.5 t/axle following the NTE-RSC classification as light weight load upon the bottom plate.
- Transport vehicles up to 38KN per axle, in simple axle models. It can support up to 60KN per axle with slow traffic.

PROJECTS

In the last 20 years, hundreds of projects worldwide have chosen our profiles for resolving their structural joint challenges. We present a few of them here. Dublin Airport (Ireland), United Nations Communications Centre in Valencia (Spain), Algarve Race Circuit (Portugal), King Juan Carlos I University in Madrid (Spain), Guatemala International Airport, Ikea shopping center in A Coruña (Spain), Public Parking “Serrano Street” in Madrid (Spain), Jumeirah Beach Residence in Dubai (United Arab Emirates), kitchens of University Hospital of Getafe (Spain), Ágora Building in City of Arts and Sciences of Valencia (Spain).

OBLIGATION-FREE CONSULTATION AND TECHNICAL STUDY

Our technical team is at your service to assess your project regarding the most suitable solution. Contact us and we will resolve your doubts or provide you with the technical information you need: technical files, trial certificates, CAD drawings, installation instructions...

Or, if you prefer, give us your plans and we will make the calculations regarding distribution of the joints needed for your project.





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