

## Plettro™ Acoustics & Design



Sound-absorbing panel **Plettro™** is inspired to the well-known musical accessory used by guitarists, but this geometric shape does not come exclusively from a design choice, and the reference to the musical world is only one of the suggestions. Indeed, the idea of this new product actually comes from this particular shape analysis and its potential acoustic performances, in addition to its notable aesthetic features and suitability for the integration in various architectural contexts.

**Plettro™** panel is suitable especially for prestigious historic buildings, thanks to its shape (comparable to a triangle), and can be placed in the typical horizontal position, but also adherent to complex vaulted ceilings (barrel, ribbed, cross or pavilion).

The modern and curious drawing of these sound absorbers lets **Plettro™** be suitable even for contemporary architectural contexts, such as big open workspaces, showrooms, museums and exhibition places.

Moreover, **Plettro™** panels are developed according to a green and sustainable approach, being completely realized with eco-compatible, recycled and recyclable materials.



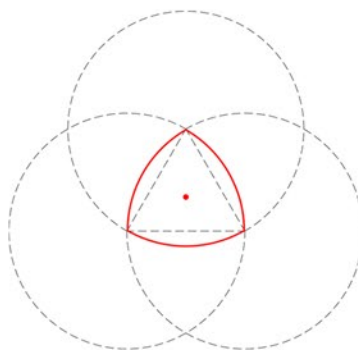
### ACOUSTIC COMFORT & DESIGN

Restaurants, offices, audio spaces, commercial premises, collective facilities

### REULEAUX TRIANGLE *Interaction between sound and shape*

**Plettro™** shape is well known with the technical name of "**Reuleaux Triangle**", and it consists of three curves based on the equilateral triangle, where all the perimetral points are exactly at the same distance from the triangle centre (as shown in the picture on the right, in which the three curves are represented with a dotted line and the perimetral points are in red colour).

It's thus a geometry extremely interesting from the acoustic point of view, because the panel surface can give an acoustic regular response to the incident sound wave, as in the circular form happens.



### SYSTEMS AND MATERIALS FOR ACOUSTIC COMFORT

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## CONSTRUCTION SYSTEM



The construction system of Plettro™ panels consists of thermo-smoothed and heat-bound PET polyester fibre, totally fire resistant, and an internal perimetral structure made of hot-molded plastic polymers. This solution permits to obtain an assembled panel with a high structural resistance, even if it maintains an extreme lightness if compared to the common and similar panels, realized with wooden or metallic structures.

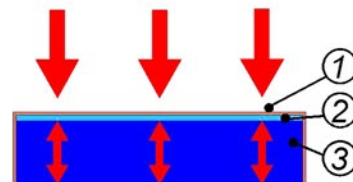
The surface covering is realized with a robust two-way stretch fabric made of fireproof polyester, available in a wide variety of textures and colours or personalized with any HD photographic printing required by the customer.

## OPERATING PRINCIPLES

The acoustic operating principle of Plettro™ panels is based on the concept of the “sound absorption by porosity”, associated to the concept of the “vibrating membrane”: indeed, polyester surfaces are thermo-smoothed, extending the panel’s performances even at low frequencies, where common sound-absorbing panels cannot be so much efficient.

The acoustic benefit is higher because of the capacity of the polyester fibre to dissipate the sound energy, through the vibrations and the rubbing of its filaments.

The scheme above describes the different layers of the panel and it explains the acoustic operating principle through red arrows, that represent the sound waves.

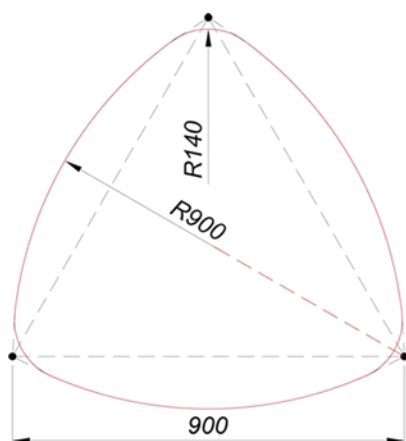


- 1 - Fabric covering
- 2 - Polyester membrane density 100 Kg/mc
- 3 - Polyester core density 45-50 Kg/mc

## DIMENSIONS AND COLOURS

Plettro™ sound absorbing panels are available in about 200 colours, 8 textures and dimensionally equivalent to an equilateral triangle with side of 900 mm.

For any design need, and for detailed construction measures, please look at the following scheme.



Standard thickness: 45 mm  
(other thicknesses available on request)

Approximate weight: 2 Kg/panel



## TECHNICAL SPECIFICATIONS AND CERTIFICATIONS

### INTERNAL PET POLYESTER FIBRE

#### Composition:

100% Polyester fibre  
Non-hazardous substance D.M. 12/02/93.

#### Fire resistance:

UNI EN 13501-1:2009 Euroclass B-s2,d0  
Emits no opaque or toxic fumes (ANFOR F1 16-101).

#### General features:

Resistant to chemical agents (acids, salts, hydrocarbons), microorganisms and bacteria, odour-free, water repellent, does not decay or absorb fumes and smells.

### PERIMETRAL STRUCTURAL FRAME

Hot-molded plastic polymers fire resistant Class 1 UNI 9177

### POLYESTER FABRIC COVERING

#### Fire reaction:

Italy - Class 1  
UNI EN 13501-1:2009 Euroclass B-s1,d0

#### Oeko-Tex® Standard 100 - Class 1

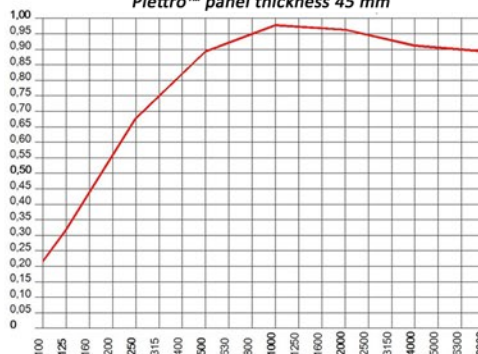
#### Abrasion resistance (Martindale):

UNI EN ISO 12947:2000 100.000 cycles  $\pm$  20%

#### Lightfastness (Xenotest):

UNI EN ISO 105 B02 5  $\pm$  1

Sound absorption values  
Plettro™ panel thickness 45 mm



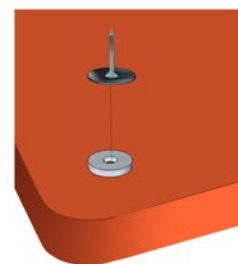
## INSTALLATION

Plettro™ panels may be installed on wall or to the ceiling, with the following fixing systems.

### Ceiling installation



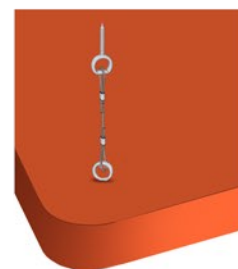
ADHERENT TO THE  
CEILING WITH  
MECHANIC  
SYSTEM



The installation of Plettro™ panels in adherence to the ceiling with magnetic system is extremely easy to do and permits to remove them for the cleaning operations.



SUSPENDED  
TO THE  
CEILING  
WITH CABLES  
IN FLAT MODE



Plettro™ panels may be installed with different inclinations, adjusting the cable length according to the desired installation height, thus obtaining a modern layout with a particular visual effect.

### Wall installation



INSTALLED ON THE  
WALL AS  
“ACOUSTIC  
FRAMEWORK”



Plettro™ panels don't contain vitreous fibres, glass wool or rock wool, nor formaldehyde. Moreover, there is no possibility to disperse any fibre or inhalable dust in the environment.

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