

General Fix

Fixing systems for technological
installations onto base supports

Waterproofing



Sustainability



Know-how



Performance



We stop water
and catch the sun



GENERAL FIX AND GENERAL FIX EVO

The fixing system

The General Membrane SpA Research & Development Department has developed and patented the General Fix Evo and General Fix systems for fixing photovoltaic modules, solar thermal installations and covering technological installations. Thanks to their specific features, the General Fix Evo and General Fix systems are installed without compromising the roof functionality and durability and without damaging the waterproofing layer. Both systems consist of specific fixing components designed and tested to withstand the high stress provoked by wind uplift.

The study

The General Membrane SpA laboratory has studied and tested the most reliable and safest materials in terms of resistance to wind uplift by carrying out strict chemical and mechanical tests aimed at checking the maximum fixing value guaranteed over time.

This value is essential for the dimensioning of any system employing General Fix EVO and General Fix.

Testing

In order to compare the laboratory values with the real operating conditions, General Membrane SpA has asked the Department of Mechanics of the Polytechnic University of Milan to re-create the same conditions to which the covering elements are exposed within the Wind Tunnel. The analysis of the test results has allowed us to realize a calculation system for the dimensioning and the physical positioning of the General Fix EVO and General Fix systems.



TESTS IN THE WIND TUNNEL Department of MECHANICS of the Polytechnic University of Milan

The dimensioning

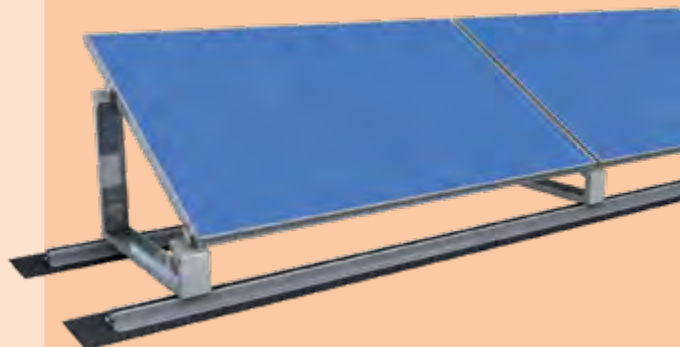
The General Membrane SpA Engineering Department has realized the dimensioning of the General Fix EVO and General Fix systems based on the application of the technological installation. The calculation of the system wind uplift is carried out taking into account the position of the installation, the place, the building structure as well as the surrounding type of ground.

This calculation considers both the data gathered from the "Wind Tunnel" as well as the following applicable regulations:

- 1 Ministerial Decree dated 14.01.2008, Technical Regulations on Constructions (NTC)
- 2 Circular Letter dated 02.02.2009 No. 617, Instructions for the application of NTC
- 3 Eurocode 9, Design of Aluminium Structures

The arrangement of modules

Installation in a flat position with respect to the covering surface on an Alufix primary frame. The system is installed in a flat position with respect to the covering, following its structure and enhancing rear ventilation of photovoltaic panels. The module can be installed longitudinally or crosswise compared to the profile frame.



Photovoltaic plant inclination with the aid of "General TILT duo". The photovoltaic module can be installed with different inclinations using General TILT, a triangle element for panel inclination, fully compatible with the General Fix EVO and General Fix systems.



THE SYSTEMS AND THE ADVANTAGES

Performance



Which system to choose

General Fix EVO and General Fix are the result of General Membrane SpA's know-how in the field of waterproofing systems and covering photovoltaic systems. The system is suitable to fix traditional photovoltaic modules and technological units onto horizontal and inclined coverings. Due to its light weight, it can be installed also on structures with a limited static load bearing capacity. The system is to be selected according to the type of waterproofing membrane.

Bituminous membrane: General Fix EVO Polymer-bituminous membrane finishing layer. The system is installed by making it fully adhere to the visible waterproofing layer (after verifying its cohesion to the support), be it smooth or slated.

Synthetic membrane: General Fix PVC/TPO synthetic membrane finishing layer. The system is installed onto the visible waterproofing layer (after verifying its cohesion to the support) by means of molecular fusion combined with the Velcro fixing technology.



General Fix EVO

Photovoltaic modules fixed onto coverings waterproofed using the existing bituminous membranes and the General Fix EVO system.



General Fix

Photovoltaic modules fixed onto coverings waterproofed using the existing synthetic membranes and the General Fix system.

Advantages

The basic philosophy behind the General Fix EVO and General Fix systems is creating a fixing system for photovoltaic modules or other technological installations, without compromising the underneath waterproofing membrane and without damaging the covering.



Lightweight



No ballast required



Quick installation and easy assembly

GENERAL FIX EVO BITUMINOUS MEMBRANE

Know-how



Components and applications

General Fix EVO can be applied on both flat and inclined coverings waterproofed with existing or newly-made polymer-bituminous membranes. The system consists of:

1 **Band 25** Connection band

Polymer-bituminous membrane band for fixing onto the covering waterproofing layer.

2 **Band 20 Mineral**

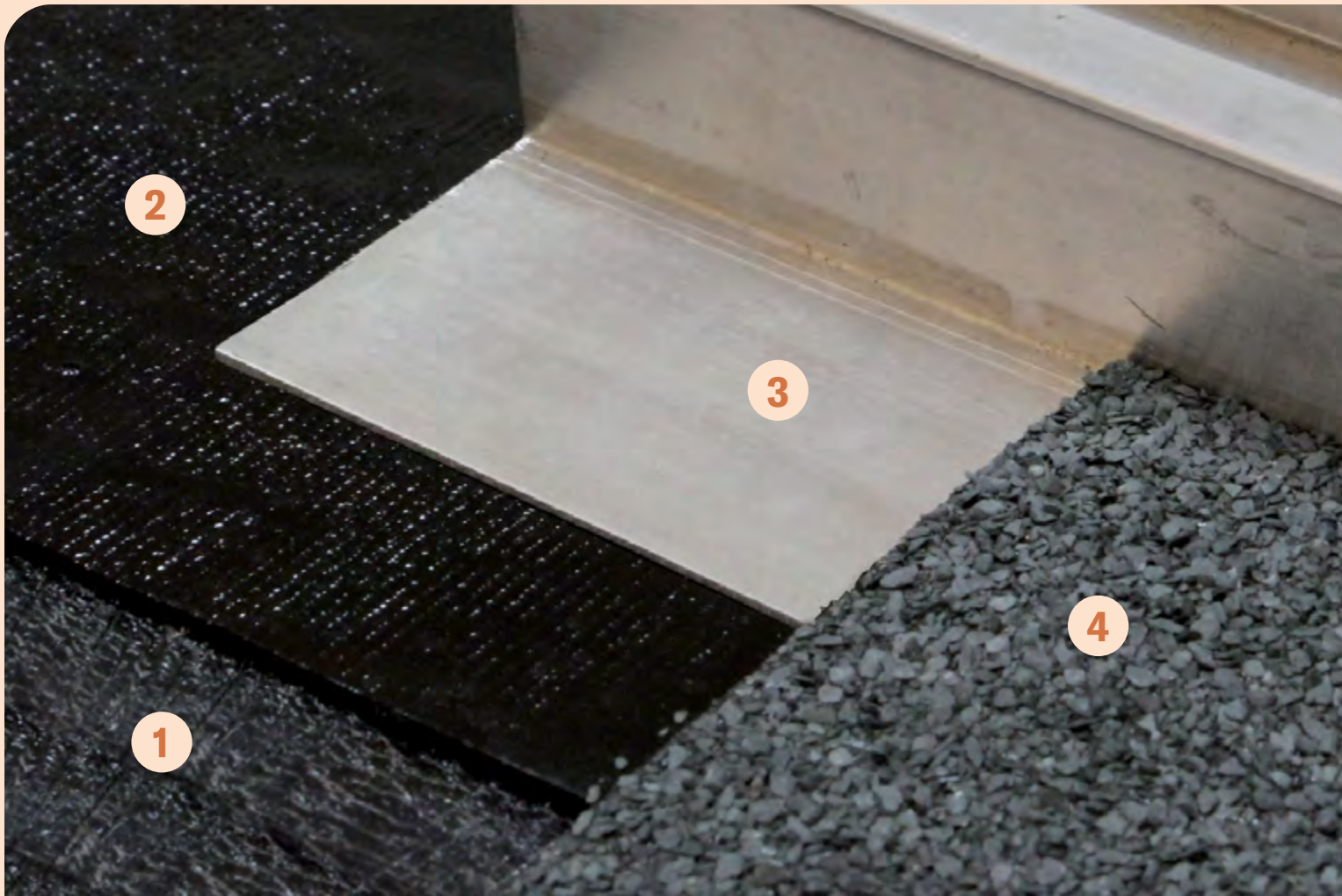
Polymer-bituminous membrane band featuring a specific mixture developed by General Membrane SpA R&D Department to ensure outstanding adherence and cohesion properties over time. Fitted with a double removable silicone film.

3 **Alufix**

Aluminium profile for fixing photovoltaic modules or technological installations. Its surface guarantees high adherence and resistance to uplift. The profile has a new structure with a central housing for accessories of connection to the base support.

4 **Band 20** Connection band between Alufix and Band 25

Slated membrane band used to complete the fixing system and to protect the underneath layers from UV rays, fitted with a removable silicone film on the lower side.

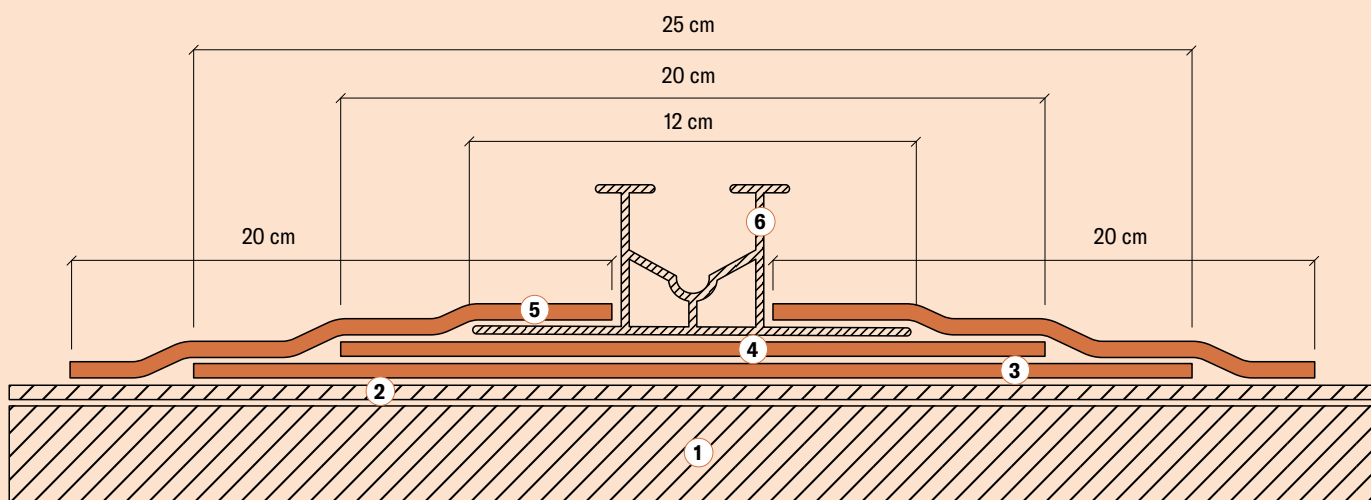




Variants	Support grade
General Fix EVO	$\leq 5^\circ$
General Fix EVO + General Stop	$> 5^\circ; < 10^\circ$
General Fix EVO + General Stop + Binding system	$> 10^\circ$



Stratigraphy



- | | | |
|-----------|---|-------------------|
| ① Support | ② Existing waterproofing / newly-made waterproofing | ③ Band 25 |
| ④ Band 20 | ⑤ Alufix EVO | ⑥ Band 20 Mineral |



GENERAL FIX SYNTHETIC MEMBRANE

Components and applications

General Fix can be applied on both flat and inclined coverings on synthetic layers.

The General Fix system consists of two elements:

1

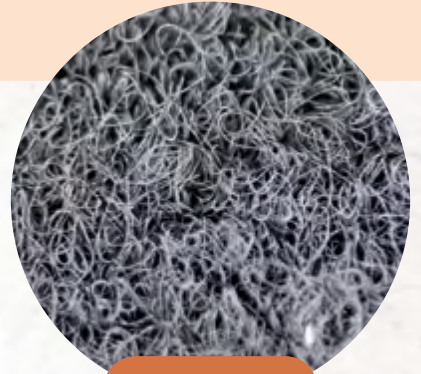
BandFix

1. VELCRO Loop band in the same material as the synthetic membrane

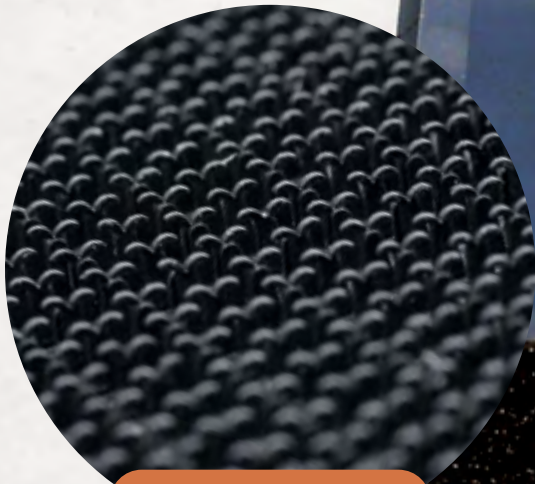
2

AluFix

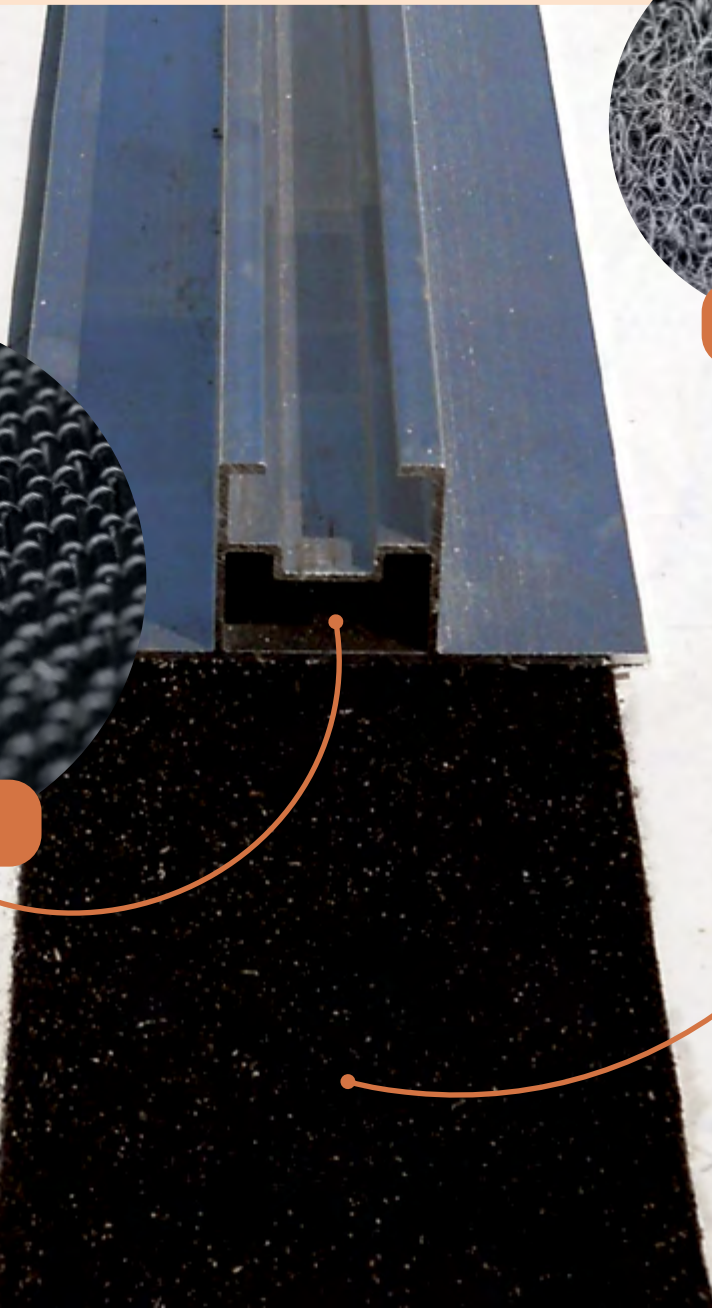
1. Aluminium profile.
2. VELCRO Hook band.



1 Loop



2 Hook

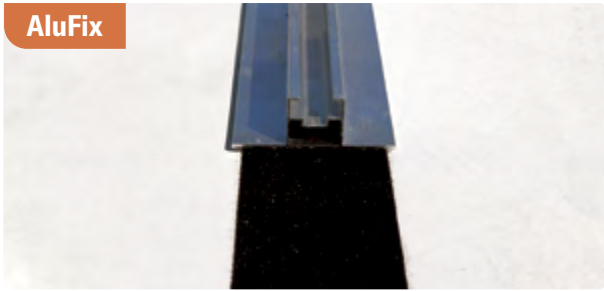




BandFix

Installation of Bandfix on a synthetic membrane

The installation by molecular fusion occurs by heating the lower surface of BandFix and the waterproofing membrane using hot air tools. This installation method will indissolubly weld the two elements.



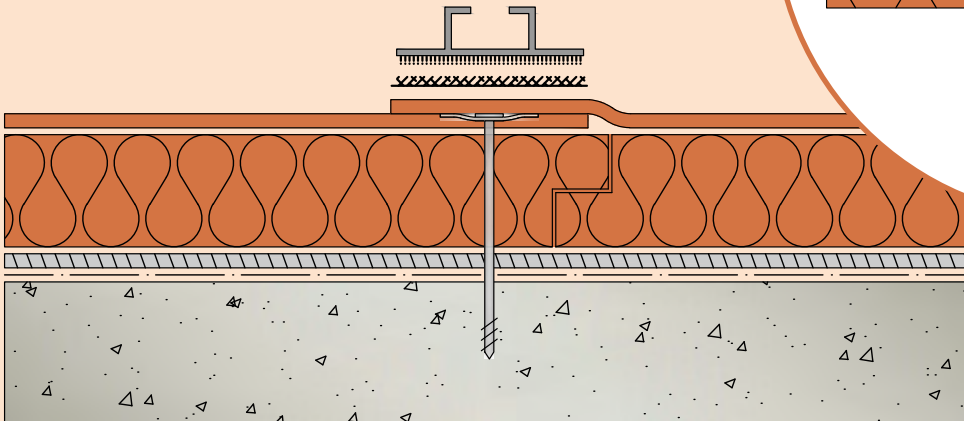
AluFix

Installation of Alufix on a synthetic membrane

AluFix: the aluminium profile with a Hook Velcro base is fixed onto BandFix - previously welded onto the waterproofing membrane - by simply placing and pressing it.

Synthetic waterproofing stratification

For further information about application, please visit our Youtube channel "General Membrane"



1 Hook
2 Loop



Look at the video





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