

# HIPERTEC® ROOF

## DESCRIPTION

**Hipertec® Roof** is a self-supporting panel, insulated with rockwool for roof applications, which require a high performance of fire resistance and/or high performance of sound insulation.

For the installation of this panel is required a minimum slope of 7%.

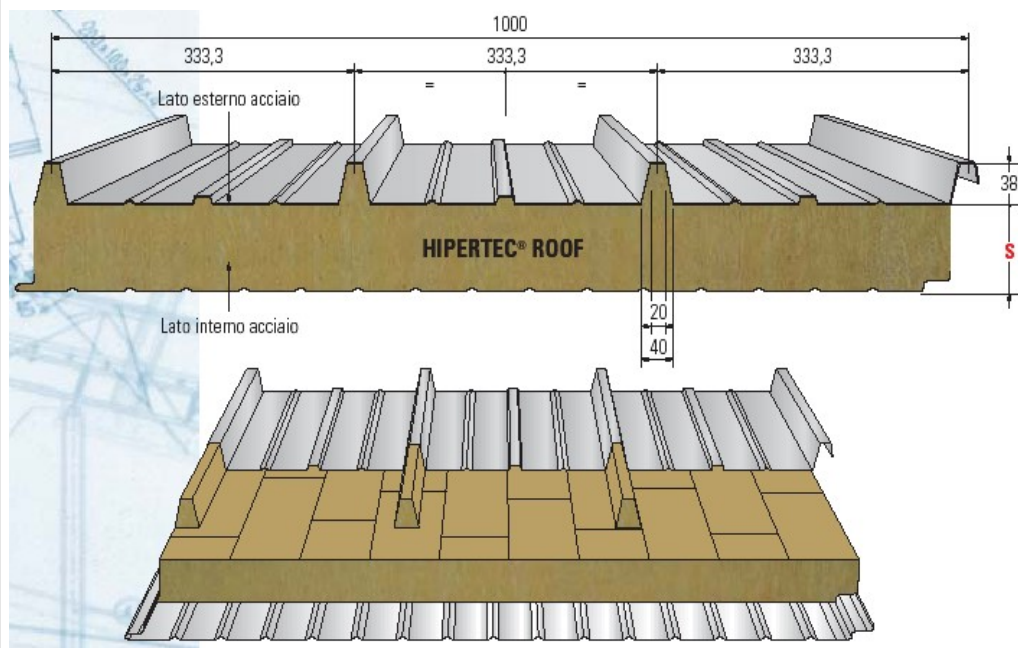
Metecno makes **Hipertec® Roof** with a patented system.

The external side of the panel is made of a metal corrugated steel, galvanized and pre-painted.

The internal side is made of micro ribbed sheet of galvanized and pre-painted steel.

Between the two plates is a layer of insulation core of oriented fibers high-density rock wool, arranged perpendicularly to the plane of the panel and positioned in strips, laid longitudinally with offset joints and transversely compacted, in such a way as to completely fill the space between the metal facings.

## GEOMETRICAL FEATURES



- ◆ Length: upon customer request with max length of transportation
- ◆ Working width: 1000 mm
- ◆ Core thickness: 50, 60, 80, 100, 120, 150, 180, 200 mm
- ◆ External sheet thickness: 0,6 mm
- ◆ Internal sheet thickness: 0,5 mm
- ◆ Thickness sheet tolerance : according EN 10143:2006
- ◆ N° of ribs (external side) : 4
- ◆ Depth rib: 38 mm
- ◆ Pitch of rib: 333.3 mm

**METAL BASE**

- ◆ Galvanized and pre-painted steel on continuous lines with cycles based on polyester resins, super-polyester, PVDF (polyvinylidene fluoride), on the visible side; a back-coat is applied on the internal side of the sheets.

**PREPAINTED COATINGS PROTECTION**

- ◆ All the pre-painted elements are supplied with adhesive polythene strippable film that allows to avoid layer coating damages. In case the material express demanded without protecting film, METECNO ITALIA is not responsible for surface coatings damages.
- ◆ The protective film which cover the coated panels must be completely taken off during panel assembly and in any case within and not exceeding three months time from the material production date.

**REFERENCE STANDARD**

- ◆ Steel : Minimum quality S250 GD - UNI EN 10346:2015

**INSULATION**

- ◆ Rockwool with oriented fibre.
- ◆ Declared thermal conductivity  $\lambda = 0.042 \text{ W / m K}$
- ◆ Coefficient of thermal transmittance U calculated in accordance with the UNI-EN 14509:2013:

Thickness (mm)	50	60	80	100	120	150	180	200
Coefficient U (W/m <sup>2</sup> ·K)	<b>0,77</b>	<b>0,64</b>	<b>0,49</b>	<b>0,40</b>	<b>0,33</b>	<b>0,27</b>	<b>0,22</b>	<b>0,20</b>

(for panels with thickness steel 0,6 + 0,5 mm)

- ◆ Insulation density  $100 \text{ kg/m}^3 \pm 2$

**FIRE REACTION**

**Hipertec® Roof** was tested according to following standards:

- ◆ EN ISO 11925-2:2002 Reaction to fire tests - Ignitability of building products subjected to direct attack by a flame - Part 2: Test with a single source of flame
- ◆ UNI EN 13823:2005 Reaction to fire tests for building products - Building products excluding floorings exposed to the thermal attack by a single object produced in combustion

Following the outcome of these tests were classified according to:

- ◆ EN 13501-1:2007 Fire classification of construction products and building elements - Part 1: Classification using data from reaction to fire tests.

Classification obtained:

FIRE	SMOKE	DROPS
<b>A2</b>	<b>S1</b>	<b>d0</b>

**REACTION TO FIRE  
OUTSIDE**

**RESISTENZA AL FUOCO**

**SOUND INSULATION**

**B<sub>roof</sub> – (CWFT – see note)**

As indicated in the product standard EN 14509 point C.3.1 this class is assigned without further testing (CWFT - Classification Without Further Testing) because for this type of panels there are all the requirements.

The fire resistance is the quality of a construction element to maintain its mechanical stability, not to propagate flame and to retain the thermal insulation for an indicated time.

The fire resistance is in minutes, from the beginning of the heating period (trigger of the fire) until the moment in which the component under test ceases to satisfy the requirements.

**Hipertec® Roof** panels have been tested in accordance with the regulations:

- ◆ UNI EN 1365-2: 2002 Fire resistance tests for load-bearing elements - Floors and Coverings
- ◆ UNI EN 1363-1: 2001 Fire resistance tests - General requirements

Following the outcome of these tests were classified according to:

- ◆ EN 13501-2: 2009 Fire classification of construction products and building elements - Part 2: Classification using test data derived from fire resistance tests, excluding ventilation elements.

Classification obtained:

Thickness (mm)	50	60	80	100	120	150	180	200
Resistance to Fire Class	REI 30	REI 30	REI 60	REI 120	REI 120	REI 180	REI 180	REI 180

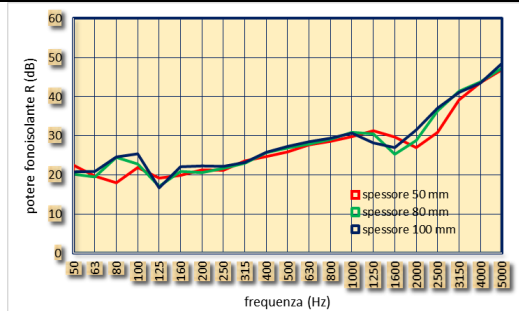
The sound insulation of a material is the quality to reduce the sound energy between two environments.

**Hipertec® Roof** panels have been tested according to the following regulations:

- ◆ **UNI EN ISO 10140-2:2010** Acoustics - Laboratory measurement of sound insulation of building elements  
Part 2: Measurement of airborne sound insulation.
- ◆ **UNI EN ISO 717-1:2013** Acoustics – Acoustic insulation verification in buildings and in building elements  
Part 1: Airborne sound insulation.

Assessment indexes of power sound insulation R<sub>w</sub>:

Thickness (mm)	50	80	100
Evaluation index R <sub>w</sub> (db)	<b>29,3</b>	<b>29,5</b>	<b>29,9</b>



**WEIGHT**

Panel weight (metal sheet tickness 0,6 mm + 0,5 mm)

Tickness (mm)	50	60	80	100	120	150	180	200
Weight (kg/m <sup>2</sup> )	<b>15,78</b>	<b>16,78</b>	<b>18,78</b>	<b>20,78</b>	<b>22,78</b>	<b>25,78</b>	<b>28,78</b>	<b>30,78</b>

**LOAD CAPACITY**

The following values (in daN/m) are for uniformly distributed loads, for panels made from sheet steel minimum quality S250GD and have been calculated in accordance with standard product EN 14509:2013.

The width of the support/frame is considered 120 mm.

The loads shown in bold and underlined refer to combinations for deflection l/200.

The tables do not consider the effects due to the difference temperatures between the internal and external metal sheets, as per different climatic conditions.

The effects of a long period (creeping) are not considered.

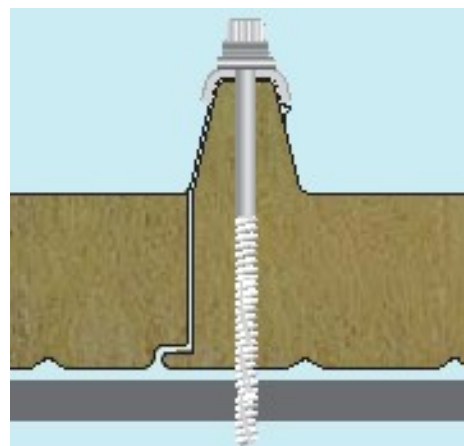
Further tests may be required by contacting the METECNO ITALIA Technical Department.

It is responsibility of the design engineer to check the fasteners according to the design loads.

<b>S</b>	support width : <b>120</b> mm																	
	steel tickness : <b>0,6+0,5</b>																	
mm	l=m	1,5	1,75	2	2,25	2,5	2,75	3	3,25	3,50	3,75	4	4,25	4,50	4,75	5	5,25	5,50
50	p = daN/m <sup>2</sup>	185	155	135	115	105	95	85	75	70	65	<b>50</b>						
60		220	185	160	140	125	110	100	90	85	75	<b>65</b>	<b>55</b>					
80		290	245	215	185	165	150	135	125	115	105	95	90	85	<b>75</b>	<b>65</b>	<b>60</b>	<b>50</b>
100		360	305	265	235	210	185	170	155	145	130	120	115	105	100	95	<b>85</b>	<b>75</b>
120		430	365	320	280	250	225	205	185	170	160	150	140	130	120	115	105	100
150		530	450	390	345	305	275	250	230	210	195	185	170	160	150	140	135	125
180		530	450	390	345	305	275	250	230	210	195	185	170	160	150	140	135	125
200		530	450	390	345	305	275	250	230	210	195	185	170	160	150	140	135	125

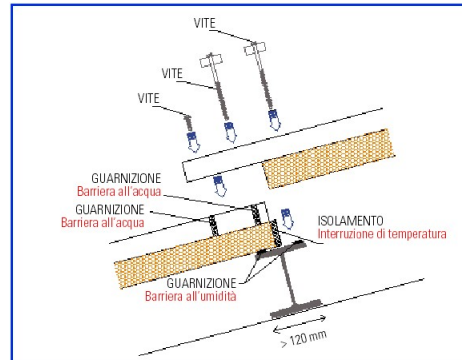
**JOINT**

The particular moulding of the joint has been especially designed in order to avoid water infiltration.



**ROOF ASSEMBLY**

In order to assure the right water outflow as well as to avoid oxidation phenomenon on metallic supports, the panels must be assembled with a slope not lower than 7%.  
 For pitched roofs made with more than one panel in longitudinal direction, it's necessary to overlap the panels (see below).  
 The overlap length must be sufficient to avoid infiltration.



METECNO ITALIA recommend to ask the preparation for the end-lapping in order to avoid any infiltration into the insulation or inside the building.  
 After the installation of the panels and the flashings, metallic scraps have to be removed from the roof to avoid trigger corrosion and impede the flow of water or produce an accumulation of unwanted and aggressive substances.  
 For more information about installing, please see the technical manual.

**FIXING**

Fixing is achieved using screws  $\phi$  6,3 mm.  
 The fixing methods are given in the technical manual.

**TOLLERANCES**

- ◆ Steel thickness: according EN 10143:2006
- ◆ Panel thickness:  $\pm 2$  mm
- ◆ Length:  $\pm 5$  mm x  $L \leq 3000$  mm     $\pm 10$  mm x  $L \geq 3000$  mm
- ◆ Module 1000:  $\pm 2$  mm
- ◆ Out of square:  $\pm 6$  mm

**PACKAGES COMPOSITION**

Panels are supplied packed and usually folded with extensible polythene film

**TRANSPORTATION AND STORAGE**

**LOAD VEHICLE**

- ◆ The packs of panels are loaded on vehicles and placed generally two in the width direction and three in the direction of the height.
- ◆ The goods will be placed on the vehicles according to the instructions recived from the driver, who is the only responsible for the integrity of the load.
- ◆ METECNO ITALIA is not responsible for the loading of vehicles already partially occupied by other materials, or that otherwise do not have a suitable loading floor.
- ◆ METECNO ITALIA recommends that vehicles are covered to prevent damage due to bad weather.

The customer, who provides the transport directly, will give necessary disposition.

This technical information may be changed at any time without notice by METECNO ITALIA, as a result of technological improved

### UNLOADING VEHICLE WITH CRANE

- ◆ It is necessary to use a crane equipped with carrying pole and suitable belts, it is necessary to interpose special spacers to prevent the damage of the panels with the belts.

### UNLOADING VEHICLES WITH FORKLIFT

- ◆ When handling the packs of panels with forklift, take care of the length of the packs and their possible bending in order to avoid damage on the bottom side of the pack.
- ◆ The forks must have enough width and possibly protected with cardboard or polystyrene to avoid damage on the panels.

### STORAGE

If the panels are stored outside, they must be protected from rain to avoid stagnation of moisture as it can cause damage on the coated surfaces.

### USE LIMITATIONS

It is recommended a thermo hygrometric check. Under special conditions (i.e. high humidity in the indoor environment) you can have the formation of condensation inside the panel; if these conditions persist for a sufficiently long time, it may promote the natural oxidation of the substrate and accordingly reduce the degree of adhesion to the insulating material.

### MAINTENANCE

All roofs even those made with metal panels, require periodical maintenance. It is recommended a thorough inspection of the roof, at least yearly, in order to check the condition.

A regular cleaning of the cover with particular attention to areas not subjected to the washing action of rain water, where it can form concentrations of corrosive substances for the metal support, is also recommended, in order to maintain the aesthetic characteristics and physical properties of the elements and to prolong the efficiency of the protective coating.

It is necessary to proceed with an immediate extraordinary intervention, when the inspections have discovered a problem, in order to restore the initial conditions.