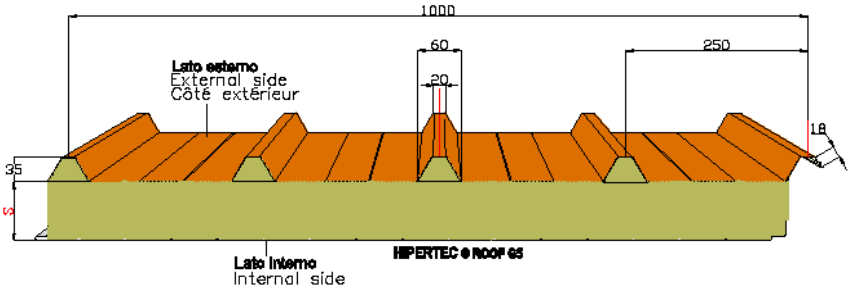
HIPERTEC® ROOF G5

OVERVIEW

Hipertec® Roof G5 is a metallic self-supporting panel insulated with rockwool for roof applications, for both industrial and civil buildings which require high performance of fire resistance and sound insulation.
For the installation of this panel, a minimum slope of 7% is required.
Metecno makes **Hipertec® Roof G5** with a patented system.
The external side is a corrugated plate while the internal one is micro ribbed, both made of galvanized and prepainted steel.
Between the two sheets there is an insulation core of high-density rockwool, which fibers are oriented perpendicularly to the plane of the panel. It is positioned in strips, which are longitudinally staggered and transversally compacted to make the panel perfectly monolithic. This layer is glued to the steels by a polyurethanic glue.

GEOMETRICAL FEATURES



- Length: upon customer request with max length of transportation
- Working width: 1000 mm
- Core thickness: 50, 60, 80, 100,120, 150, 180 mm
- External sheet thickness: 0,6 mm
- Internal sheet thickness: 0,5 mm
- Thickness sheet tollerance : according EN 10143:2006
- N° of ribs (external side): 5
- Depth rib: 35 mm
- Pitch of rib: 250 mm

METAL PLATES

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. If the material is explicitly demanded without protecting film, METECNO ITALIA is not responsible for surface coatings damages.
The protective film which covers the coated panels must be completely taken off during panel assembly and in any case within and not exceeding a period of 3 (three) months from the material production date.

STANDARD REFERENCE

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

INSULATION

- Rockwool with oriented fibers
- Declared thermal conductivity λ= 0,042 Watt/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
U coefficient [W/(m²·K)]	**0,77**	**0,64**	**0,49**	**0,40**	**0,33**	**0,27**	**0,22**

- Insulation density: 100 kg/m³ ± 8

FIRE REACTION

Hipertec® Roof G5 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	DROPLETS
A2	**s1**	**d0**

Classification reports can be showed on request.

EXTERNAL FIRE BEHAVIOUR

B_{roof} – (CWFT)

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.

FIRE RESISTANCE

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**
Fire resistance class	**REI 30**	**REI 30**	**REI 30**	**REI 120**	**REI 120**	**REI 120**	**REI 120**

SOUND INSULATION

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**:**

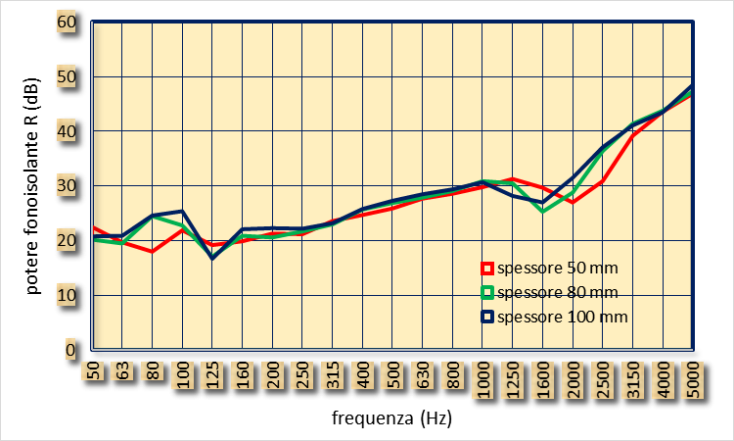
- **UNI EN ISO 10140-2:2010** Acoustics - Laboratory measurement of sound insulation of building elements

  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 Rw:

Thickness [mm]	50	80	100
Evaluation index R_w [db]	**29,3**	**29,5**	**29,9**



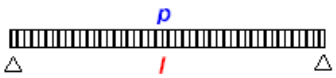
WEIGHT

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

Thickness [mm]	50	60	80	100	120	150	180
Weight [kg/m^2]	**16,00**	**17,00**	**19,00**	**21,00**	**23,00**	**26,00**	**29,00**

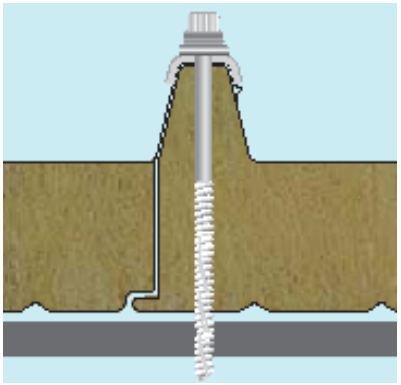
LOAD CAPACITY

The following values [daN/m^2] refer to uniformly distributed loads on Hipertec Roof G5 panels made with S250GD quality steel sheets and have been calculated in accordance with EN 14509:2013. The width of the support/frame considered is 120 mm. The loads shown in bold and underlined refer to combinations which reach a deflection of 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.

S	Larghezza efficace appoggio = **120** mm Valori riferiti a pannelli con lamiere **0,6+0,5**																	
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	190	160	140	120	105	95	85	80	70	65	60	**55**					
60		225	190	165	145	130	115	105	95	85	80	75	70	**60**	**50**			
80		295	250	215	190	170	155	140	125	115	105	100	90	85	80	**70**	**60**	**55**
100		365	310	270	240	210	190	175	160	145	135	125	115	110	100	95	**90**	**80**
120		440	370	325	285	255	230	210	190	175	160	150	140	130	125	115	110	105
150		530	450	390	345	305	275	250	230	210	195	180	170	160	150	140	135	125
180		525	445	390	340	305	275	245	225	210	190	180	165	155	145	135	130	120

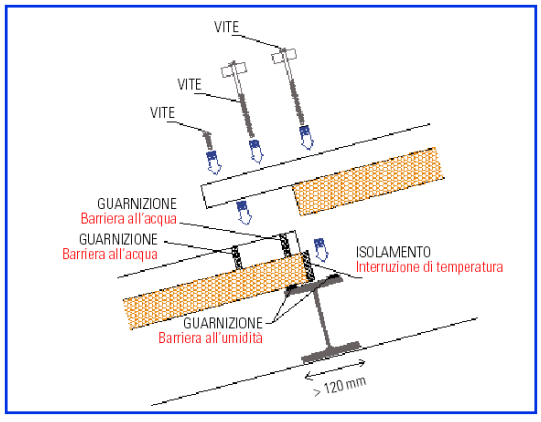
JOINT

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 recommends 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 ϕ 6,3 mm.
The fixing methods are given in the technical manual.

TOLERANCES

- Steel thickness: according EN 10143:2006
- Panel thickness: ± 2 mm
- Length: ± 5 mm x L ≤ 3000 mm
  ± 10 mm x L ≥ 3000 mm
- Module 1000: ± 2 mm
- Out of square: ± 6 mm

PACKAGE COMPOSITION

Panels are supplied packed and usually folded with extensible polythene film.

TRANSPORT AND STORAGE

VEHICLE LOADING

- 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.

VEHICLE UNLOADING BY 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.

VEHICLE UNLOADING BY 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.

USAGE 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 their 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.