HIPERTEC® WALL SOUND

DESCRIPTION

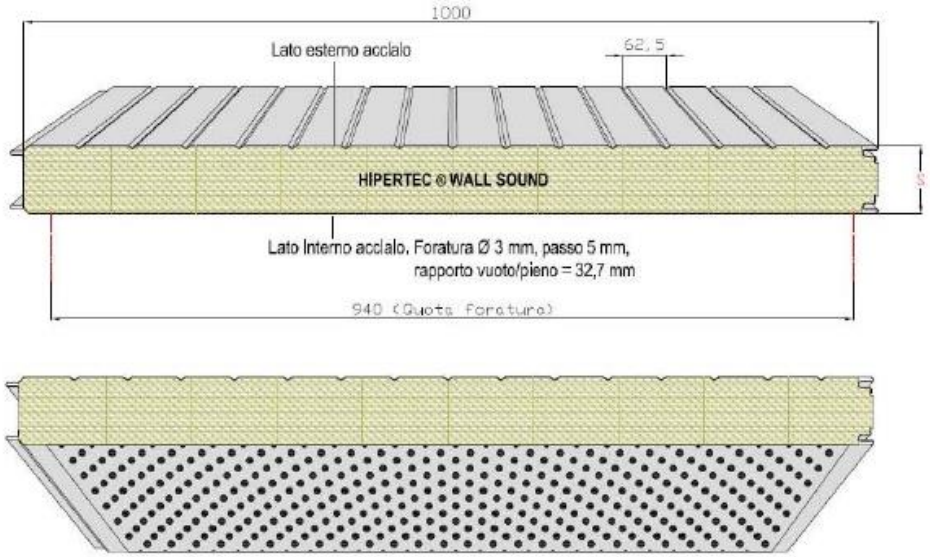
Hipertec® Wall Sound is a self-supporting metal panel system insulated with rockwool for wall and partition applications, which require a high degree of acoustic insulation and acoustic absorption.

The **Hipertec® Wall Sound** panel, manufactured in accordance with a system
Patented by Metecno, consists of two micro-ribbed steel sheets. One of the two sides is made with perforated sheet.

An insulation core of orientated fiber high-density rockwool, 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.
This insulating layer is fixed to the metal sheets with a polyurethane glue.

The rockwool thermal insulation has a thickness S from 50 to 150 mm, depending from the environment conditions of the installation site.

GEOMETRICAL FEATURES



- Length: max. production length L = 15.500 mm
- Working width: 1000 mm
- Core thickness: 50, 60, 80, 100,120, 150 mm
- External sheet thickness: 0,6 mm
- Internal sheet thickness: 0,5 mm (perforated)
- Thickness sheet tolerance : according EN 10143:2006
- Microribbed finishing (external side) - smooth and perforated (internal side)

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.
- The protective film, which cover the coated panels, must be completely removed during panel assembly and in any case within and not exceeding three months' time from the material production date.

STANDARD REFERENCE

- Steel : Minimum quality S250 GD - UNI EN 10346:2009

INSULATION

- Rockwool with orientated fibre.
- Declared thermal conductivity λ = 0,040 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
Coefficient U ($W/m^2 \cdot K$)	**0,72**	**0,61**	**0,47**	**0,38**	**0,32**	**0,19**

Insulation density 100 kg/m^3 ± 2

SOUND ABSORPTION

The sound absorption of a material is its characteristic to transform sound energy into thermal energy (vibrations), reflecting a fraction of the sound waves passing through it.
In building with traditional materials, such as bricks, marbles and glasses, which do not have sound-absorbing characteristics, will produce a reverberation effect due to the reflection on these materials of the sound waves, which leads to an overall increase of the noise level with unpleasant consequences for who is present in the environment.
With the use of the panels **Hipertec® Wall Sound,** you get a pleasant feeling of noise attenuation.
Hipertec® Wall Sound is particularly indicated where is necessary to guarantee excellent absorption performance of the sound waves and correction of reverberation times on a wide range of frequencies.

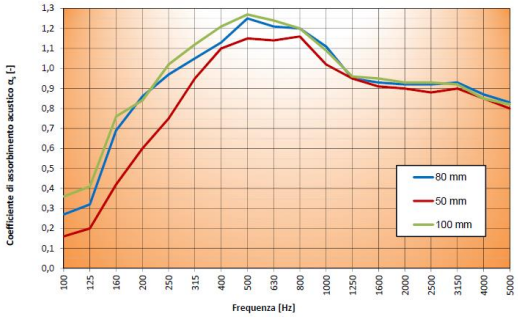
The panels **Hipertec® Wall Sound** have been tested in accordance with standards:

- UNI EN ISO 354:2003 Acoustics - Measurement of sound absorption in a reverberation room
- UNI EN ISO 11654:1998 Acoustics - Sound absorbers for use in buildings - Rating of sound absorption

Indexes of sound absorption:

Thickness - mm	50	80	100
αw	**0,95** (Classe A)	**1,00** (Classe A)	**1,05** (Classe A)

Table shows the performance of the absorption coefficients at the various frequencies



On request Metecno Italia can supply the test reports of acoustic absorption.

SOUND INSULATION

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

Hipertec® Wall Sound have been tested according to the following regulations**:**

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

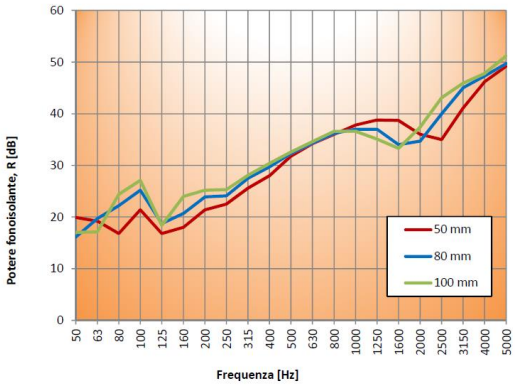
  Part 2: Measurement of airborne sound insulation

  UNI EN ISO 717-1:2013 Acoustics - Rating of sound insulation in buildings and of building elements.

  Part 1: Airborne sound insulation.

Assessment indexes of power sound insulation Rw:

Thickness (mm)	50	80	100
Evaluation index R_w (db)	**34,3**	**35,0**	**35,4**



On request it can supply test reports measures of power sound insulation for sound frequencies between 100 and 3150 Hz

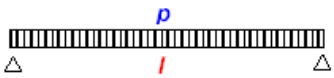
WEIGHT

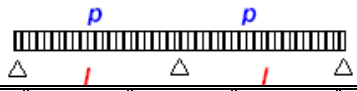
Panel weight (metal sheets thicknesses 0,6 mm + 0,5 mm)

Thicknesses (mm)	50	60	80	100	120	150
Weight (kg/m²)	**13,57**	**14,57**	**16,57**	**18,57**	**20,57**	**23,57**

PORTATE

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 it is considered 120 mm.
In calculations it was considered a thickness of perforated sheet reduced as indicated in UNI EN 1993-1-3: 2006 (EURCODE 3).
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.
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	support width = **120** mm steel thickness **0,6** mm + **0,5** mm 							
mm	l =m	1,5	2,0	2,5	3,0	3,50	4,0	4,5	5,0
50	p = daN/m	185	115	70	50				
60		220	135	85	60				
80		300	185	115	80	60			
100		375	230	150	100	75	55		
120		450	280	180	125	90	70	55	
150		565	350	225	155	115	85	65	55

S	support width = **120** mm steel thickness **0,6** mm + **0,5** mm 							
mm	l =m	1,5	2,0	2,5	3,0	3,50	4,0	4,5	5,0
50	p = daN/m	165	90	55					
60		200	105	65					
80		245	135	85	60				
100		275	160	105	70	50			
120		300	185	120	80	60			
150		315	205	140	95	70	55		

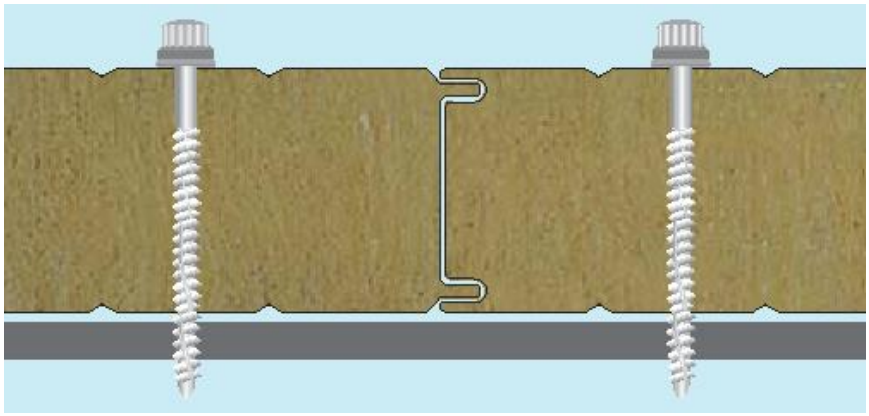
support width = **120** mm

steel thickness **0,6** mm + **0,5** mm

S mm	l =m	1,5	2,0	2,5	3,0	3,5	4,0	4,5	5,0
50	p = daN/m	160	90	60					
60		185	105	70					
80		225	130	85	60				
100		255	155	100	70	55			
120		280	170	115	80	60	50		
150		310	195	130	95	70	55		

JOINT

The joint has been properly designed to ensure the maintenance of the acoustic performance and thermal transmittance mentioned above.



FIXING

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

TOLLERANCES

- 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

PACKAGES COMPOSITION

Panels are supplied packed and usually folded with extensible polythene film

TRASPORTATION 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 received from the driver, who is the only responsible for the integrity of the load.
- METECNO is not responsible for the loading of vehicles already partially occupied by other materials, or do not have a suitable loading floor.
- METECNO recommends that vehicles have to be covered to prevent damage due to bad weather.

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

UNLOADING VEHICLE WITH CRANE

- It is necessary to use a crane equipped with carrying pole and suitable belts, and 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 damages 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

A thermo hygrometric check is recommended. 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

Periodical maintenances are required on all walls even on the metallic panels.
A yearly careful inspection is recommended to verify the conservation grade of the building.
A regular cleaning of the panels is suggested, to keep the elements in good conditions and to extend the durability of their paint.
Particular attention is also necessary in places where the rainwater do not reach the panels and where it is possible to have concentration of dangerous substances.
If any problem arise during the periodical inspection, it must be removed immediately with an extraordinary action.