

ISOLCORE®

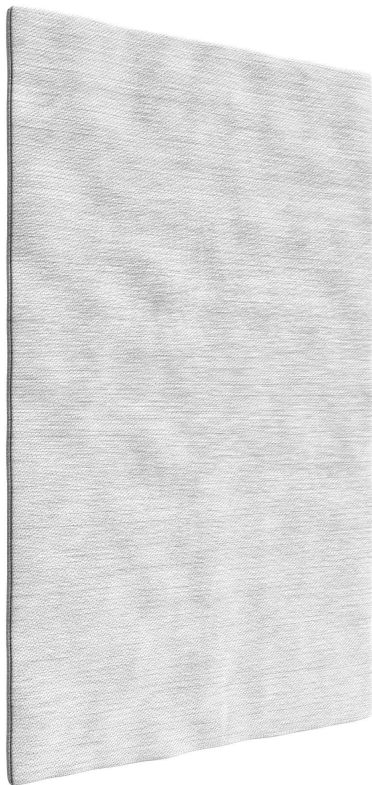
The world's thinnest and best performing insulation

Installation manual for INTERIOR WALLS

(Total depth starting from 2,6 cm)

CZ - VACUUM PANEL

Description



ISOLCORE is the Italian brand that invented the best insulation products in the world. Vacuum panels usually consist of a pressed mineral component which is vacuum-packed by a special casing. The CZ panel is composed of a core mainly made of glass fiber and a special casing made of glass fiber fabric and aluminum, which makes it much more resistant to cut and erosion, compared to all other vacuum panels currently on the market. This special cover makes the panel impermeable to gas and steam and 3 times longer over time than a traditional insulation panel. Panels are deprived of the air inside them to obtain very low pressures: this process greatly reduces the mobility of the few air molecules remaining. In this way, the thermal conductivity decrease reaching values even lower than 0.002 W/mK.

Reducing the air inside the panels the result is a reduction in energy transmission by thermal conduction, radiation and convection which is due to the high insulation standard of the product.

This process removes the air's thermal conductivity and the warm transfer obtaining a highly insulating product.

Where to place it

Cz panel is highly recommended in the construction field to insulate:

- Exterior walls (behind a false wall - total figure of thickness 3-3.5 cm)
- Interior walls (behind a false wall - total figure of thickness 2.5 cm)
- Terraces floors
- Pedestrian rooves
- Ceiling/garage

Besides, CZ panel can be used in many different sectors as the refrigeration ones.

Advantages

The main advantages are the following:

- its high insulating performances (20 times higher than those of traditional insulation products) - its low energy costs
- its low depth
- its thermal performance are 3 times longer over the time than traditional insulation products
- it can be placed also on those buildings that must follow some restrictions related to the landscape they are located in, their history or to the environment laws of their Country

INSTALLATION INSTRUCTIONS

In case of interior walls and/or false ceilings, CZ panels should be applied behind a classic plasterboard counterwall or false ceiling. The minimum depth is equal to approximately 2.6 cm in total (equivalent to 25 cm of rock wool insulation).

The first thing to do is to check the condition of the walls or ceiling and apply a primer /fixative .

Step 1: Tracing and placing the warping.

The profiles are of two types: - 'U' rails, to be placed in the floor and ceiling - 'C' uprights, (which depth is usually of 15 mm), to be inserted into the rails.

The construction of a plasterboard wall starts by marking out the position of the U-shaped floor rails. Once the depth of the last wall has been determined, it is necessary to trace the position of the floor rail and bring it on the ceiling using a plumb line or laser. In this way it is possible to position the top rail .

It is also important to take notes about the position of doors and sanitary fixtures in order to position the struts correctly into the rails. In a second step, apply the single/ double-sided insulating gasket tape made of polyethylene foam on the core of the rail to contain lateral sound transmissions . As the last step, fix the bottom rail with fixings at 50 cm centers.

Method n. 1

Advantages: small depth (2,6 -3 cm)



Firstly, attach the top rail to the ceiling, with the right fixings for the support, and place a maximum spacing of 50 cm.

Once the 'U' rails have been secured, proceed with the clamps on the wall, preferably of 0.5 cm, put every 60 cm horizontally and 90 cm vertically; (It is recommended to apply a strip of NANOFELT insulating felt under the frame to insulate the potential thermal bridge)



Note: In case of depth problems where it is not possible to place the 3 cm CZ panel it is possible, in case the wall is vertical and the height does not exceed 3 meters, to install the structure without the clamps reaching at a total thickness of approximately 2.6 cm

The next step is about placing the struts. It is necessary to cut the C-shaped struts to a length which is equal to the space, that is eventually reduced to 15 mm, between each rail.



After this stage, the ISOLCORE 'C' posts snap-in need to be installed at an inter axle spacing of 60 cm. This measure can change depending on determined static standards, on the fire certificate, on the acoustic, on the impact strength). If the ceramic cladding is required the inter axle spacing between the struts must not exceed 40 cm.

Note: For corners and T-junctions of walls, the U-shaped rails must be interrupted leaving space for the slab cladding, which needs to be continuous.

Step 2: CZ panel's installation in the cavity.

After the metal frames have been installed, the CZ insulation panel (available measures are 10-15-20-30 mm) must be inserted between the struts.

Glue the CZ panel to the wall between the vertical profiles of the plasterboard structure using a non-expanding polyurethane foam glue, placed on the edges and zigzagged centrally on the back of the CZ panel;

The RASOCORE glue will be applied around the entire perimeter of the panel and in covering at least 50% of its surface



CZ panels are available in different formats (look at the data sheet), it is the designer/technician or installer's responsibility to check the size of the panels to optimize the insulation on the wall or on the ceiling. CZ panels can be installed both horizontally and vertically, so as to insulate 95-97% of the surface (wall or ceiling). In the event CZ panel couldn't cover the whole surface, those small gaps will be covered by Nanofelt which is a felt made of aerogel that can be cut, drilled and shaped.



Caution: it is recommended to exercise a light pressure between panel and panel to avoid any joints. It is possible to seal the joints by taping them with ISOL-TAPE silver adhesive, the "American" one.

Step 3: Installing and securing the slabs to the frame.

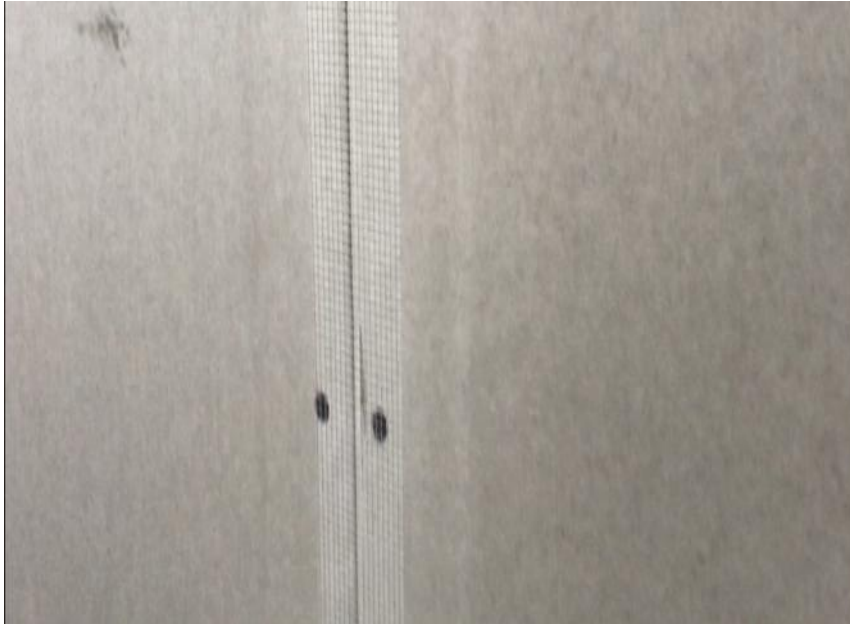
The metal frames are covered with slabs measuring the height of the room which is of minus 1 cm arranged vertically. Hold the slabs approx 1 cm above the floor and put them on the ceiling. (If necessary, use a mechanical plate lifter or foot pedal plate lifter). Start tightening the slabs to the frame from top to bottom (approx. every 25 cm), paying attention that the covering remains perfectly adhered to the load-bearing frame. The longitudinal edges of the slabs must be in the center of the wings of the struts.



Adjust the tip of the screwdriver so that the nails are at the correct depth, with the top perfectly aligned with the cover of the slab. The nails must be placed approx. 1 cm from the longitudinal edge of the slab and approx. 1.5 cm from the leading edge.

Step 4: Grouting with self-adhesive mesh.

Firstly, adhere the adhesive mesh to the joint between the slabs then distribute the grout along the edge until it reaches the level of the slab surface so the grout can penetrate the meshes and the joint. Before proceeding to the second and third stage, make sure that the previous layer has set and that it is completely dry.



After the drying process has been completed, verify that there are no imperfections along the grouted joint; for this purpose, the spatula over the joint which is placed transverse to the axis, and remove any roughness with the same squeegee or with a fine-grit sandpaper pad.



Secondly, apply the second coat of grout, which will extend over a width of approximately 30 cm which is necessary to bring the grouted surface to the same level of the cardboard surface. Next is

necessary to wait for it to dry completely again before the sanding process and before the application of a third coat of grout. Grouting the nail's top is carried out at the same time as grouting the joints between the slabs, one by applying at least two coats of grout on each nail, pressing down with the trowel to level the grout to the surface of the slab. It is recommended to wait for the grout to dry .Finally, apply primer/fixative and white or coloured the top coat as desired.



Note: If you want to add better sound insulation to the thermal insulation use special plasterboard boards coupled with rubber sheaths that stop the noise.

Thanks to its special cover, which makes the vacuum panel very impermeable, it also avoid the problem of interstitial condensation.

Method n. 2

Advantages: fast installation and great insulation performances also using Cz panel behind the structure (total depth: 5 cm)



Step 1: U-rail and clamps installation

This process involves checking the substrate and the application of a solvent primer.

First, attach the top rail to the ceiling with suitable fastenings placed to a maximum of 50 cm to each other. Once the 'U' rails have been secured, proceed with anchoring the riders (spacers) on the wall every 60 cm horizontally and 90 cm vertically;

Glue the CZ panel to the wall between the vertical profiles of the plasterboard structure using a non-expanding polyurethane foam glue, placed on the edges and zigzagged centrally on the back of the CZ panel;

In the event CZ panel couldn't cover the whole surface, those small gaps will be covered by Nanofelt which is a felt made of aerogel that can be cut, drilled and shaped.

Step 2: 'C' struts installation

Placing the 15 mm 'C' uprights as indicated above (or if pipes, cables, etc. are to be passed through, wider uprights may be used).

(Note: there is no need to insulate the C-upright because the wall is already insulated with the CZ panel. This process avoids Nanofelt product to be used behind the structure making the work quicker. Furthermore, it is given greater continuity of insulation with the CZ panel over the entire wall without interruption C-pillars of the structure.

Regarding the Third and its following steps, it is convenient to keep reading about 'STEP 3' of the first method previously described.

Restrictions/conditions.

The vacuum panel must be treated with particular care and delicacy. Indeed, it is highly recommended to check the integrity of the Panel before installing it. Damages are recognisable in this respect by noticing the imperfect adhesion of the external cover to the inner core.

For the installation of CZ - ISOLCORE vacuum panels, it is essential to pay attention to the following points:

- 1) Once the vacuum panels are delivered, they shall be visually checked according to the above criteria to verify their integrity;
- 2) The panels cannot be cut or bent: usually panels are rectangular or square shaped but we can customize them in different shapes and/or sizes to suit specific applications.
- 3) It is not recommended to drill the panels
- 4) The surface on which the vacuum panels are to be placed must be smooth, flat and must not display sharp edges or other protuberances.

Our panels also have small dimensions to cover even those areas that are difficult to insulate and where larger formats cannot reach.

We recommend that you provide us with the right number of panels for each format choosing among the standard ones (see data sheet).

***Note:** if small parts remain uncovered they can be insulated with NANOFELT nanotechnological felt which is 1 cm thick. In this way it is possible to insulate 100% of any thermal bridges. Furthermore, this felt can be easily shaped and cut with a simple cutter.*

LEGAL NOTES

The advice on how to use our products corresponds to the current state of our knowledge and does not entail the assumption of any guarantee and/or liability for the end result of the work. It is the responsibility of the user to verify the suitability of the product for his specific use, assuming all responsibility inherent in and deriving from the use of the product itself. Our technicians are at your disposal for information, clarifications and questions on the use and processing of our products. Updated information sheets are available on the website www.isolcore.com or can be requested from our offices.

EDITION

Release: 28/10/2019

Revision: 11/09/2020