Kaldo®

Insulated panels for slabs

PONTAROLO® ENGINEERING

Insulated formwork panel, made of Twinpor EPS, for the construction of reinforced-concrete floors with thermal insulation.

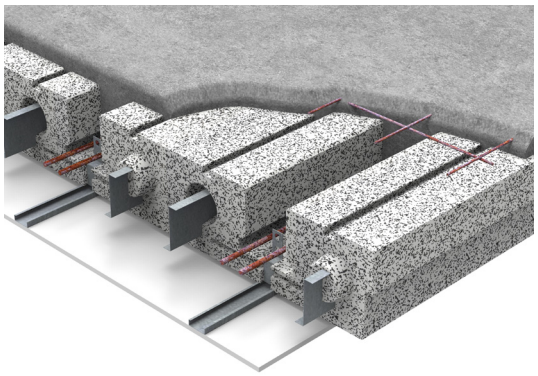
What is Kaldo?

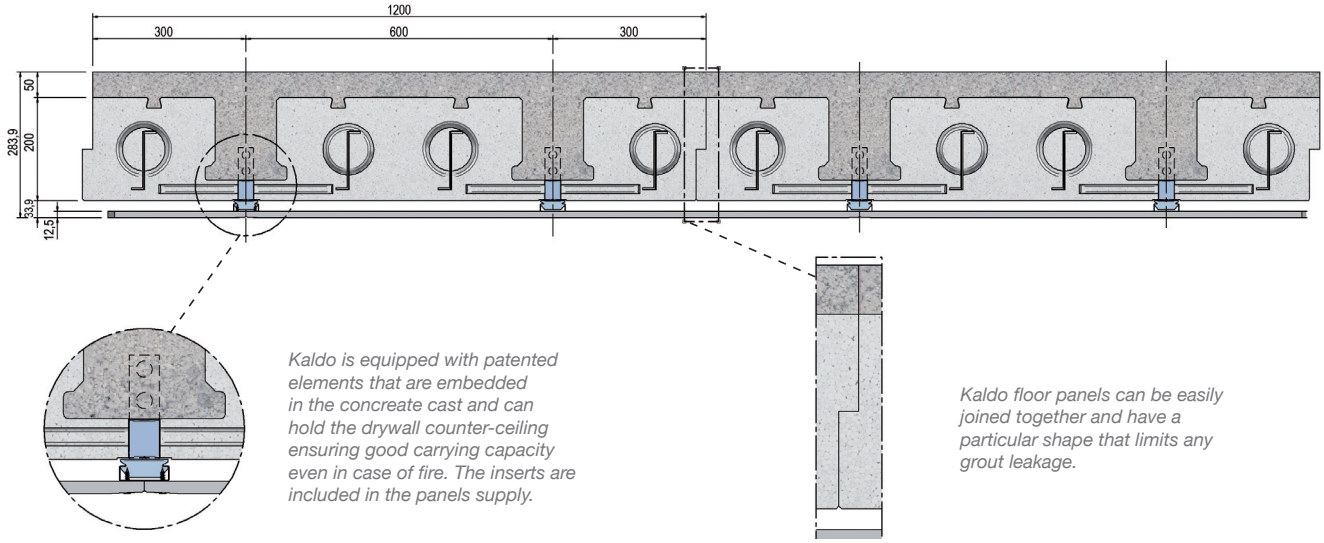
KALDO is a high thermal performance flooring consisting of Twinpor EPS panels designed for mono-directional slabs..
The panel dimensions are customizable according to the project needs: lenght according to the actual wall distance, height and width of the beams depending on the structural needs of the slab.
Kaldo is self-supporting and only needs a few props at the right interax.

Good reasons to choose Kaldo

- Kaldo is manufactured according to the required lenght and it is adaptable to any project plan. The panels can be dimensioned according and replace any other slab technology, such as Bausta, predalle etc.
- Kaldo is light to handle;

  Thanks to the customized lenght of the panels, it is very quick to install;
- After application of the props at the correct interax, workers can operate on top of it with guaranteed safety and walkability;
- The bottom face of Kaldo panels can easily host all piping and utilities quickly installed with the help of a hot knife;
- Cast operations are easy and maintain the area clean thanks to the lateral shape of the panels that prevents the grout to leak underneath;
- Kaldo simplifies the application of drywall counter-ceiling thanks to the patented elements that are embedded in the concreate and can host a normal self tapping screw with ø 4.2 mm;
- Kaldo is made of Twinpor EPS, a high performance material that provides an excellent insulation with the minimum environmental impact. It is expanded with up to 98% of air;
- Kaldo guarantees a high thermal performance and a great acoustic insulation if combined with the proper insulation package. It also permits to achieve class A energy certification, adding value to the building.





Kaldo is equipped with patented elements that are embedded in the concreate cast and can hold the drywall counter-ceiling ensuring good carrying capacity even in case of fire. The inserts are included in the panels supply.

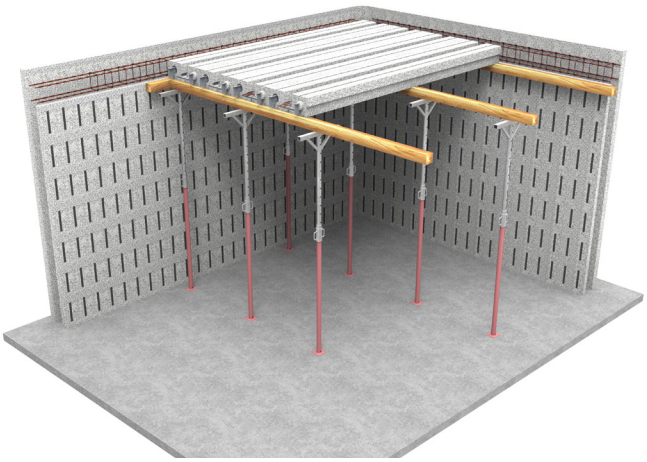
Kaldo floor panels can be easily joined together and have a particular shape that limits any grout leakage.

The Pontarolo Engineering S.p.A. does not assume responsibility for any errors or inaccuracies in the content of this brochures and reserves the right at any time and without notice the changes which may be necessary.

Props maximum interax distance

The following table shows the maximum interax distance between props. In no case must this distance must be greater than the limits specified in the table, and, even in the presence of short panels, at least one intermediate prop must be installed. The props must be fixed properly and sufficiently anchored for no falling.

TYPICAL BOARD WEIGHT (kg/m²)	225	245	265	285	305	325
MINIMUM DISTANCE OF CROSS-PIECE (cm)	160	155	150	145	140	135



Installation

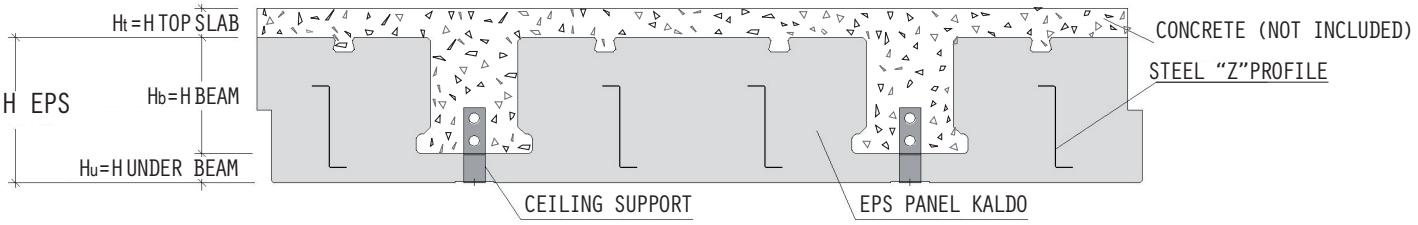
Kaldo is supplied at the requred lenght and can be easily handled thanks to its lightness. Panels can be quickly installed following the provided installation layout drawing on top of the required props. Props can be adjusted by hand if required. Panels have to be installed making sure to perfectly encaster their lateral edges, that prevents concrete and grout to leak underneath.

When correctly installed, Kaldo ensures a safe walkability, except in the beam holes. Workers can now proceed installing utilities and steel reinforcment, and perform casting operations. It is recommended to cast the beams first and than complete the rest of the slab.

Kaldo can be quickly finished on the bottom face applying drywall structure and panels. Its structure can be fixed directly on the patented metal plates present on kaldo, inserting a self tapping screw through the present hole. This metal element holds the drywall counter ceiling and it is embedded in the concrete, ensuring a better bearing capacity in case of fire.

Kaldo technical specifications

Kaldo® thermal insulated floor by Pontarolo Engineering S.p.A. composed of formworks in EPS CS (10) 100 class E to obtain a one-directional beam structure in reinforced concrete as per technical drawing. With 60 cm distance between the center of the beams and no cavities inside the EPS of the formwork. The bottom face of the panels will be equipped with pre-drilled metal supports, arranged at center distances of 50x60 cm and mechanically inserted into the concrete of the beams, for the attachment of any type of false ceiling, including REI type.
Metal reinforcement should be installed on site inside the beam cavity (B450C) and on top of the panels, with an electro-welded mesh (B450C) before casting the class C concrete _____ / _____ on the basis of the provisions of the structural design of the floor.
Thermal transmittance of EPS and concrete will be equal to _____ W / m²K.
The dimensions of the floor will be: Under Beam _____ cm, Beam _____ cm, Top Slab _____ cm
Price: …… € / m² (euro per square meter)



Common sizing

The following table shows some examples of sections available. The height of the under beams (H_b) and of the joist (H_b) may vary in response to all the design requirements.

FLOOR HEIGHT $H_b + H_b + H_t$ (cm)	STRUCTURE HEIGHT $H_t + H_c$ (cm)	TOTAL HEIGHT H_{tot} (cm)	CALCULATED MAXIMUM DISTANCE (cm)	BOARD WEIGHT WIDTH 1,20 m (kg/m)	FLOOR WEIGHT WITH HOOD (kg/m²)	CONCRETE USE WITH HOOD (m³/m²)	THERMAL TRANSMITTANCE WITH CONCRETE (W/m²K)	THERMAL TRANSMITTANCE EPS ONLY (W/m²K)
4 + 16 + 4	20	24	500	8,3	197	0,0757	0,360	0,383
6 + 16 + 4	20	26	500	8,7	197	0,0757	0,282	0,292
8 + 16 + 4	20	28	500	9,2	198	0,0757	0,236	0,242
10 + 16 + 4	20	30	500	9,7	198	0,0757	0,205	0,209
4 + 20 + 4	24	28	600	9,0	217	0,0837	0,332	0,358
6 + 20 + 4	24	30	600	9,5	218	0,0837	0,259	0,271
8 + 20 + 4	24	32	600	10,0	218	0,0837	0,217	0,224
10 + 20 + 4	24	34	600	10,5	219	0,0837	0,189	0,194
4 + 24 + 4	28	32	700	9,8	238	0,0917	0,310	0,339
6 + 24 + 4	28	34	700	10,3	238	0,0917	0,241	0,255
8 + 24 + 4	28	36	700	10,8	239	0,0917	0,202	0,210
10 + 24 + 4	28	38	700	11,2	239	0,0917	0,176	0,182
4 + 28 + 4	32	36	800	10,6	259	0,0997	0,293	0,326
6 + 28 + 4	32	38	800	11,0	259	0,0997	0,228	0,243
8 + 28 + 4	32	40	800	11,5	259	0,0997	0,191	0,200
10 + 28 + 4	32	42	800	12,0	260	0,0997	0,166	0,172

ATTENTION: the datas reported in this table may be changed. For more explanation call our offices.

Thermal trasmittance was calculated for a weighted average insulation thickness, with a beam width of 14 cm and a thermal conductivity increased by 10% of the declared λ (λ_D) equal to 0.036 W/mK and reported in CE marking.

Assistance

Our technical department provides technical assistance from the design phase to the construction phase.
Contact us at ***assistenza@pontarolo.com***

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