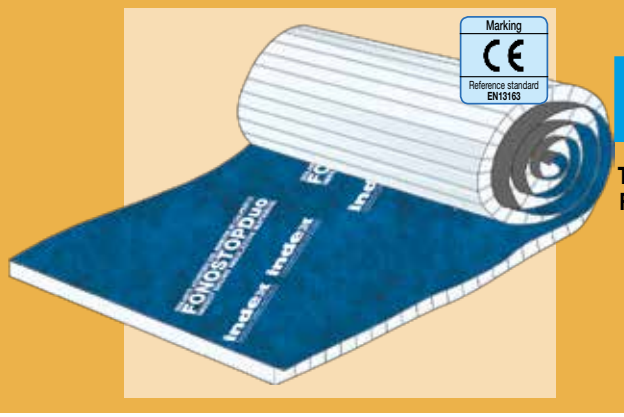


FONOSTOPThermo

THERMAL INSULATION COUPLED WITH HIGHLY RESILIENT ACOUSTIC INSULATION AGAINST FOOT TRAFFIC NOISE, SUPPLIED IN ROLLS FOR INSULATING INTERMEDIARY FLOOR SLABS

GRANTS *LEED* CREDITS

CHARACTERISTICS		ENVIRONMENTAL		
ACOUSTIC INSULATION	THERMAL INSULATION	ECO GREEN	RECYCLABLE	SAFE WASTE

1 PROBLEM

To resolve problems of acoustic and thermal insulation one quite often has to use two separate products.

2 SOLUTION

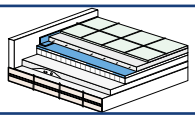
INDEX has designed **FONOSTOPThermo** to resolve the thermal-acoustic insulation problems of floor slabs with just one product. **FONOSTOPThermo** is supplied in rolls and consists of the well-known FONOSTOPDuo insulation against foot traffic noise, on the bottom face of which expanded sintered polystyrene strips EPS 120 are glued. In this way the product can be wound in rolls, which makes it easier and quicker to lay than products supplied in panels. FONOSTOPDuo is a thin yet highly effective acoustic insulation against foot traffic noise, and represents the most efficient insulation method against foot traffic noise of the product range of INDEX. It is made up of a soundproof foil, coupled with a non-woven polyester fabric obtained with a special "elastic needling" procedure, being an exclusive INDEX project. The foot traffic noise insulation performance is provided principally by the special unwoven fabric which remains elastic over time. The unwoven fabric is an elastic layer which separates the rigid elements, screed and floor, and which attenuates both the transmission of vibration caused by foot traffic on the floating floor slab, and the vibration of the screed due to airborne noise from sources like speech, TVs and so on.

The fibrous nature of the non-woven fabric, even if very thin, represents another element that favours the insulating capacities of the material also against airborne noise that closed cell insulating materials do not offer. The synthetic fibres are not irritant, they are flexible and do not crumble when compressed or folded. The soundproof foil is a seamless waterproof and airtight element, which optimises acoustic performance by filling-in pores that may occur in the building work; the foil prevents the "non-woven fabric" from getting soaked with fresh cement mortar that would annul its elasticity, plus it also acts as a vapour barrier for the underlying thermal insulation when the floor slab borders with unheated rooms. The efficiency of the thermal insulation is provided mainly by the layer of self-extinguishing AE sintered expanded polystyrene EPS 120 with high resistance to compression, which stops the thickness from altering over time. The EPS 120 material is a stable waterproof insulation product, with conductivity coefficient λ=0.035 W/mK, which is cut in 50 mm strips.

FONOSTOPThermo is supplied in 100 cm wide rolls, complete with 5 cm overlap wing made up of the soundproof foil; the top face of the product has a light-blue textile finish whereas the bottom face is made up of the insulation strips in white EPS 120.

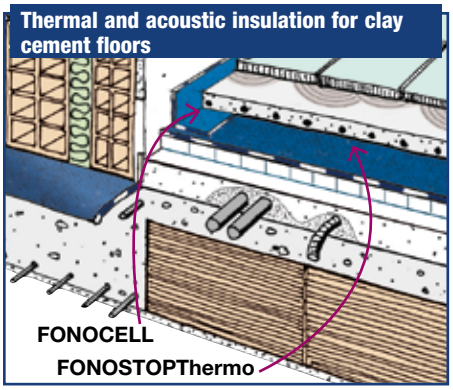
APPLICATION FIELDS

FONOSTOPThermo is used mainly when the acoustic insulation against foot traffic noise needs to be integrated with a thermal insulation product, especially when the floor slab borders with unheated rooms; it can also be beneficially used as a base for underfloor heating systems, before laying the heating pipes, under a reinforced cement-based screed or screed in unreinforced self-levelling anhydrite.



Acoustic insulation against foot traffic noise and thermal insulation of floor slabs - page 37

Thermal and acoustic insulation for clay cement floors



METHOD OF USE AND PRECAUTIONS

The rolls of **FONOSTOPThermo** are to be unrolled in their natural unrolling direction with the top light-blue face facing upwards and are to be overlapped at the sides by arranging the overlap wing on the adjacent sheet and carefully matching-up the polystyrene strips of the faces underneath.

On the short side, the sheets of **FONOSTOPThermo** are carefully brought together end-to-end.

They will cover the whole floor slab and are to be blocked and trimmed-off at the foot of the perimeter walls of the room to be insulated. All the longitudinal overlap lines and the transversal joining lines of the sheets are then to be carefully sealed with the special adhesive SIGILTAPE, stuck over the same.

To ensure the correct acoustic performance of the floating screed, utility piping must not be buried in the screed layer but in the layer of the filling foundations underneath the insulation material. The floating screed must be completely detached not just from the floor slab but also from the walls and from anything coming out of the slab that should cross it. To do this, starting from the insulation material laid on the slab surface, the perimeter walls are to be lined by 15 cm with the special FONOCELL angular self-adhesive elements in expanded polyethylene, which will be turned up and over the surface by 5 cm to glue them to the sheets of **FONOSTOPThermo** on which they will be further blocked with the adhesive SIGILTAPE.

FONOSTOPThermo

Product: FONOSTOPThermo					
Type		**25**	**35**	**45**	**55**
Thickness (3)		25 mm	35 mm	45 mm	55 mm
Roll size		1×10 m	1×8 m	1×6 m	1×5 m
Width of the phonoresilient foil		1.05 m	1.05 m	1.05 m	1.05 m
Thermal capacity for surface R (4)		3.16 KJ/m²K	3.46 KJ/m²K	3.76 KJ/m²K	4.06 KJ/m²K
Thermal resistance (3)	EN 12667	0.65 m²K/W	0.95 m²K/W	1.20 m²K/W	1.50 m²K/W
CE thermal insulation code	EN 13163	EPS EN13163-T2-L3-W3-S5-P10-DS(N)5-BS170-CS(10)120			
Constituting element: FONOSTOPDuo phonoresilient foil					
Average thickness under load of 200 kg/m² (5)	UNI 9947	approx. 5.0 mm			
Mass per unit area		1.6 kg/m²			
Impermeability	EN 1928	Water proof			
Aqueous vapour diffusion coefficient (phonoresilient foil)		μ 100 000			
Thermal conductivity λ		0.039 W/mK			
Specific heat.		1.30 KJ/kgK			
Thermal resistance R_D (3)		0.135 m² K/W			
Dynamic stiffness under a load of 200 kg/m² • FONOSTOPDuo	UNI EN 29052 p. 1°	Apparent dynamic stiffness s't = 4 MN/m³		Dynamic stiffness s' = 21 MN/m³ (1)	
Theoretical estimate of the attenuation of foot traffic noise(3)		ΔL_w = 28 dB			
Fire reaction class	EN 13501-1	**Euroclass B_{fl}-s1** (2)			
Constituting element: Sintered expanded polystyrene EPS120					
Compressive strength at 10% compression	EN 826	≥120 KPa [CS(10)120]			
Dimensional stability 48 h at 23°C R.H.	EN 1604	±0.5% [DS(N)5]			
Bending strength	EN 12089	≥170 KPa [BS170]			
Long-term water absorption	EN 12087	<5%			
Steam transmission	EN 12086	μ 30÷70			
Thermal conductivity λ		0.035 W/mK			
Thickness T1		20 mm	30 mm	40 mm	50 mm
Thermal resistance R_D	EN 12667	0.55 m²K/W	0.85 m²K/W	1.10 m²K/W	1.40 m²K/W
Specific heat.		1.20 KJ/kgK			
Reaction to fire	EN 13501-1	Euroclass E			

(1) Certificate ITC CNR n. 3402/RP/01. (2) LAPI certificate n. 331.0DC0050/15 equivalent to Class 1 pursuant to Ministerial Decree 10-03-2005 latest edition, dated 16-02-2009.
(3) Value established on the material subjected to a load of 1 kPa (100 kg/m²).
(4) Apparent value calculated from the values for the individual components, per m² of material. (5) Any variations in the thickness of the rolled product have no effect on its performance when installed.
✱ ***ATTENTION.*** Only the dynamic rigidity values marked in red are of value in making the calculation pursuant to EN 12354-2 and solely the transparent expression of both the apparent dynamic rigidity s't and the dynamic rigidity s' allow the designer to make a proper evaluation.

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