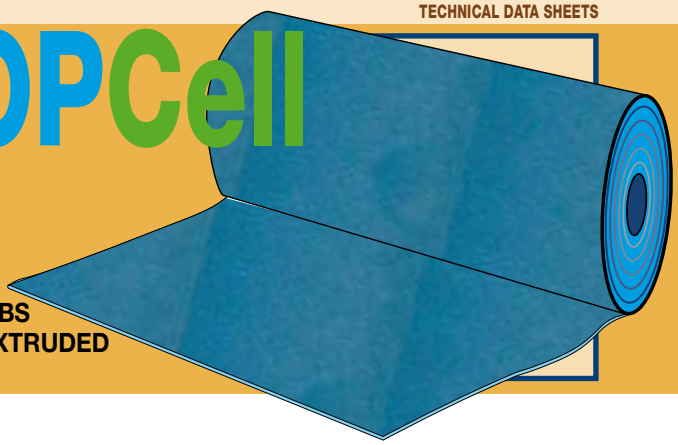
FONOSTOPCell



ACOUSTIC INSULATION AGAINST FOOT TRAFFIC NOISE FOR INDOOR FLOOR SLABS WITH FLOATING FLOORS, MADE UP OF EXTRUDED CLOSED CELL POLYETHYLENE

CHARACTERISTICS	IMPACT ON THE ENVIRONMENT		
ACOUSTIC INSULATION	ECO GREEN	RECYCLABLE	NON-DANGEROUS WASTE

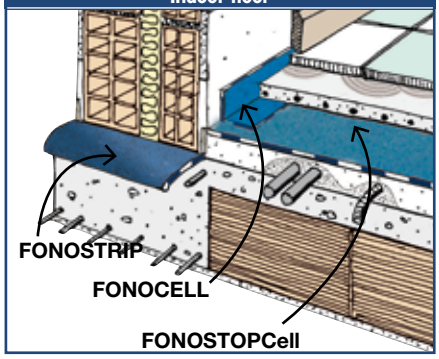
PROBLEM

The installation of resilient material between a floating screed, on which any type of flooring can be laid, and the load-bearing floor slab, reduces the spreading of impact noise or foot traffic noise (**ΔLw**) and increases insulation against airborne noise (**ΔRw**). It also represents the most flexible and effective insulation technique available. When economic resources are limited, it is difficult to respect the levels of insulation against foot traffic noise imposed by the Premier's Decree (DPCM) dated 5th December 1997.

SOLUTION

FONOSTOPCell is an acoustic insulation sheet against foot traffic noise for indoor floating floors made of extruded closed cell polyethylene. It is waterproof, watertight, resistant to hydrocarbons, alkali and acids.
When laid with care, taking the due precautions, **FONOSTOPCell** will obtain a suitable insulation even if economic resources are limited.
FONOSTOPCell is waterproof and during the casting of the screed, the cement grout does not impregnate the sheet, hence guaranteeing the certainty of the expected result.
FONOSTOPCell is mainly used for the acoustic insulation of indoor floating screeds, but since it can be easily modelled in individual spots and around pipes, it can also be wrapped around pipes that cross building partitions in order to prevent the transmission of vibrations.
FONOSTOPCell is an insulation product with efficient dynamic stiffness suitable for the acoustic insulation against foot traffic noise under floating screed. It is a very light sheet (150g/m²) hence much care must be taken so as not to displace the insulating sheets when laying the cement screed, and not to perforate the insulation material and damage the sheet joins. Failing this, any acoustic bridges created by rigid connections to the floor slab underneath, caused if the cement mixture should seep through the material and stick to the floor slab underneath, would substantially reduce the acoustic insulation of the material. For the same reason, it is also a good rule to lay the screed as soon as possible so as not to expose the material to building site traffic which could damage it.

Indoor floor



METHOD OF USE AND PRECAUTIONS

The rolls of **FONOSTOPCell** are to be unrolled in their natural unrolling direction, the sheets should not be overlapped, but should be brought close to each other and the joining lines must always be sealed with adhesive SIGILTAPE.

The sheets 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.
To insulate the floating screed from perimeter walls, the latter are to be lined with 10 cm of the extruded polyethylene separation self-adhesive FONOCELL strip, to limit the thickness of the screed, which will be turned over by 5 cm and glued on the insulation material laid on the floor slab where it will be further secured with adhesive SIGILTAPE.

FONOSTOPCell

Thickness	5,0 mm approx	
Roll size	1,25×100 m	
Density	30,0 kg/m³	
Dynamic stiffness • FONOSTOPCell	Apparent dynamic stiffness s'_t = 32 MN/m³	Dynamic stiffness s' = 32 MN/m³
Theoretical estimate of the reduction level in foot traffic noise (¹)	ΔLw = 25,5 dB	
Resistance to tensile stress (UNI-EN 12311-1) • ultimate tensile stress • ultimate elongation	 23/32 N/50 mm 65/70%	
Impermeability (UNI-EN 13111)	Waterproof	
Aqueous vapour diffusion coefficient	μ = 2.000	
Thermal conductivity coefficient λ	0,044 W/mK	

(¹) Simplified calculation method TR UNI 11175 (Guide to the Standards of the UNI EN 12354 series for predicting the acoustic performance of buildings) for screeds with surface density of 100 kg/m².
WARNING: only the dynamic stiffness values **s'**, ringed in red, are values useful for an estimate calculation conforming to standard EN 12354-2.
The dynamic stiffness was calculated in the Applied Acoustics Laboratory of INDEX S.p.A., after measuring dynamic stiffness and air permeability.

MODULAR ACOUSTIC INSULATION AGAINST FOOT TRAFFIC NOISE

THEORETICAL ESTIMATE OF THE REDUCTION LEVEL IN FOOT TRAFFIC NOISE

Example of simplified calculation method
TR UNI 11175 - (Guide to the Standards of UNI EN 12354 series for predicting the acoustic performance of buildings) for
FLOOR SLAB of 20+4 IN CLAY-CEMENT MIX OF 300 kg/m²
LIGHTENED FOUNDATION WITH DENSITY OF 300 kg/m³
thickness 10 cm ($L_{n,w,eq}$ = 76 dB)
SCREEDS WITH SURFACE DENSITY m'=100 kg/m²

Calculation of the **fo** resonance frequency of the floating screed system, resilient layer:

$$fo = 160\sqrt{\frac{s'}{m'}} = 160\sqrt{\frac{32}{100}} = 90{,}5 \text{ Hz}$$

$$\Delta L_w = 30 \text{ Log } (\frac{f}{fo}) + 3 = \mathbf{25{,}5\ dB}$$

where **f** = 500 Hz (of reference)

$$L_{n,w} = L_{n,w,eq} - \Delta L_w + K \qquad \text{where } K = 3$$

$$L_{n,w} = \mathbf{54\ dB}$$

INDEX's exclusive production systems are covered by registered patents.

ANIT Associated

The data in this publication is the result of laboratory tests or observations on site and this does not guarantee the repeatability of the results in equivalent systems.

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