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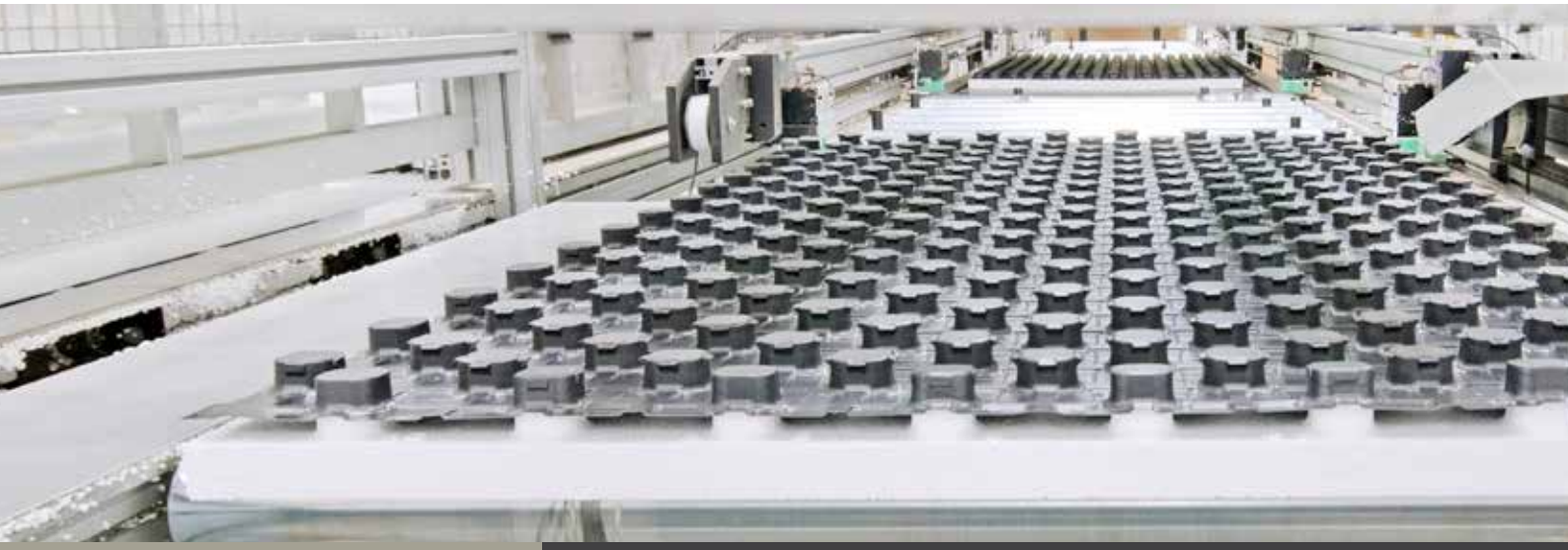
your OEM Partner

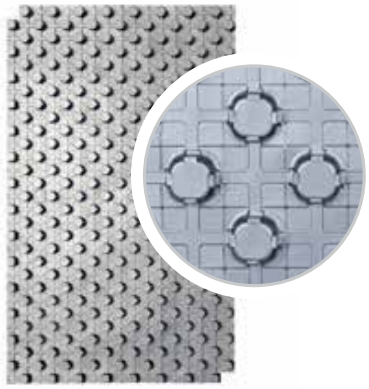


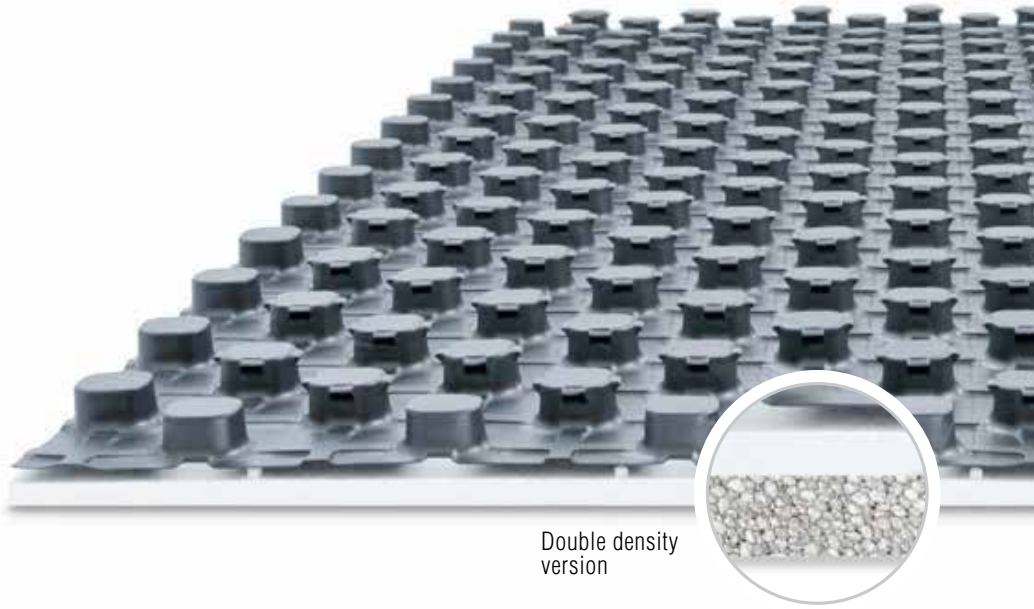
INSULATION BOARDS

radiant heating
& cooling
components
OEM

Nob board

TF 90°





Double density version

Nob panel with thermoformed element especially designed nobs guaranties perfect fixing, the element is equipped on two sides with extra rows of nobs which allow a keyed and frictional connection preventing penetration of screed into the construction. Based on the high stability, the panel is well walk-on-able; made of expanded polystyrene grades EPS.

		PS foil	Thermoforming boards TF 90° - DEO					Acoustic boards - DES	
Description		TF 1	TF 10	TF 20	TF 30	TF 40	TF 50	TF 30-2	TF DD
Code		1190001000	1190206010	1190206020	1190206030	1190206040	1190206050	1190208030	
Board size (lenght x width)	mm	1450x850	1450x850	1450x850	1450x850	1450x850	1450x850	1450x850	1450x850
Effective board size (lenght x width)	mm	1400x800	1400x800	1400x800	1400x800	1400x800	1400x800	1400x800	1400x800
Effective boar surface	m^2	1,12	1,12	1,12	1,12	1,12	1,12	1,12	1,12
Thickness base insulation	mm	-	10	23	30	41	50	30-2	30-2
Nob height	mm	21,5	21,5	21,5	21,5	21,5	21,5	21,5	21,5
Total thickness	mm	22,5	31,5	44,5	51,5	62,5	71,5	51,5	51,5
Tube diameter	mm	14-17	14-17	14-17	14-17	14-17	14-17	14-17	14-17
Resistance at 10% compression	kPa	-	200	150	150	150	150	5	40
PS foil thickness	mm	1	0,6	0,6	0,6	0,6	0,6	0,8	0,6
Color of the PS foil	Col.	black	black	black	black	black	black	black	black
Pipe spacing	mm	50	50	50	50	50	50	50	50
Heat conduction l (EN 12667)	W/mK	-	0,035	0,035	0,035	0,035	0,035	0,040	
Thermal resistance R (EN 12939)	m^2 K/W	-	0,35	0,75	0,95	1,25	1,5	0,75	0,85
Impact sound reduction Lw	dB	-	-	-	-	-	-	> 28	> 30
Stiffness group to EN 13163	SD	-	-	-	-	-	-	SD 30	SD 15
Fire class (EN 13501-1)		F	F	F	F	F	F	F	F
Boards per box	nr.	18	18	12	10	7	6	10	10
Board surface per box	m^2	20,16	20,16	13,44	11,2	7,84	6,72	11,2	11,2
Box size	cm	152x88x22,5	152x88x43	152x88x43	152x88x43	152x88x39	152x88x39	152x88x43	152x88x43
Boxes per pallett	nr	12	6	6	6	7	7	6	6
Surface per pallett (h 300 cm)	m^2	241,92	120,96	80,64	67,20	54,88	47,04	67,20	67,20
Surface per full truck (13,6 ldm)	m^2	5.564,16	2.782,08	1.854,72	1.545,60	1.262,24	1.081,92	1.545,60	1.545,60

Enetec reserves the right to change products and specifications without notice.

Nob board

TFS 45°

45° pipe laying

Nob panel with thermoformed element especially designed nobs allows installation of the pipe also in diagonal direction 45°, the element is equipped on two sides with extra rows of nobs which allow a keyed and frictional connection preventing penetration of screed into the construction. Based on the high stability, the panel is well walkonable; made of expanded polystyrene grades EPS.

		PS foil	Thermoforming boards TF 90° - DEO			Acoustic boards - DES
Description		TFS 1	TFS 10	TFS 20	TFS 30	TFS 30-2
Code		1145000000	1145206010	1145206020	1145206030	1190208030
Board size (lenght x width)	mm	1450x850	1450x850	1450x850	1450x850	1450x850
Effective board size (lenght x width)	mm	1400x800	1400x800	1400x800	1400x800	1400x800
Effective boar surface	m^2	1,12	1,12	1,12	1,12	1,12
Thickness base insulation	mm	-	10	23	30	30
Nob height	mm	18,5	18,5	18,5	18,5	18,5
Total thickness	mm	19,5	28,5	41,5	48,5	41,5
Tube diameter	mm	14-17	14-17	14-17	14-17	14-17
Resistance at 10% compression	kPa	-	200	150	150	5
PS foil thickness	mm	1	0,6	0,6	0,6	0,6
Color of the PS foil	Col.	black	black	black	black	black
Pipe spacing 45°/90°	mm	50/71	50/71	50/71	50/71	50/71
Heat conduction l (EN 12667)	W/mK	-	0,035	0,035	0,035	0,040
Thermal resistance R (EN 12939)	m^2K/W	-	0,35	0,75	0,95	0,75
Impact sound reduction	dB	-	-	-	-	> 28
Stiffness group to EN 13163	SD	-	-	-	-	SD 30
Fire class (EN 13501-1) - EUROCLASS		F	F	F	F	F

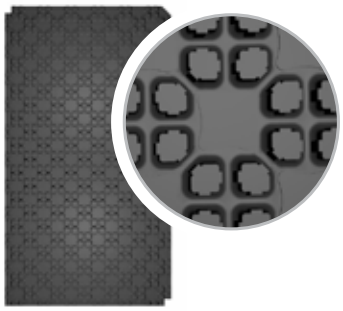
Boards per box	nr	16	16	11	8	8
Board surface per box	m^2	17,92	17,92	12,32	8,96	8,96
Box size	cm	148x87x19	148x87x35	148x87x35	148x87x35	148x87x35
Boxes per pallett	nr	14	8	8	8	8
Board surface per pallett (h 300 cm)	m^2	250,88	143,36	98,56	71,68	71,68
Board surface per full truck (120 m^3)	m^2	6.522,88	3.440,64	2.365,44	1.720,32	1.720,32

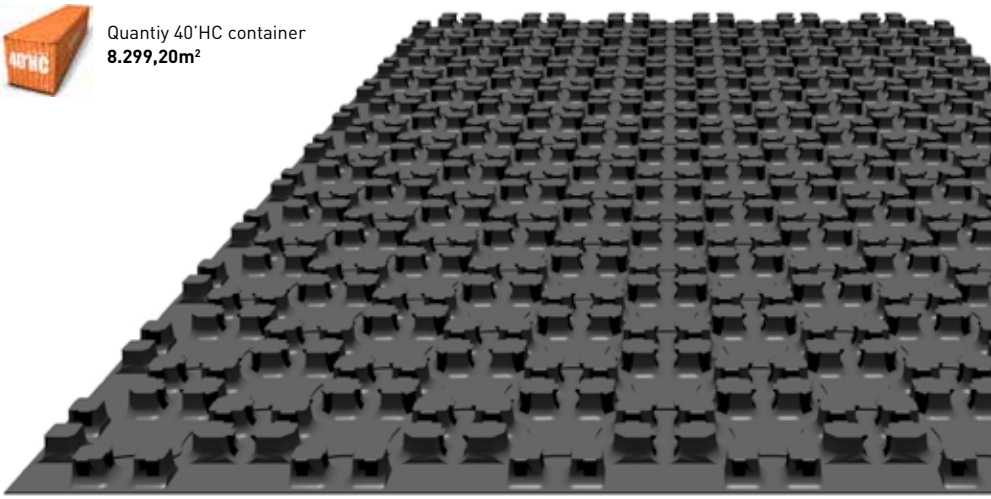
Enetec reserves the right to change products and specifications without notice.

Nob board

MINI TFS

Quantiy 40'HC container
8.299,20m²

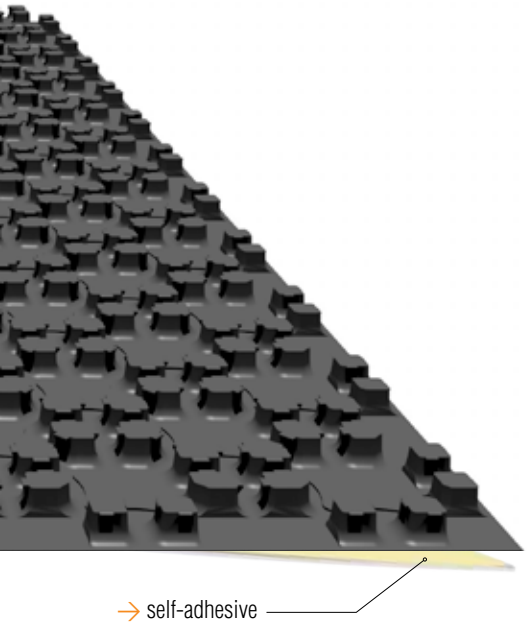




Technical summary

The Mini TF sheeting element is easy to lay on existing screed or insulations. Suitable for pipes ø 10-12 mm. Allowing for straight and diagonal pipe laying.

Description		MINI TF
Board size (lenght x width)	mm	1125x625
Effective board size (lenght x width)	mm	1100x600
Nob height	mm	13
Tube diameter	mm	10-12
PS foil thickness	mm	1
Pipe spacing	mm	50



Only 19 mm floor height
Quick to react
Ideal for retrofit
Rapid and easy installation

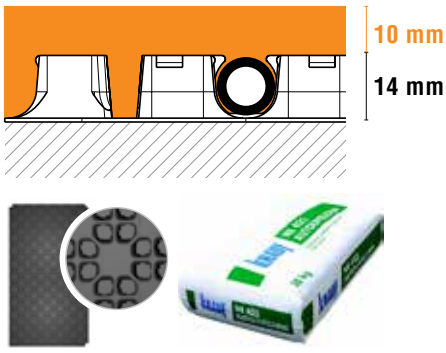
Minimal height: the retrofit solution

Mini TFS self-adhesive + Self-levelling mortar Knauf NE 499

Self-adhesive

*point load [kN]		Mini TFS Pipe Ø10 mm	Mini TFS Pipe Ø12 mm
≤2	Covering	5 mm	5 mm
	Tot. height	19 mm	19 mm

Mini TFS + Self-levelling mortar Knauf NE 425



*point load [kN]		Mini TFS Pipe Ø10 mm	Mini TFS Pipe Ø12 mm
≤2	Covering	10 mm	10 mm
	Tot. height	24 mm	24 mm

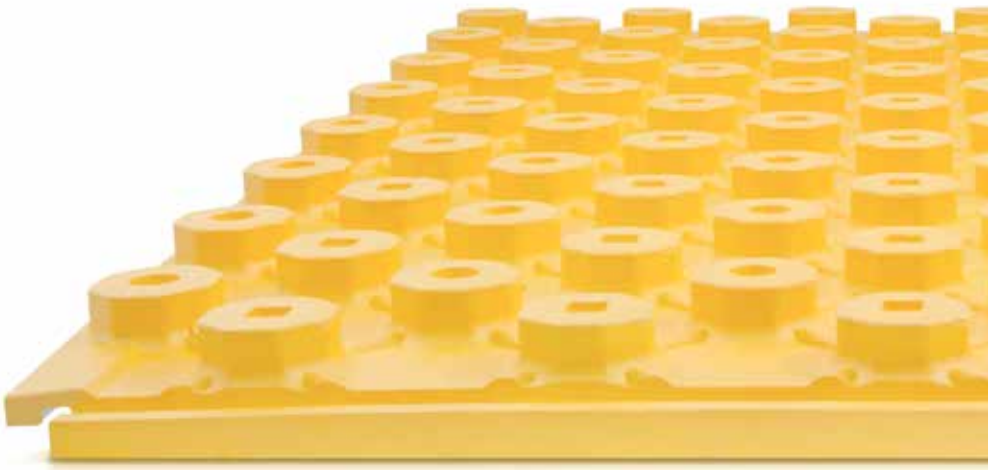
According to rooms by D.M. 17-01-2018 of categories A, B1, B2 (living areas, including hospitals and hotels, office space)
* Proof of pointly concentrated loads Q_k = 2 kN

Certified laboratory (NTC2018)

elletipi

Preformed board

PB 75



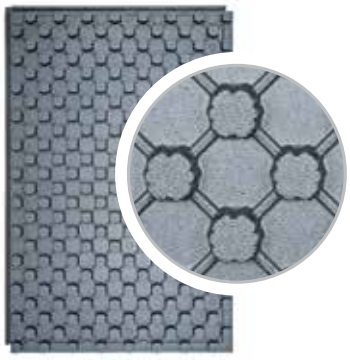
Technical summary

Preformed insulating board with different thicknesses in polystyrene EPS.
Declared heat conductivity of 0.035 W/m·K (UNI EN 13163), protected on top by a special 0,16 mm film (UNI EN 1264-4) and nobs set to allow the setting of the pipes with a distance of 7,5 cm; the insulating sheet is interlocking to eliminate heat bridges. resistance to compression at 10% deformation: 150 kPa (UNI EN 13163); reaction to fire: Euroclass F (EN 13501-1).

Description		PB75-150
Board size (lenght x width)	mm	1220x775
Effective board size (lenght x width)	mm	1190x745
Thickness base insulation	mm	20/25/30
Nob height	mm	28
Tube diameter	mm	14-17
Pipe distance (multiples)	mm	75
Heat conduction l (EN 12667)	W/mK	0,035

Preformed board

PB 50



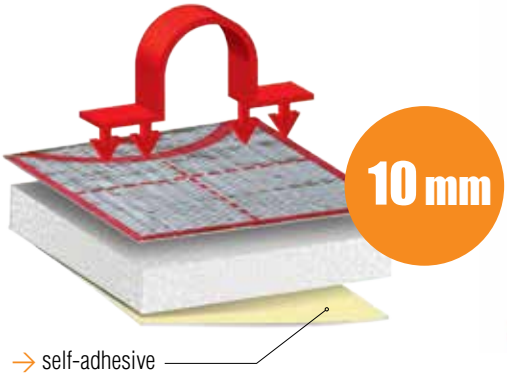
Technical summary

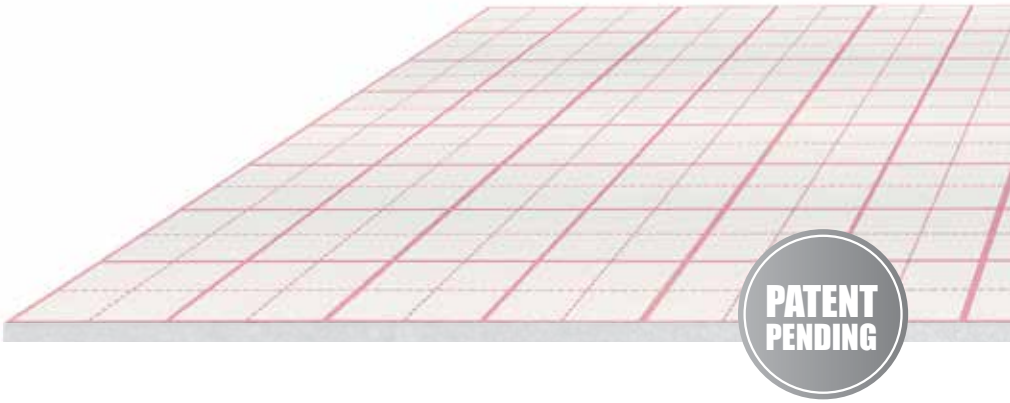
Preformed insulating board with different thicknesses in polystyrene EPS.
Declared heat conductivity of 0.035 W/m·K (UNI EN 13163), protected on top by a special 0,16 mm film (UNI EN 1264-4) and nobs set to allow the setting of the pipes with a distance of 5 cm; the insulating sheet is interlocking to eliminate heat bridges. resistance to compression at 10% deformation: 150 kPa (UNI EN 13163); reaction to fire: Euroclass F (EN 13501-1).

Description		PB50-150
Board size (lenght x width)	mm	1220x820
Effective board size (lenght x width)	mm	1200x800
Thickness base insulation	mm	15/20/25/30/35/40
Nob height	mm	22
Tube diameter	mm	14-17
Pipe distance (multiples)	mm	50
Heat conduction l (EN 12667)	W/mK	0,035

Ultra slim flat board

Euro-ten





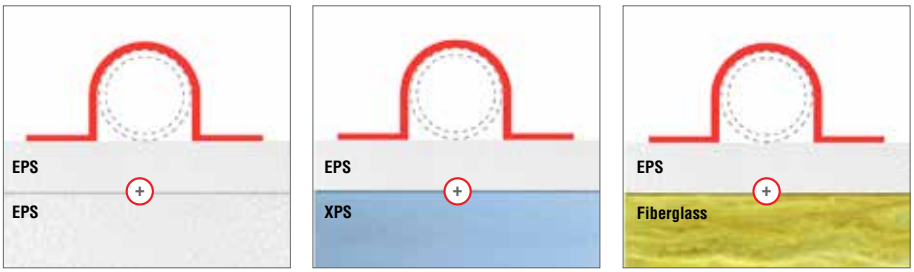
Tacker panel Euro-Ten especially designed for applications in renovations as well as low height ufh. In combination with the systemclips pipes can be installed from dimension 10 mm - 17 mm. The laminated aluminized foil is high tear-resistant with printed grid spacing 50 mm, the foil is one side overlapped 30 mm layered with adhesive-backed to prevent penetration of water to the insulation. The complete panel is self-adhesive on the backside to fix the Euro-Ten system in perfect shape on existing insulations. The density of 150 kPa allows to use Euro-Ten in any ufh application. The Euro-Ten panel is folded to a dimension of 800 x 1200 mm to fit perfectly the europallet dimension.

Technical data

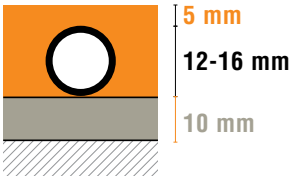
Description	Super slim board
Product code	101101516
Panel dimension (surface)	1600 x 1200 mm (1,92 m²)
Total thickness	10 mm
Pipe diameter	10 ÷ 17 mm
Pipe distance grid	Multiples of 50 mm
Material	Expanded polystyrene EPS
Density	150 kPa
Heat conduction l_D	0.035 W/mK
Thermal resistance R_D	0.285 m²K/W

- About 250 m² per pallet, the warehouse storage and the transport are simple.
- Cables and pipes safe to drill because the special clip doesn't pass through the insulation.
- The printed grid is provided to help a quick and simple installation of the pipes.
- The board can be easily installed along the irregular perimeters because you can cut it with a cutter.

The Euro-ten board can be coupled to other types of boards



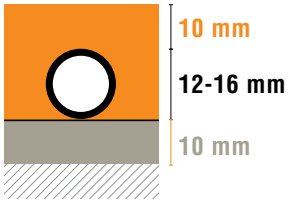
Euro-ten self-adhesive + Self-levelling mortar Knauf NE 499



*point load [kN]		Euro-ten Pipe Ø15 mm
≤2	Covering	5 mm
	Tot. height	30 mm

30 mm

Euro-ten + Self-levelling mortar Knauf NE 425



*point load [kN]		Euro-ten Pipe Ø15 mm
≤2	Covering	10 mm
	Tot. height	35 mm

35 mm

According to rooms by D.M. 17-01-2018 of categories A, B1, B2 (living areas, including hospitals and hotels, office space) * Proof of pointly concentrated loads Q_k = 2 kN

Certified laboratory (NTC2018)

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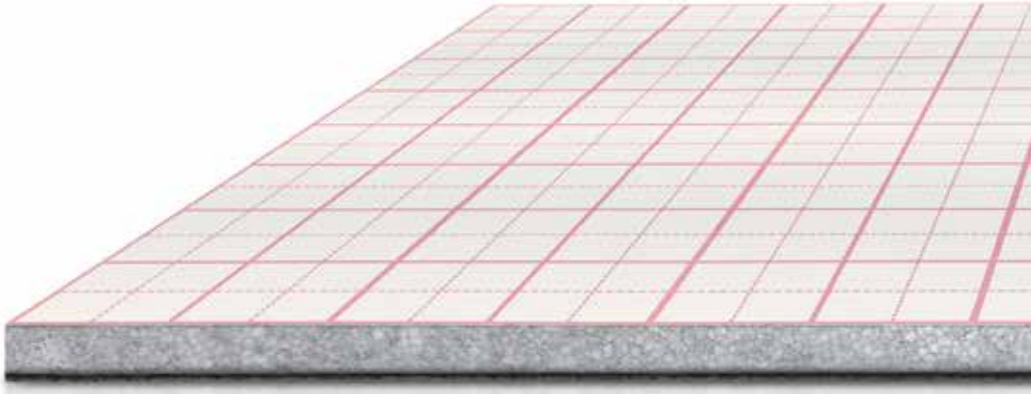
Multilayer plane acoustic board

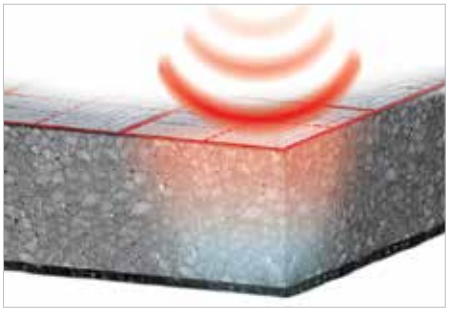
Flat-dB



Insulation plate tacker panel Flat-db made of expanded polystyrene grades EPS with graphite, declared thermal conductivity λ: 0,030 W/mK (EN 13163; EN 12667). The insulation panel is coated on the underside with a granulated SBR-rubber sheat to give exceptional acoustic performances. The system was tested fully installed in laboratory, including pipes perimetral strip, and concrete, and tested compling to EN ISO 140-6. To the insulation panel has been certified an acoustical step noise insulation DL_w of -37dB compliant to EN ISO 717-2. The upper side of the panel is laminated with high tear-resistant fabric-reinforced foil made of aluminized polyethylene (DIN EN 1264-4), with printed grid spacing 50 mm. The foil is one side overlapped appr. 30 mm to allow a safe junction of the boards and avoid concrete infiltration.

Technical data

Description	High performance acoustic board: flat-dB
Product code	101711432
Panel dimension (surface)	2000 x 1000 mm (2 m^2)
Total thickness	32 mm (24 mm insulation board + 8 mm acoustic layer)
Pipe diameter	16 ÷20 mm
Pipe distance grid	Multiples of 50 mm
Material	Expanded polystyrene sintered with graphite and coupled to a rubber fibre sheath
Density	140 kPa
Heat conduction l_D	0.030 W/mK
Thermal resistance R_D	0.80 m^2K/W
Dynamic stiffness	19 MN/m^3
Reaction to fire	Euroclass F
system acoustic performance; index of evaluation of the pressure level attenuation indoor sound DL_w on clay/cement floor 20+5 in compliance with UNI 9730-1:1990, EN 15037-3:2009 and MD 09/01/1996	37 dB (without covering)* 36 dB (with ceramic tiles)* 44 dB (with floating parquet floor)* * EN ISO 717-2; EN ISO 140-6 (DFT)
normalised indoor sound pressure level $L_{n,w}$ measured in laboratory on clay/cement mix floor 20+5 in compliance with UNI 9730-1:1990, EN 15037-3:2009 and MD 09/01/1996	55 dB (without covering)* 56 dB (tiles covering)* 48 dB (floating covering)* * EN ISO 717-2; EN ISO 140-6 (DFT)



Certified acoustic

The entire system, complete with pressurised piping, perimeter strip and any other accessory necessary for precision laying, has been laboratory tested in compliance with EN ISO 140-6 on 20+5 cm clay/cement mix floor under the strict control of the Dipartimento di Fisica Tecnica DFT of the University of Padua.

In this way it was possible, on the basis of the experimental values measured, to supply evaluation indexes ΔL_w and $L_{n,w}$ in compliance with EN ISO 717-2 that consider the real application and effect of a “difficult” floor like the clay/cement mix, which due to its non-homogenous constitution is outside of the use conditions of the acoustic reduction prevision form of the EN 12354-2.

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Enetec spa
Pillhof 89
I-39057 Frangarto (BZ)
T +39 0471 051 508
F +39 0471 051 509
mail@enetec.info

Plant Bozen
Molding & Milling
Pillhof 89
I-39057 Frangarto (BZ)
T +39 0471 051 508
F +39 0471 051 509
mail@enetec.info

Plant Verolanuova
EPS Production
Via IV Novembre, 34
I-25028 Verolanuova (BS)
T +39 030 933163
F +39 030 9923998
eps@enetec.info

Enetec GmbH
International sales
Kalkarer Str. 81 - Halle 26
D-47533 Kleve
T +49 2821 89 88 00
sales@enetec.info

Plant Enetec Plastics
Extrusion
Kalkarer Str. 81 - Halle 26
D-47533 Kleve
T +49 2821 89 88 00
pipes@enetec.info

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