

EPS insulation boards.

High flexibility and strong expertise
for a great insulation.

radiant heating
& cooling
components

OEM



EPS PROCESSING

EPS plant Verolanuova (Italy): 16.000 m² of production area • Different technologies: skinning, thermoforming, melting • Own thermoforming patent • In-house product prototyping

EPS is a highly versatile material for molding a wide variety of finished parts. Our customers enjoy a wider product portfolio, significantly reduced processes costs, improved performance and advanced environmental benefits.

We are constantly developing new material grades and molding techniques, all in support of extending the range of applications. The final transformation of nob boards is the skinning or coupling with thermoformed PS Foils, that can vary from a thickness of 0,16 mm to 1 mm. In the realisation of the flat boards, the panels are hot melted with different foils or materials.

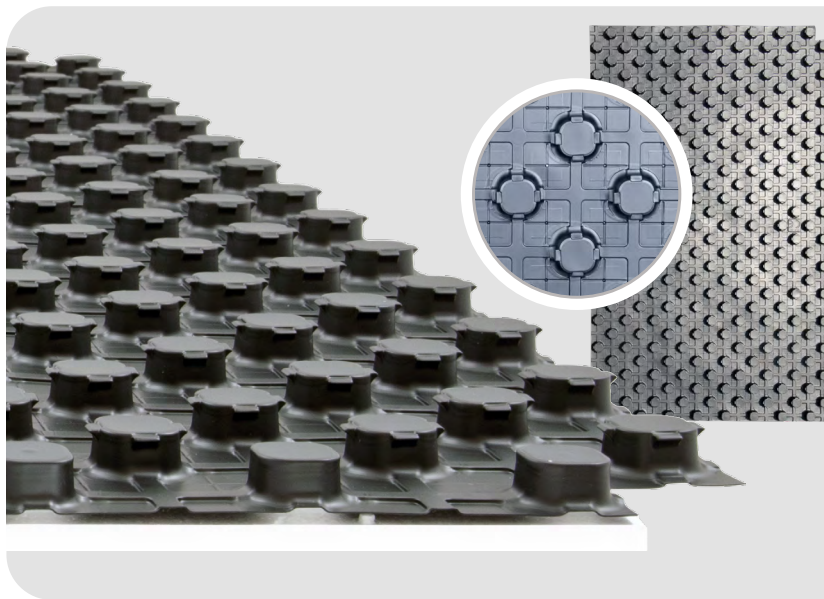
This allows to make different products, all from one single plant based in Verolanuova (Italy).





TF 90°

DYNAMIC THICKNESS ADJUSTMENT



Highly versatile

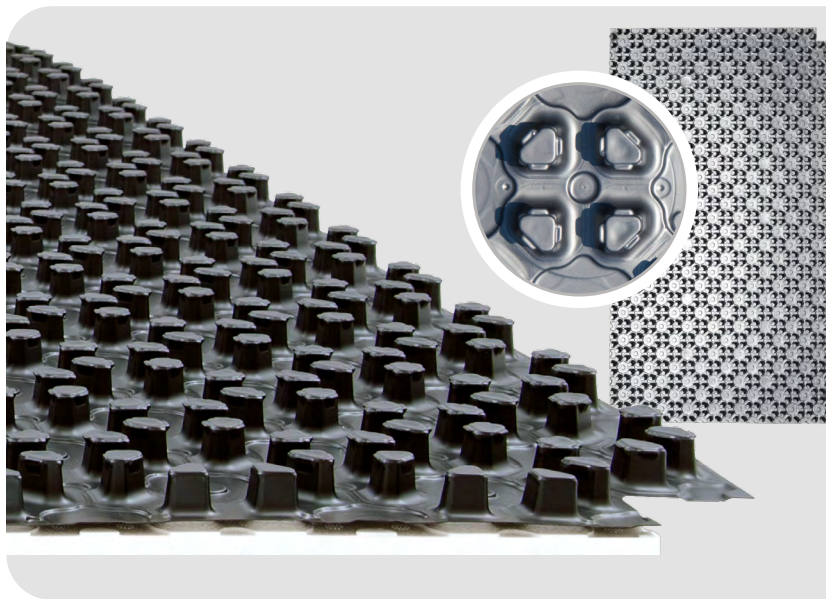
Nob panel with thermoformed element especially designed nobs guarantee perfect fixing, the element is equipped on two sides with extra rows of nobs which allow a keyed and frictional connection preventing penetration of screed into the construction. Based on the high inherent stability the panel is well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

- Pipe 14-17 mm
- Pipe distance 5 cm
- ≡ Pipe laying 90°
- Foil 0,6 -1,0
- Suitable for cement and self-levelling screed

DESCRIPTION	PS foil		Thermoforming boards TF 90° – DEO				Acoustic b. DES
	TF 1	TF 10	TF 20	TF 30	TF 40	TF 30-2	
Code	1190001000	1190206010	1190156020	1190156030	1190156040	1190108030	
Board size (length x width)	mm 1450x850	1450x850	1450x850	1450x850	1450x850	1450x850	
Effective board size (l x w)	mm 1400x800	1400x800	1400x800	1400x800	1400x800	1400x800	
Effective board surface	m ² 1,12	1,12	1,12	1,12	1,12	1,12	
Thickness base insulation	mm -	10	20	30	40	30-2	
Nob height	mm 21,5	21,5	21,5	21,5	21,5	21,5	
Total thickness	mm 22,5	31,5	41,5	51,5	61,5	51,5	
Tube diameter	mm 14-17	14-17	14-17	14-17	14-17	14-17	
Compressive strength (10/Y)	kPa -	200	150	150	150	50	
PS foil thickness	mm 1	0,6	0,6	0,6	0,6	0,8	
Colour of the PS foil	Col. black	black	black	black	black	black	
Pipe spacing	mm 50	50	50	50	50	50	
Heat conduction λ (EN 12667)	W/mK -	0,034	0,034	0,034	0,034	0,040	
Th. resistance R (EN 12939)	m ² K/W -	0,40	0,70	0,95	1,25	0,75	
Impact sound reduction L _w	dB -	-	-	-	-	> 28	
Stiffness group to EN 13163	SD -	-	-	-	-	SD 20	
Fire class (EN 13501-1)	Foil F	EPS – E / Foil F	EPS – E / Foil F	EPS – E / Foil F	EPS – E / Foil F	EPS – E / Foil F	
Boards per box	nr. 18	18	12	10	7	10	
Board surface per box	m ² 20,16	20,16	13,44	11,2	7,84	11,2	
Box size	cm 152x88x25,5	152x88x43	152x88x43	152x88x43	152x88x39	152x88x43	
Boxes per pallet	nr 12	6	6	6	7	6	
Surface per pallet (h 300 cm)	m ² 241,92	120,96	80,64	67,20	54,88	67,20	
Full truck (13,6 ldm)	m ² 5.564,16	2.782,08	1.854,72	1.545,60	1.262,24	1.545,60	

Thermoformed 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 inherent stability the panel is well walk-on-able; made of expanded polystyrene grades EPS.

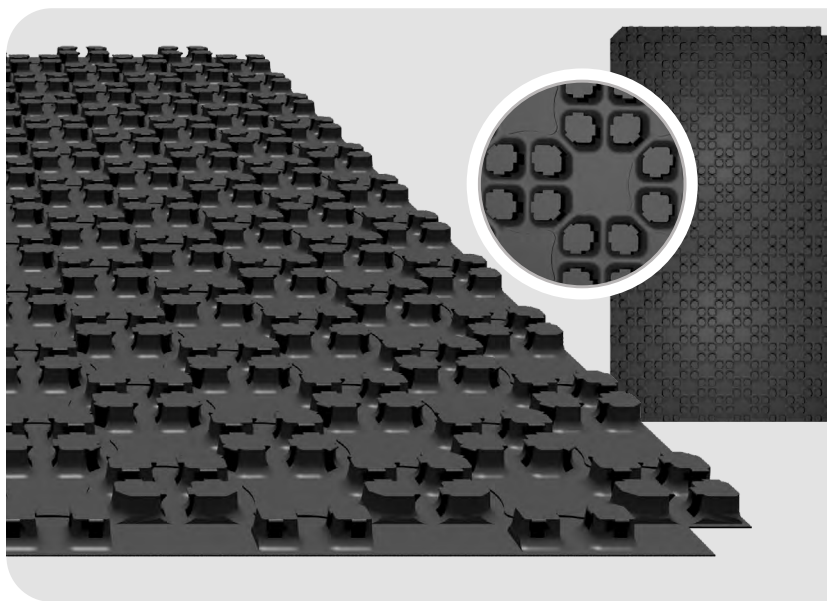
- Pipe 14-17 mm
- Pipe distance 5 cm
- ≡ Pipe laying 45°
- Foil 0,6 -1,0
- Suitable for cement and self-levelling screed

DESCRIPTION	Thermoforming boards TFS 45° – DEO				
	PS foil	TFS 1	TFS 10	TFS 20	TFS 30
Code		1145000000	1145206010	1145156020	1145156030
Board size (length x width)	mm	1450x850	1450x850	1450x850	1450x850
Effective board size (length x width)	mm	1400x800	1400x800	1400x800	1400x800
Effective board surface	m ²	1,12	1,12	1,12	1,12
Thickness base insulation	mm	-	10	20	30
Nob height	mm	18,5	18,5	18,5	18,5
Total thickness	mm	19,5	28,5	38,5	48,5
Tube diameter	mm	14-17	14-17	14-17	14-17
Compressive strength (10/Y)	kPa	-	200	150	150
PS foil thickness	mm	1	0,6	0,6	0,6
Colour of the PS foil	Col.	black	black	black	black
Pipe spacing 45°/90°	mm	50/71	50/71	50/71	50/71
Heat conduction λ (EN 12667)	W/mK	-	0,034	0,034	0,034
Thermal resistance R (EN 12939)	m ² K/W	-	0,35	0,65	0,95
Impact sound reduction L _w	dB	-	-	-	-
Stiffness group to EN 13163	SD	-	-	-	-
Fire class (EN 13501-1)		Foil F	EPS – E / Foil F	EPS – E / Foil F	EPS – E / Foil F
Boards per box	nr	16	16	11	8
Board surface per box	m ²	17,92	17,92	12,32	8,96
Box size	cm	148x87x19	148x87x35	148x87x35	148x87x35
Boxes per pallet	nr	14	8	8	8
Board surface per pallet (h 300 cm)	m ²	250,88	143,36	98,56	71,68
Board surface per full truck (120 m ³)	m ²	6.522,88	3.440,64	2.365,44	1.720,32

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

Thermoformed nob foil

MINI TFS



Small thickness. Great performance.

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

- Only 19 mm floor height
- Quick installation
- Ideal for renovations
- Easy installation

○ Pipe 10-12 mm ■ Pipe distance 5 cm ▨ Pipe laying 45° ■ Foil 1,0 ■ Suitable for self-levelling screed

DESCRIPTION		MINI TF
Board size (length x width)	mm	1125x625
Effective board size (length x width)	mm	1100x600
Nob height	mm	13
Tube diameter	mm	10-12
PS foil thickness	mm	1
Pipe spacing	mm	50
Boards per box	nr	28
Board surface per box	m ²	0,66
Box size	cm	113,5x66x24
Boxes per pallet	nr	10
Board surface per pallet (h 300 cm)	m ²	184,8
Board surface per full truck (120 m ³)	m ²	6.652,80

ARTICLE	DESCRIPTION
1145000010	Mini TFS – Foil
1145000020	Mini TFS – Foil self-adhesive

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)

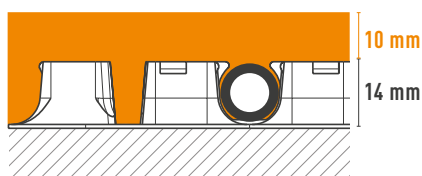


Mini TFS self-adhesive + Self-levelling mortar Knauf NE 499



*point load [kN]		Mini TFS Pipe \varnothing 10 mm	Mini TFS Pipe \varnothing 12 mm
≤ 2	Covering	5 mm	5 mm
	Tot. height	19 mm	19 mm

Mini TFS + Self-levelling mortar Knauf NE 425

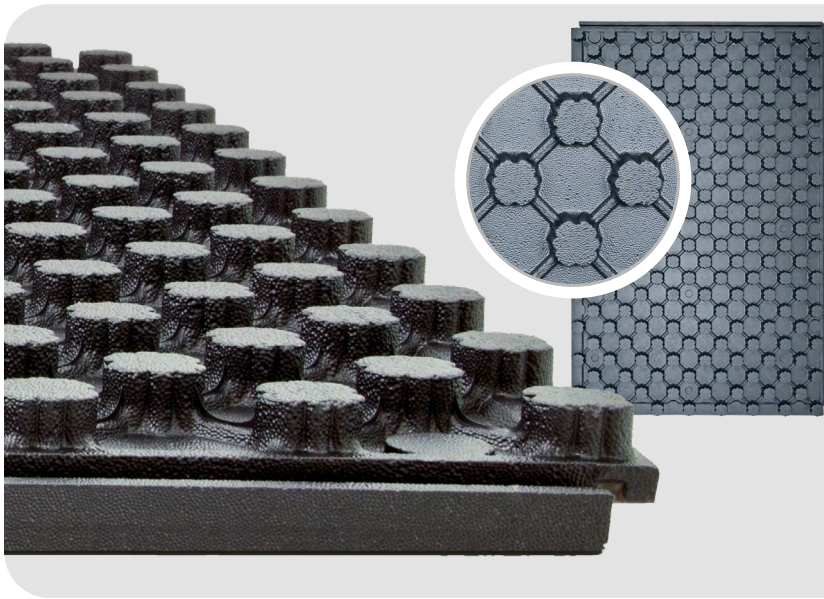


*point load [kN]		Mini TFS Pipe \varnothing 10 mm	Mini TFS Pipe \varnothing 12 mm
≤ 2	Covering	10 mm	10 mm
	Tot. height	24 mm	24 mm



Preformed board

PB50



Preformed insulating board with different thickness's in polystyrene EPS. Declared heat conductivity of 0,034 / 0,035 W/mK (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. Compressive strength at 10% deformation: 120 / 150 kPa (UNI EN 13163); reaction to fire: Euroclass E (EN 13501-1).

○ Pipe 14-17 mm ■ Pipe distance 5 cm ≡ Pipe laying 90° ■ Skinned ■ Suitable for cement and self-levelling screed

DESCRIPTION		PB 50-20/45	PB 50-30/55	PB 50-40/65
Board size (length x width)	mm	1220x820	1220x820	1220x820
Effective board size (length x width)	mm	1200x800	1200x800	1200x800
Base/+nob height	mm	20/45	30/55	40/65
Tube diameter	mm	14-17	14-17	14-17
Pipe distance (multiple)	mm	50	50	50
Heat conduction λ (EN 12667)	W/mK	0,035 (120 kPa)	0,035 (120 kPa)	0,035 (120 kPa)
Boards per box	nr	15	12	10
Board surface per box	m ²	14,19	11,35	9,46
Box size	cm	124x85x59	124x85x59	124x85x59
Boxes per pallet	nr	4	4	4
Board surface per pallet (h 300 cm)	m ²	56,76	45,41	37,84
Board surface per full truck (120 m ³)	m ²	1.816,32	1.456,05	1.210,88

ARTICLE	DESCRIPTION
1150121020	PB 50 - 20/45 mm - EPS 120 kPa
1150121030	PB 50 - 30/55 mm - EPS 120 kPa
1150121040	PB 50 - 40/65 mm - EPS 120 kPa
1150151020	PB 50 - 20/45 mm - EPS 150 kPa
1150151030	PB 50 - 30/55 mm - EPS 150 kPa
1150151040	PB 50 - 40/65 mm - EPS 150 kPa

Preformed board

PB75



Preformed insulating board with different thickness's in polystyrene EPS. Declared heat conductivity of 0,035 W/mK (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.

Compressive strength at 10% deformation: 150 kPa (UNI EN 13163); reaction to fire: Euro-class E (EN 13501-1).

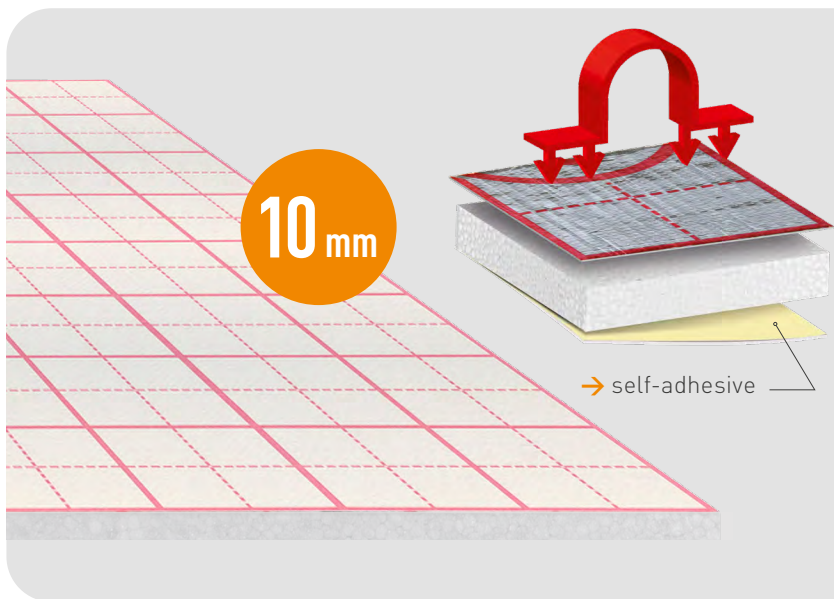
○ Pipe 17-20 mm ■ Pipe distance 7,5 cm ≡ Pipe laying 90° ■ Skinned ■ Suitable for traditional screed

DESCRIPTION		PB 75-20/48	PB 75-30/58	PB 75-40/68
Effective board size (length x width)	mm	1200x750	1200x750	1200x750
Base/+nob height	mm	20/48	30/58	40/68
Tube diameter	mm	14-20	14-20	14-20
Pipe distance (multiple)	mm	75	75	75
Heat conduction λ (EN 12667)	W/mK	0,035	0,035	0,035
Boards per box	nr	16	12	10
Board surface per box	m ²	14,40	10,80	9,00
Box size	cm	124x85x59	124x85x59	124x85x59
Boxes per pallet	nr	4	4	4
Board surface per pallet (h 300 cm)	m ²	56,76	45,41	37,84
Board surface per full truck (120 m ³)	m ²	1.843,20	1382,40	1.152,00

ARTICLE	DESCRIPTION
1170152020	PB 75 - 20/48 mm - EPS 150 kPa
1170152030	PB 75 - 30/58 mm - EPS 150 kPa
1170152040	PB 75 - 40/68 mm - EPS 150 kPa

Ultra slim flat board

EUROTEN



The Euroten flat board is specially designed for use in renovations and the compressive strength of 150 kPa allows Euroten to be used in any underfloor heating application. In combination with the system-clips, pipes can be installed from dimension 10 mm to 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 Euroten system in perfect shape on existing insulations. The Euroten panel is folded to a dimension of 800x1200 mm to fit perfectly the europallet dimension.

- Pipe 10-17 mm
- Pipe distance 5 cm
- ≡ Pipe laying free
- Hot melt foil
- Suitable for self-levelling screed

DESCRIPTION	EUROTEN	
Board size (length x width)	mm	1200x1600
Pipe distance (multiple)	mm	50
Heat conduction λ (EN 12667)	W/mK	0,034
Boards per box	nr	20
Board surface per box	m ²	19,2
Box size	cm	120x80x20
Boxes per pallet	nr	13
Board surface per pallet (h 300 cm)	m ²	249,60
Board surface per full truck (120 m ³)	m ²	8.985,60

ARTICLE	DESCRIPTION
101101516	EUROTEN 10 mm
101101515	EUROTEN 10 mm self-adhesive
103170816	Perimetral strip 6+2 self-adh.

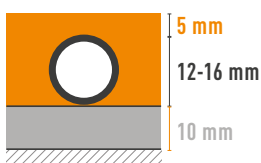
According to rooms by D.M. 17-01-2018 of categories A, B1, B2 (living areas, including hospitals and hotels, office space) * Proof of pointily concentrated loads $Q_k = 2$ kN

Certified laboratory (NTC2018)



- 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

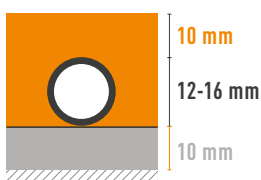
Euroten self-adhesive + Self-levelling mortar Knauf NE 499



30 mm

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

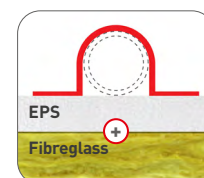
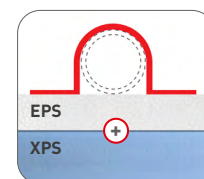
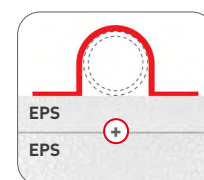
Euroten + Self-levelling mortar Knauf NE 425



35 mm

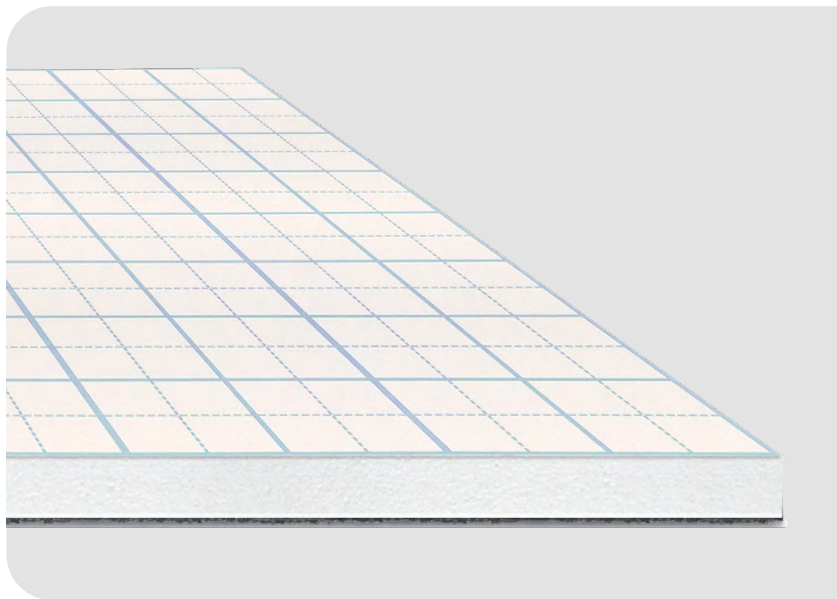
*point load [kN]	Euroten Pipe Ø15 mm	
≤2	Covering	10 mm
	Tot. height	35 mm

The Euroten board can be coupled to other types of boards:



Flat board

KLETT

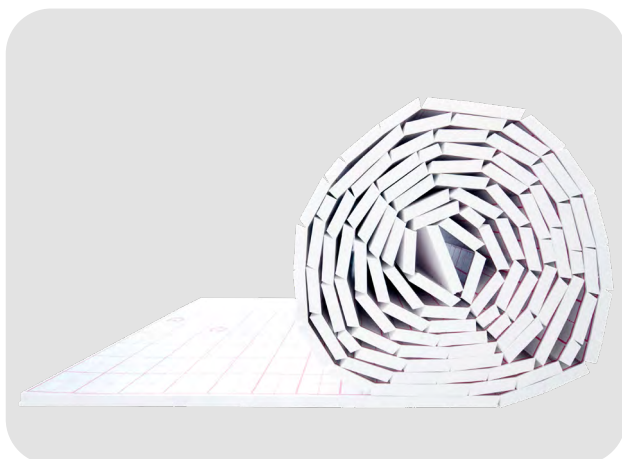


Klett is an easy-to-install, leak-resistant radiant floor heating and cooling system. It is fast and easy to lay, without the need of additional accessories such as clips or clamps. A self-attaching strap fastener wrapped around Klett pipes makes it quick and easy to secure the pipe to the smooth insulation board. On the klett foil is printed a grid spacing 50 mm, the foil is one side overlapped 30 mm layered with adhesive-backed on the opposite side to prevent penetration of water or screed. Available in rolls and boards.

○ Pipe 10-20 mm ■ Pipe distance 5 cm ≡ Pipe laying free ■ Hot melt foil ■ Suitable for traditional screed

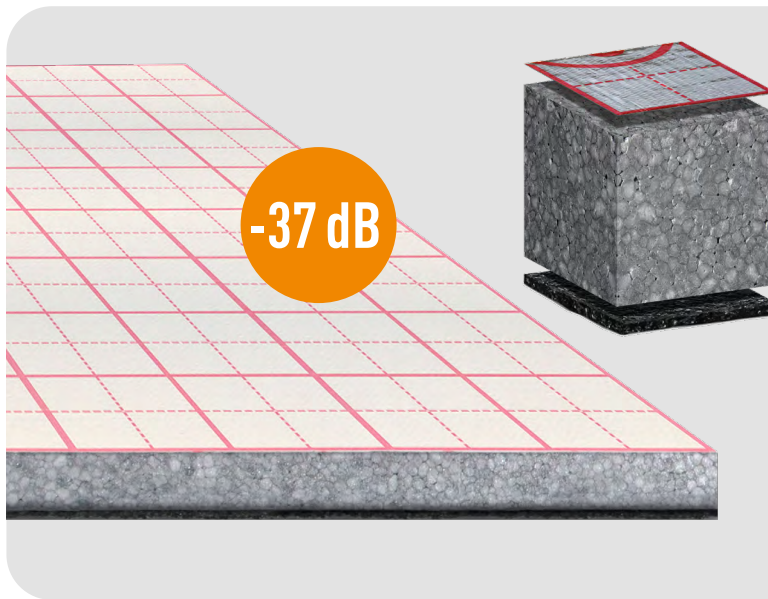
DESCRIPTION		KLETT 20	KLETT 30
Board size (length x width)	mm	1000x15000	1000x10000
Pipe distance (multiple)	mm	50	50
Heat conduction λ (EN 12667)	W/mK	0,035	0,035
Total thickness	mm	20	30
Compressive strength (10/Y)	kPa	150	150
Thermal resistance	m ² K/W	0,55	0,85
Board surface per Roll	m ²	15	10
Board surface per pallet (h 300 cm)	m ²	60	40
Board surface per full truck (120 m ³)	m ²	1920	1280

ARTICLE	DESCRIPTION
102215020	Klett roll 20 mm
102215030	Klett roll 30 mm



Multilayer acoustic board

FLAT-DB

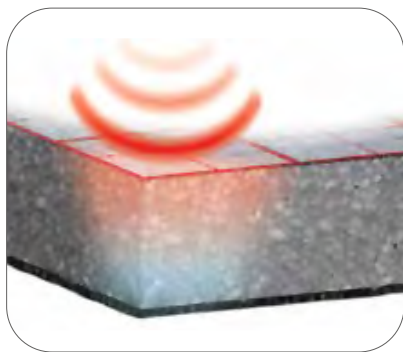


Insulation plate tacker panel Flat-dB made of expanded polystyrene grades EPS with graphite, declared thermal conductivity λ : 0,030 W/mK (EN 13163; EN 12667). The insulation panel is coated on the underside with a granulated SBR-rubber sheat to give exceptional acoustic performances.

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.

○ Pipe 10-20 mm ■ Pipe distance 5 cm ≡ Pipe laying free ■ Hot melt foil ■ Suitable for traditional screed

DESCRIPTION	FLAT-DB	
Code	101711432	
Board size (length x width)	mm	2000x1000
Pipe distance (multiple)	mm	50
Heat conduction λ (EN 12667)	W/mK	0,030
Total thickness	mm	32
Compressive strength (10/Y)	kPa	150
Thermal resistance	m ² K/W	0,80
Boards per packing unit	m ²	6
Board surface per pallet (h 280 cm)	m ²	78
Board surface per full truck (120 m ³)	m ²	2.028



Certified acoustic

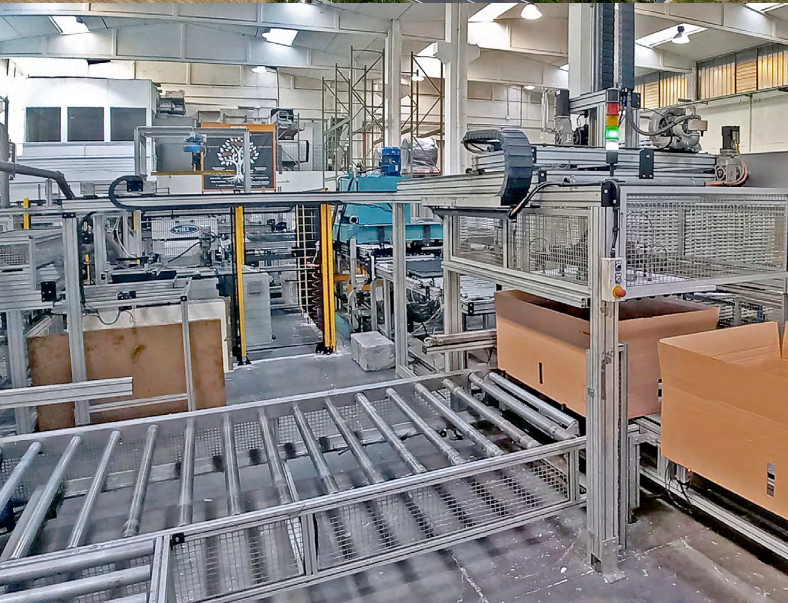
The entire system, complete with pressurised piping, perimeter strip and any other accessory necessary for precision laying, has been laboratory tested in compliance with EN ISO 140-6 on 20+5 cm clay/cement mix floor under the strict control of the Dipartimento di Fisica Tecnica DFT of the University of Padova. 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-homogeneous constitution is outside of the use conditions of the acoustic reduction prevision form of the EN 12354-2.

System acoustic performance; index of evaluation of the pressure level attenuation indoor sound ΔL_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)



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