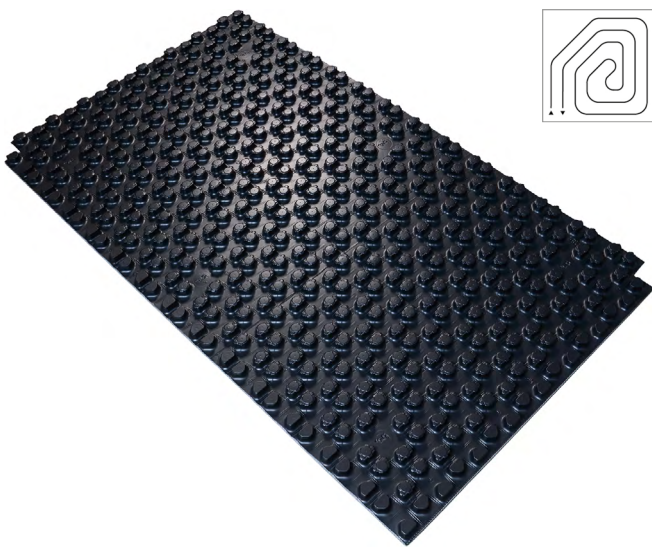




Thermoformed insulation panel made of EPS with graphite, for radiant floor systems

Datasheet
0984EN 02/2021



Thermoformed insulation panel R979TG for radiant floor systems with optional diagonal pipe laying.

Consisting of expanded polystyrene foam with graphite (EPS) with black thermoformed polystyrene protection layer. The combination of these two elements provides an actual density lower than traditional thermoformed insulation panels, with much greater resistance to trampling deformation.

Models R979TGY005 and R979TGY006 (respectively 50 and 63 mm height) feature an outstanding soundproofing performance thanks to the insulation sheet made with 2 EPS layers with dual density: higher density on top to enhance compression, lower density on the bottom to reduce the mass, increase elasticity and filter vibrations while conferring acoustic comfort.

Versions and product codes

PRODUCT CODE	SIZE [mm] T=pitch - h=height		N. OF SHEETS	TOTAL USEFUL SURFACE [m ²]
R979TGY003	Straight layout: T50 45° diagonal layout: T70	h30	10	11,20
R979TGY005	Straight layout: T50 45° diagonal layout: T70	h50	6	6,72
R979TGY006	Straight layout: T50 45° diagonal layout: T70	h63	5	5,60

Technical data

Stocking conditions

- The panels must not be exposed to direct sunlight
- Stocking must be carried out in a dry and protected area, at temperatures above 5 °C and below 50 °C
- Keep the panels away from chemical agents
- Keep the panels away from open flames and heat sources

▲ WARNING. Do not expose to direct sunlight, even after installation, up to screed casting.

R979TGY003

INSULATION PANEL	
Useful dimensions	1400 x 800 mm
Useful surface	1,12 m ²
Panel dimensions	1450 x 850 mm
Panel surface	1,23 m ²
Total thickness	30 mm sheet: 11 mm + protrusion: 19 mm
Pipe diameter	16÷17 mm
Allowed pitches	Multiples of 50 mm for straight layout Multiples of 70 mm for diagonal layout
INSULATION SHEET	
Material	Expanded polystyrene EPS 150 with graphite
Thermal conductivity, λ_D	0,032 W/(m K)
Thermal resistance, R_λ Complyng EN1264-3:2009 (par.4.1.2.2)	0,49 m ² K/W
Thermal resistance, R_λ Complyng EN1264-3 ($R_{ISO} = s_{SO}/\lambda_{ISO}$)	0,34 m ² K/W
Min. resistance to 10% crushing	150 kPa
Reaction to fire	Class E
Classification according to EN13163	EPS-EN13163-T(2)-L(3)-S(5)-P(10)-S(N)5-DLT(1)5-BS250-CS(10)150
PROTECTION LAYER	
Material	Thermo-formed polystyrene
Thickness	0,6 mm
Film color	Black

R979TGY005

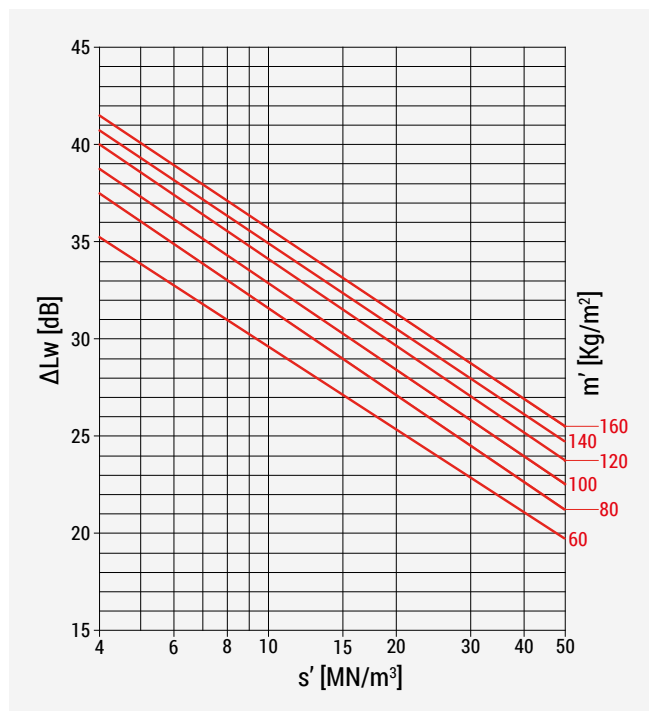
INSULATION PANEL	
Useful dimensions	1400 x 800 mm
Useful surface	1,12 m ²
Panel dimensions	1450 x 850 mm
Panel surface	1,23 m ²
Total thickness	50 mm sheet: 31 mm + protrusion: 19 mm
Pipe diameter	16÷17 mm
Allowed pitches	Multiples of 50 mm for straight layout Multiples of 70 mm for diagonal layout
INSULATION SHEET	
Material	Expanded polystyrene EPS T with graphite
Thermal conductivity, λ_D	0,032 W/(m K)
Thermal resistance, R_λ Complyng EN1264-3:2009 (par.4.1.2.2)	1,10 m ² K/W
Thermal resistance, R_λ Complyng EN1264-3 ($R_{ISO} = s_{SO}/\lambda_{ISO}$)	0,97 m ² K/W
Reaction to fire	Class E
Classification according to EN13163	EPS-EN13163-T(0)-L(3)-W(3)-S(5)-P(10)-DS(N)5-BS100-SD20-CP2
PROTECTION LAYER	
Material	Thermo-formed polystyrene
Thickness	0,6 mm
Film color	Black

Rg79TGY006

INSULATION PANEL	
Useful dimensions	1400 x 800 mm
Useful surface	1,12 m ²
Panel dimensions	1450 x 850 mm
Panel surface	1,23 m ²
Total thickness	63 mm sheet: 44 mm + protrusion: 19 mm
Pipe diameter	16÷17 mm
Allowed pitches	Multiples of 50 mm for straight layout Multiples of 70 mm for diagonal layout
INSULATION SHEET	
Material	Expanded polystyrene EPS T with graphite
Thermal conductivity, λ_D	0,032 W/(m K)
Thermal resistance, R_λ Complyng EN1264-3:2009 (par.4.1.2.2)	1,34 m ² K/W
Thermal resistance, R_λ Complyng EN1264-3 ($R_{\lambda_{ISO}} = s_{SP}/\lambda_{ISO}$)	1,38 m ² K/W
Reaction to fire	Class E
Classification according to EN13163	EPS-EN13163-T(0)-L(3)-W(3)-S(5)-P(10)-DS(N)5-BS100-SD20-CP2
PROTECTION LAYER	
Material	Thermo-formed polystyrene
Thickness	0,6 mm
Film color	Black

Soundproofing

In compliance with EN 13163, panels Rg79TGY005 and Rg79GY006 are included in class SD20, which corresponds to a $s' \leq 20$ MN/m³ dynamic rigidity, according to EN 13172.



The picture above, part of standard UNI EN 12354-2, shows how a reduced value of dynamic rigidity (s') provides enhanced soundproofing to the highest trampling (ΔLw) with the same value of mass per screed surface unit (m').

Use

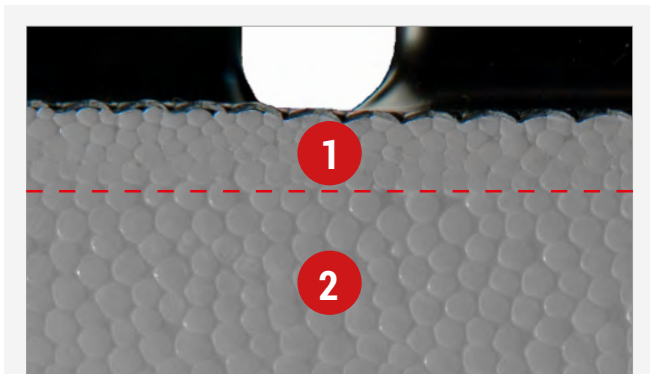


Thermoformed insulation panels R979TG are essential in radiant systems as they heat rooms in a very short time with limited powers, because they limit the mass of the heated structures and reduce heat dispersions downwards.

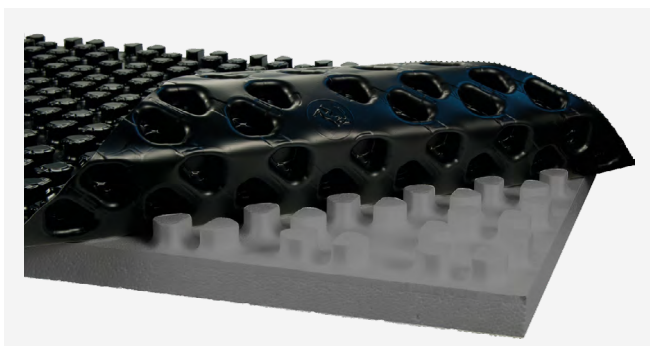
Use of thermoformed insulation panels R979TG results in pleasant room temperatures with low floor surface temperatures (approx. 24÷26 °C), as set forth by standard UNI EN 1264, with no physiological discomfort or structural issues typical of old installation techniques no longer adopted.

The improved performance of the thermoformed insulation panel reduces the quantity of pipe laid and the water flow rate required, thus limiting the number of circuits, the supply pipe diameters, the hydraulic heads of the circulator and the boiler room power capacity, with great benefits in terms of energy saving and environment protection.

Main features



Dual density for panels R979TGY005 and R979TGY006
1: higher density layer; 2: lower density layer



The special configuration of the thermoformed protrusions enables to firmly grip pipes with a 16-17 mm external diameter.

Thermoformed insulation panels R979TG save time when laying the pipes and can be used to create circuits with multiples of 50 mm (straight layout) and 70 mm (diagonal layout).

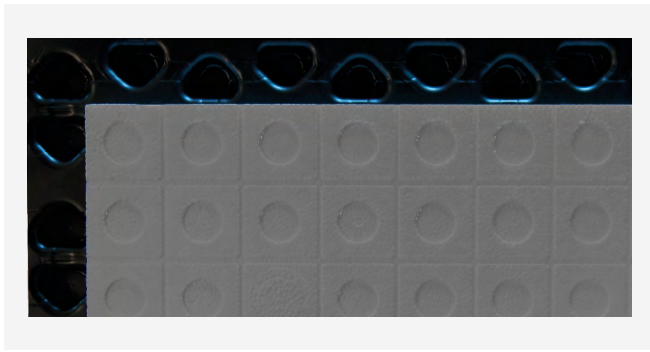
The available thicknesses, with total heights of 30, 50 and 63 mm, enable to install radiant floor heating and cooling systems in any type of work site, even with limited space, such as renovation projects.

All panels R979TG feature a very simple and efficient connection system.

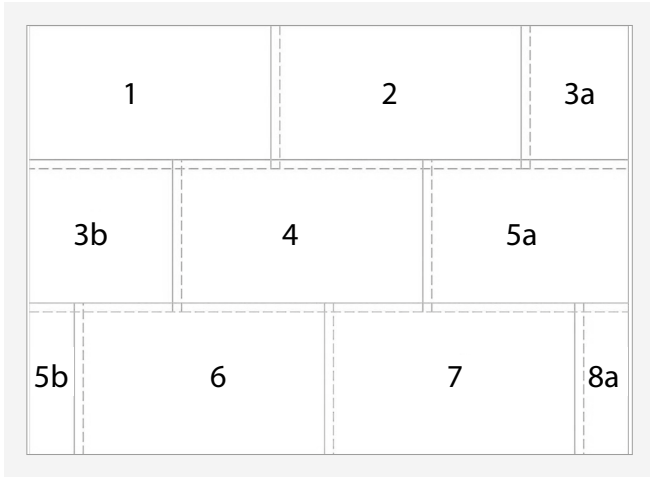
The surface coating is 50 mm larger than the insulation sheet underneath on both sides.

The two larger edges overlapping the contiguous panels (fig. 2) connect to each other, creating a homogeneous support base for the radiant circuits with no heat bridges, which are typical of panels lacking a solid connection system.

► Laying



Laying of thermoformed insulation panels R979TG is quick and easy thanks to the larger edges on both sides that provide state-of-the-art connections.



After fitting edge strip K369A on the walls (the insulation that prevents heat bridges and allows minimum dilations of the floor), lay and connect the panels making sure the subsequent rows follow an offset pattern.

Offset rows prevent panels from raising when the support surface is disconnected or for stiff pipes, especially in bends, that tend to raise for the mechanical memory acquired when rolled up.

The two protruding edges are removed with a cutter from sheet 1 which is positioned in the corner most suitable to start laying. Sheet 2 is trimmed only on its longer side. The shorter edge will be used to couple sheet 1.

This step must be repeated on every sheet of the first row.

The subsequent rows will be laid by fitting each panel to the next row with the same offset.

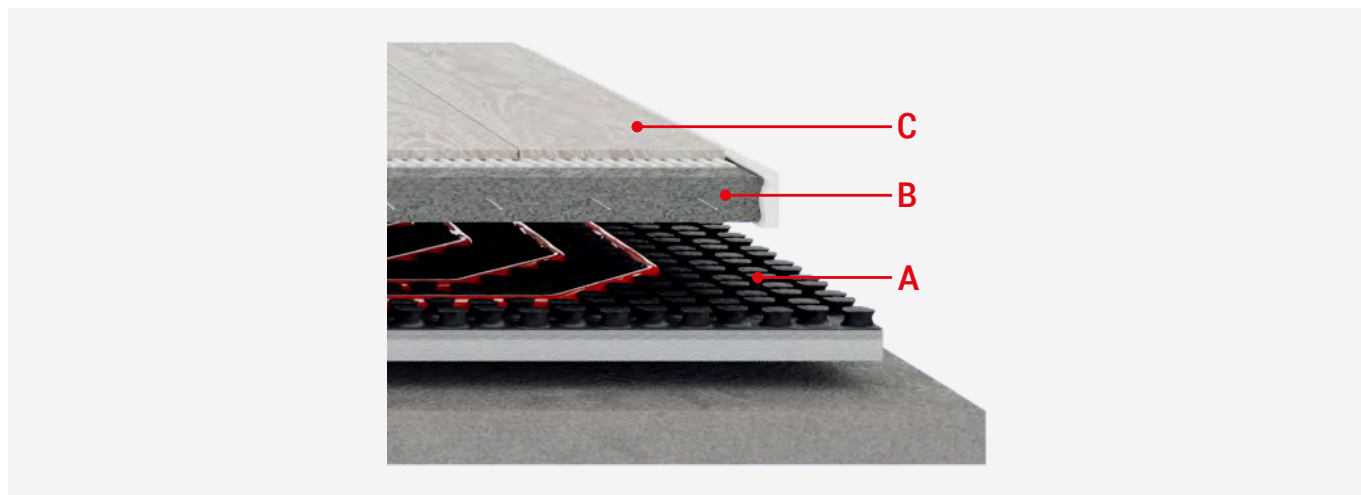
When laying is completed, and before casting the screed, we recommend installing electro-welded sheet K393 with large meshes over the panel. This will make the screed firmer to better support heavy concentrated loads (such as furniture or heavy closets) without crushing.

The dimensions required for a residential radiant panel system are represented by the height of the thermoformed insulation panel (30-63 mm) added to the screed thickness (at least 30 mm, according to UNI EN 1264-4) and the thickness of the tile or glued pit surface finish.

Systems employing thermoformed insulation panels R979TG and edge strip K369 feature high thermal outputs and reduced start up times for their limited thermal inertia.

▲ WARNING. Do not lay the product when room temperature is below 5 °C.

➤ Components and dimensions



PRODUCT CODE	PANEL "A" TOTAL HEIGHT [mm]	INSULATION/PROTRUSION HEIGHT [mm]	SCREED "B" MINIMUM HEIGHT [mm]	"A+B" MINIMUM HEIGHT COATING "C" EXCLUDED [mm]
R979TGY003	30	11/19	30	60
R979TGY005	50	31/19	30	80
R979TGY006	63	44/19	30	93

➤ Reference standards

- EN 1264: Floor heating – Systems and components.
- EN 13163: Thermal insulation products for buildings – Factory made products of expanded polystyrene (EPS).
- EN 12354-2: Construction soundproofing - Evaluation of building soundproofing performance starting from performance of employed products - Trampling soundproofing between rooms.

➤ Product specifications

R979TGY003

Thermoformed insulation panel for radiant floor systems. Color black. Height 30 mm (insulation sheet 11 mm, protrusion 19 mm). Consisting of an expanded polystyrene insulation sheet (EPS150) with graphite and 0,6 mm polystyrene protection layer. For Ø 16÷17 mm pipes. Layout center distance: multiples of 50 mm for straight layout; multiples of 70 mm for diagonal layout. Dimensions: 1450x850 mm (useful dimensions: 1400X800 mm). Panel useful surface 1,12 m². Thermal conductivity 0,032 W/(m K). Thermal resistance (R = s/λ) 0,34 m²K/W. Min. resistance to 10 % crushing, 150 kPa. Resistance to fire: class E.

R979TGY005

Thermoformed insulation panel for radiant floor systems. Color black. Height 50 mm (insulation sheet 31 mm, protrusion 19 mm). Consisting of an expanded polystyrene insulation sheet (EPS T) with graphite and 0,6 mm polystyrene protection layer. For Ø 16÷17 mm pipes. Layout center distance: multiples of 50 mm for straight layout; multiples of 70 mm for diagonal layout. Dimensions: 1450x850 mm (useful dimensions: 1400X800 mm). Panel useful surface 1,12 m². Thermal conductivity 0,032 W/(m K). Thermal resistance (R = s/λ) 0,97 m²K/W. Resistance to fire: class E.

R979TGY006

Thermoformed insulation panel for radiant floor systems. Color black. Height 63 mm (insulation sheet 44 mm, protrusion 19 mm). Consisting of an expanded polystyrene insulation sheet (EPS T) with graphite and 0,6 mm polystyrene protection layer. For Ø 16÷17 mm pipes. Layout center distance: multiples of 50 mm for straight layout; multiples of 70 mm for diagonal layout. Dimensions: 1450x850 mm (useful dimensions: 1400X800 mm). Panel useful surface 1,12 m². Thermal conductivity 0,032 W/(m K). Thermal resistance (R = s/λ) 1,38 m²K/W. Resistance to fire: class E.

⚠ Safety Warning. Installation, commissioning and periodical maintenance of the product must be carried out by qualified operators in compliance with national regulations and/or local standards. A qualified installer must take all required measures, including use of Individual Protection Devices, for his and others' safety. An improper installation may damage people, animals or objects towards which Giacomini S.p.A. may not be held liable.

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