

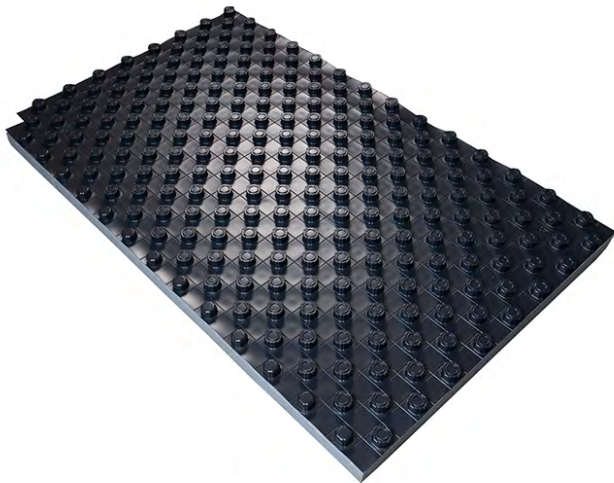
R979G



Radiant
Systems

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

Datasheet
0983EN 11/2021



Thermoformed insulation panel R979G for radiant floor systems. Consisting of expanded polystyrene foam (EPS) with graphite and black thermoformed polystyrene protection layer. The combination of these two elements and their intrinsic characteristics provide a panel with a resistance to trampling deformation much greater than traditional thermoformed insulation panels.

Versions and product codes

PRODUCT CODE	SIZE [mm] T=pitch - h=height	N. OF SHEETS	TOTAL USEFUL SURFACE [m ²]
R979GY003	T50 - h32	12	13,44
R979GY004	T50 - h42	8	8,96
R979GY094	T50 - h45	7	7,87
R979GY005	T50 - h52	6	6,72
R979GY006	T50 - h62	10	11,2
R979GY007	T50 - h75	8	8,96

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.

R979GY003

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	32 mm sheet: 10 mm + protrusion: 22 mm
Pipe diameter	16÷18 mm
Allowed pitches	Multiples of 50 mm
INSULATION SHEET	
Material	Expanded polystyrene EPS200 with graphite
Thermal conductivity, λ_D	0,03 W/(m K)
Thermal resistance, R_λ Complyng EN1264-3:2009 (par.4.1.2.2)	0,80 m ² K/W
Thermal resistance, R_λ Complyng EN1264-3 ($R_{ISO} = s_{SO}/\lambda_{ISO}$)	0,33 m ² K/W
Min. resistance to 10% crushing	200 kPa
Reaction to fire	Class E
Classification according to EN13163	EPS-EN13163-L(3)-W(3)-T(2)-CS(10)200-WL(T)6,5-Z30-70
PROTECTION LAYER	
Material	Thermo-formed polystyrene
Thickness	0,6 mm
Film color	Black

R979GY004

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	42 mm sheet: 20 mm + protrusion: 22 mm
Pipe diameter	16÷18 mm
Allowed pitches	Multiples of 50 mm
INSULATION SHEET	
Material	Expanded polystyrene EPS150 with graphite
Thermal conductivity, λ_D	0,03 W/(m K)
Thermal resistance, R_λ Complyng EN1264-3:2009 (par.4.1.2.2)	1,15 m ² K/W
Thermal resistance, R_λ Complyng EN1264-3 ($R_{ISO} = s_{SO}/\lambda_{ISO}$)	0,67 m ² K/W
Min. resistance to 10% crushing	150 kPa
Reaction to fire	Class E
Classification according to EN13163	EPS-EN13163-L(3)-W(3)-T(2)-CS(10)150-WL(T)4-Z30-70
PROTECTION LAYER	
Material	Thermo-formed polystyrene
Thickness	0,6 mm
Film color	Black

R979GY094

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	45 mm sheet: 23 mm + protrusion: 22 mm
Pipe diameter	16÷18 mm
Allowed pitches	Multiples of 50 mm
INSULATION SHEET	
Material	Expanded polystyrene EPS150 with graphite
Thermal conductivity, λ_D	0,03 W/(m K)
Thermal resistance, R_λ Complyng EN1264-3:2009 (par.4.1.2.2)	1,25 m ² K/W
Thermal resistance, R_λ Complyng EN1264-3 ($R_{ISO} = s_{SO}/\lambda_{ISO}$)	0,77 m ² K/W
Min. resistance to 10% crushing	150 kPa
Reaction to fire	Class E
Classification according to EN13163	EPS-EN13163-L(3)-W(3)-T(2)-CS(10)150-WL(T)4-Z30-70
PROTECTION LAYER	
Material	Thermo-formed polystyrene
Thickness	0,6 mm
Film color	Black

R979GY005

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	52 mm sheet: 30 mm + protrusion: 22 mm
Pipe diameter	16÷18 mm
Allowed pitches	Multiples of 50 mm
INSULATION SHEET	
Material	Expanded polystyrene EPS150 with graphite
Thermal conductivity, λ_D	0,03 W/(m K)
Thermal resistance, R_λ Complyng EN1264-3:2009 (par.4.1.2.2)	1,48 m ² K/W
Thermal resistance, R_λ Complyng EN1264-3 ($R_{ISO} = s_{SO}/\lambda_{ISO}$)	1,00 m ² K/W
Min. resistance to 10% crushing	150 kPa
Reaction to fire	Class E
Classification according to EN13163	EPS-EN13163-L(3)-W(3)-T(2)-CS(10)150-WL(T)4-Z30-70
PROTECTION LAYER	
Material	Thermo-formed polystyrene
Thickness	0,6 mm
Film color	Black

R979GY006

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	62 mm sheet: 40 mm + protrusion: 22 mm
Pipe diameter	16÷18 mm
Allowed pitches	Multiples of 50 mm
INSULATION SHEET	
Material	Expanded polystyrene EPS150 with graphite
Thermal conductivity, λ_D	0,03 W/(m K)
Thermal resistance, R_λ Complyng EN1264-3:2009 (par.4.1.2.2)	1,82 m ² K/W
Thermal resistance, R_λ Complyng EN1264-3 ($R_{\lambda_{ISO}} = s_{SO}/\lambda_{ISO}$)	1,33 m ² K/W
Min. resistance to 10% crushing	150 kPa
Reaction to fire	Class E
Classification according to EN13163	EPS-EN13163-L(3)-W(3)-T(2)-CS(10)150-WL(T)4-Z30-70
PROTECTION LAYER	
Material	Thermo-formed polystyrene
Thickness	0,6 mm
Film color	Black

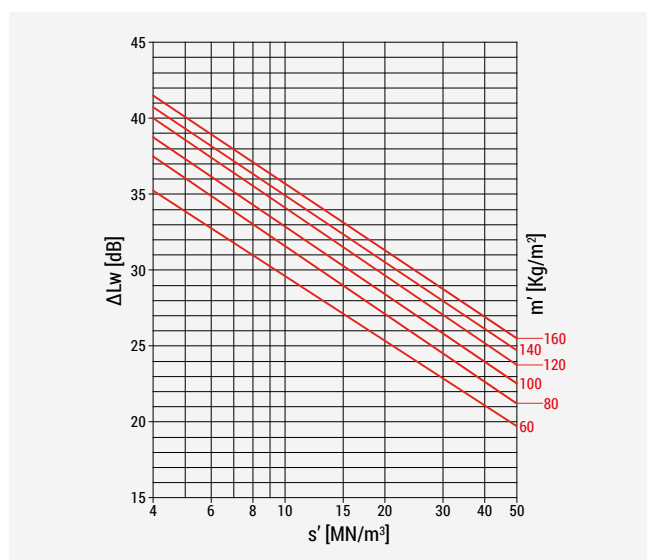
Soundproofing

In compliance with EN 13163, panels R979GY005, R979GY006, R979GY007 are included in class SD30, which corresponds to a $s' \leq 30$ MN/m³ dynamic rigidity, according to EN 13172.

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

R979GY007

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	75 mm sheet: 53 mm + protrusion: 22 mm
Pipe diameter	16÷18 mm
Allowed pitches	Multiples of 50 mm
INSULATION SHEET	
Material	Expanded polystyrene EPS150 with graphite
Thermal conductivity, λ_D	0,03 W/(m K)
Thermal resistance, R_λ Complyng EN1264-3:2009 (par.4.1.2.2)	2,25 m ² K/W
Thermal resistance, R_λ Complyng EN1264-3 ($R_{\lambda_{ISO}} = s_{SO}/\lambda_{ISO}$)	1,77 m ² K/W
Min. resistance to 10% crushing	150 kPa
Reaction to fire	Class E
Classification according to EN13163	EPS-EN13163-L(3)-W(3)-T(2)-CS(10)150-WL(T)4-Z30-70
PROTECTION LAYER	
Material	Thermo-formed polystyrene
Thickness	0.6 mm
Film color	Black



► Use



Thermoformed insulation panels R979G are essential to realize modern and functional 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 R979G 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



The special configuration of the thermoformed protrusion enables to firmly grip pipes with a 16-18 mm external diameter.

Thermoformed insulation panels R979G save time when laying the pipes and can be used to create circuits with multiples of 50 mm.

The available thicknesses, with total heights ranging between 32 mm and 75 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 R979G feature a very simple and efficient connection system.

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

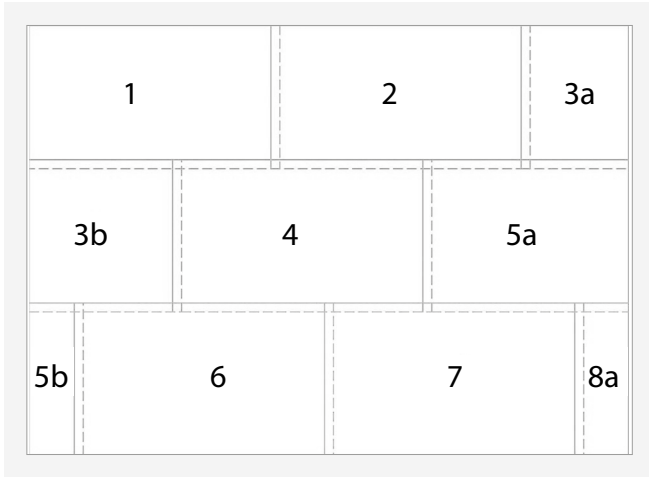
The two larger edges overlapping the contiguous panels connect to each other, creating a homogeneous support base for the radiant circuits with no heat bridges, which are typical of panels lacking a solid connection system.



➤ Laying



Laying of thermoformed insulation panels R979G 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.

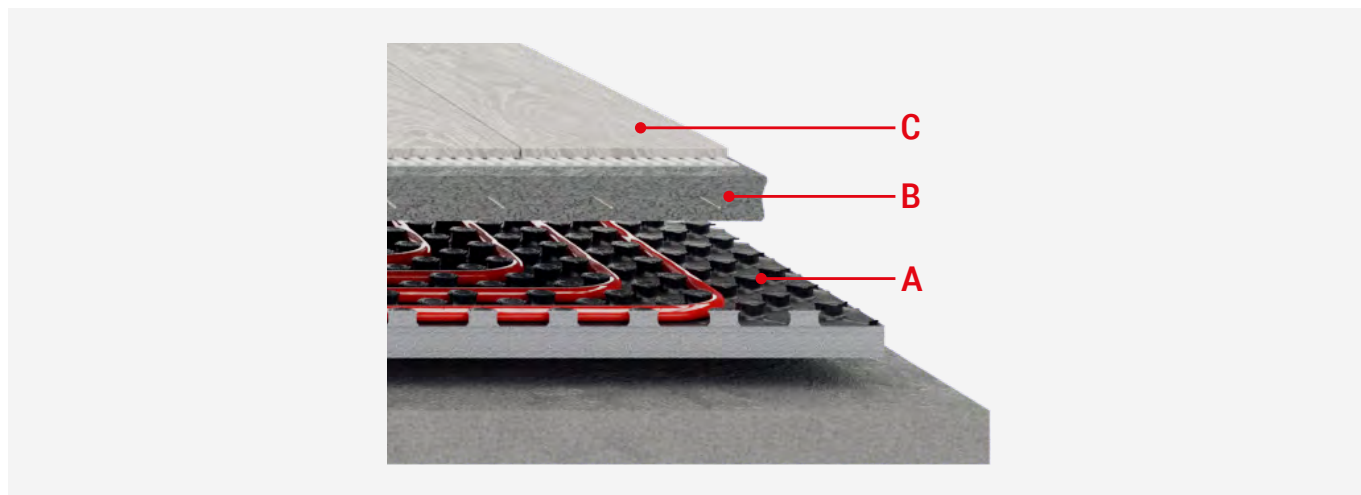
When laying is completed, and before casting the screed, we recommend installing electro-welded sheet K393 with large meshes over the panel.

The dimensions required for a residential radiant panel system are represented by the height of the thermoformed insulation panel (32-75 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 R979G and edge strip K369 feature high 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]
R979GY003	32	10/22	30	62
R979GY004	42	20/22	30	72
R979GY005	52	30/22	30	82
R979GY006	62	40/22	30	92
R979GY007	75	53/22	30	105

➤ 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

R979GY003

Thermoformed insulation panel for radiant floor systems. Color black. Height 32 mm (insulation sheet 10 mm, protrusion 22 mm). Consisting of an expanded polystyrene insulation sheet (EPS200) with graphite and a 0,6 mm polystyrene protection layer. For Ø 16÷18 mm pipes. Laying center distance: multiples of 50 mm. Dimensions: 1450x850 mm (useful dimensions: 1400X800 mm). Panel useful surface 1,12 m². Thermal conductivity 0,03 W/(m K). Thermal resistance (R = s/λ) 0,33 m²K/W. Min. resistance to 10 % crushing, 200 kPa. Resistance to fire: class E.

R979GY004

Thermoformed insulation panel for radiant floor systems. Color black. Height 42 mm (insulation sheet 20 mm, protrusion 22 mm). Consisting of an expanded polystyrene insulation sheet (EPS150) with graphite and a 0,6 mm polystyrene protection layer. For Ø 16÷18 mm pipes. Laying center distance: multiples of 50 mm. Dimensions: 1450x850 mm (useful dimensions: 1400X800 mm). Panel useful surface 1,12 m². Thermal conductivity 0,03 W/(m K). Thermal resistance (R = s/λ) 0,67 m²K/W. Min. resistance to 10 % crushing, 150 kPa. Resistance to fire: class E.

R979GY094

Thermoformed insulation panel for radiant floor systems. Color black. Height 45 mm (insulation sheet 23 mm, protrusion 22 mm). Consisting of an expanded polystyrene insulation sheet (EPS150) with graphite and a 0,6 mm polystyrene protection layer. For Ø 16÷18 mm pipes. Laying center distance: multiples of 50 mm. Dimensions: 1450x850 mm (useful dimensions: 1400X800 mm). Panel useful surface 1,12 m². Thermal conductivity 0,03 W/(m K). Thermal resistance (R = s/λ) 0,77 m²K/W. Min. resistance to 10 % crushing, 150 kPa. Resistance to fire: class E.

R979GY005

Thermoformed insulation panel for radiant floor systems. Color black. Height 52 mm (insulation sheet 30 mm, protrusion 22 mm). Consisting of an expanded polystyrene insulation sheet (EPS150) with graphite and a 0,6 mm polystyrene protection layer. For Ø 16÷18 mm pipes. Laying center distance: multiples of 50 mm. Dimensions: 1450x850 mm (useful dimensions: 1400X800 mm). Panel useful surface 1,12 m². Thermal conductivity 0,03 W/(m K). Thermal resistance (R = s/λ) 1,00 m²K/W. Min. resistance to 10 % crushing, 150 kPa. Resistance to fire: class E.

R979GY006

Thermoformed insulation panel for radiant floor systems. Color black. Height 62 mm (insulation sheet 40 mm, protrusion 22 mm). Consisting of an expanded polystyrene insulation sheet (EPS150) with graphite and a 0,6 mm polystyrene protection layer. For Ø 16÷18 mm pipes. Laying center distance: multiples of 50 mm. Dimensions: 1450x850 mm (useful dimensions: 1400X800 mm). Panel useful surface 1,12 m². Thermal conductivity 0,03 W/(m K). Thermal resistance (R = s/λ) 1,33 m²K/W. Min. resistance to 10 % crushing, 150 kPa. Resistance to fire: class E.

R979GY007

Thermoformed insulation panel for radiant floor systems. Color black. Height 75 mm (insulation sheet 53 mm, protrusion 22 mm). Consisting of an expanded polystyrene insulation sheet (EPS150) with graphite and a 0,6 mm polystyrene protection layer. For Ø 16÷18 mm pipes. Laying center distance: multiples of 50 mm. Dimensions: 1450x850 mm (useful dimensions: 1400X800 mm). Panel useful surface 1,12 m². Thermal conductivity 0,03 W/(m K). Thermal resistance (R = s/λ) 1,77 m²K/W. Min. resistance to 10 % crushing, 150 kPa. 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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