Radiant Systems

ER0002 SEPT2021

Heating and cooling radiant systems

HVAC systems for residential and tertiary buildings

GIACOMINI
WATER E-MOTION

Heating and cooling radiant systems

Check **sales terms and conditions** (delivery schedule, freight costs) with our Sales Area Manager.
For the **general sales conditions and warranty** make reference to the general ***Catalog Price List Italy*** in force or visit ***it.giacomini.com/informazioni-legali.***

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GIACOMINI
WATER E-MOTION

Radiant Systems

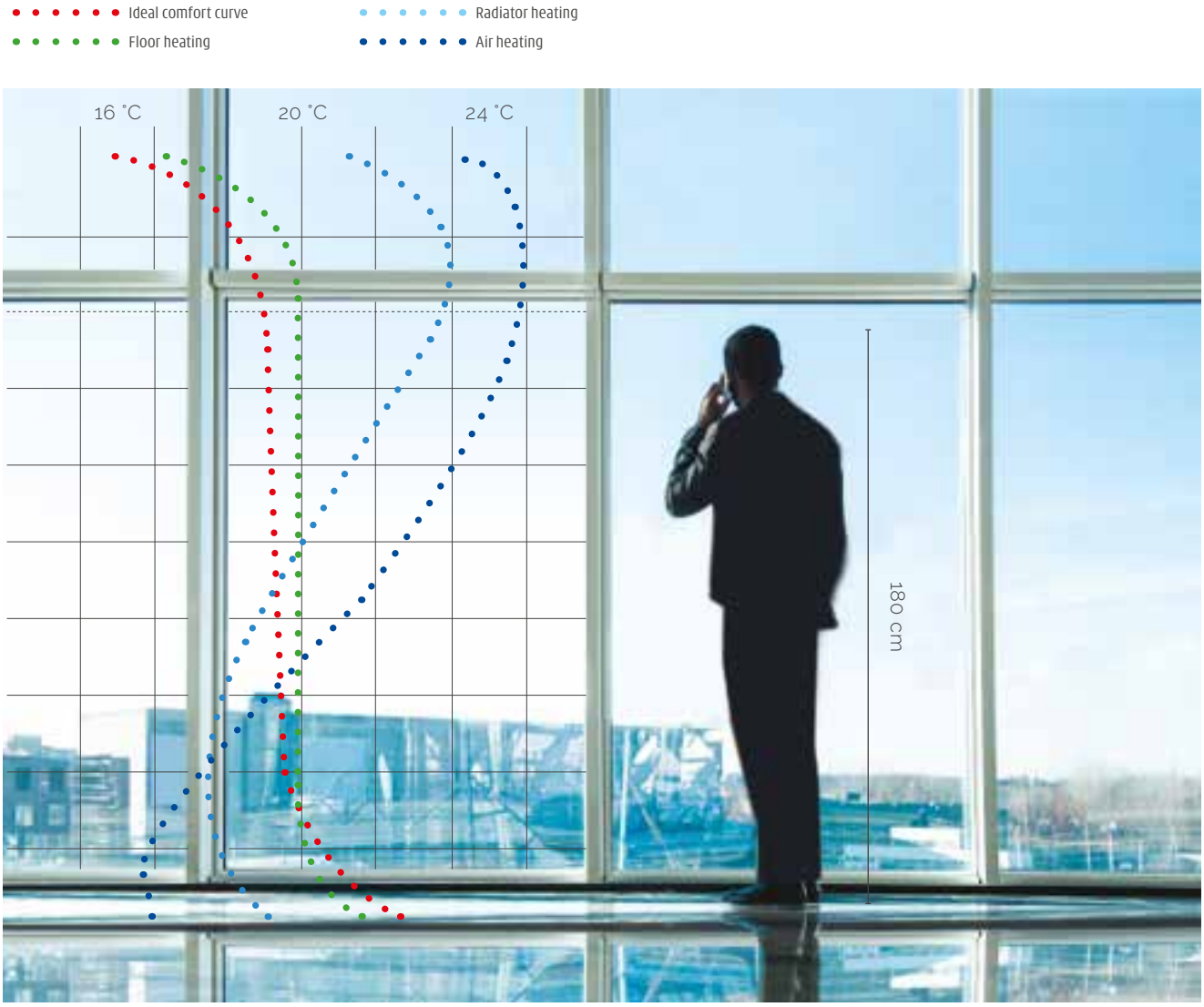
Irradiation is the most natural physic principle for heat and cold transfer and the safest for the environment and human wellbeing. All our radiant systems take inspiration from this principle and are designed and manufactured in house.

We provide efficient energy-saving comfort

Radiant panels provide the human body with a sense of comfort radically greater than traditional systems. A constant and even room temperature free of convective currents creates the ideal climate with a very low energy impact. Modern thermoregulation technologies exploit radiant systems for summer cooling as well, with a healthy temperature difference between the inside and the outside of the building.

Heating and cooling radiant floor systems exploit as heat transfer fluid the water flowing in the plastic pipes, drowned in the concrete layer that supports the tile, marble, granite, stoneware or wood flooring. The heat transfer from the floor to the room and surfaces works by **irradiation**.

It has been proven that radiant floors, properly sized and developed with modern technologies, provide the human body a sense of comfort and wellbeing greater than traditional heating systems, with constant even temperatures in every room. When comparing the comfort curves of different heating systems, the curve representing the comfort provided by the radiant floor system is the closest to the ideal situation.



Radiant floors distribute the temperature upwards following a comfort curve very close to the ideal one.

The technological evolution of thermoregulation devices has made radiant floors very popular also for summer cooling as a winning alternative to air conditioners, thus becoming reversible systems used for the entire thermal cycle of the residential unit.

However, while in winter one just needs to increase the room air temperature, in summer both temperature and humidity should be decreased to achieve ideal levels of comfort. This task is appointed to a special dehumidification system which reduces humidity by balancing latent thermal loads, while the radiant floor lowers the temperature by disposing of the sensible thermal loads. Klimabus thermoregulation by Giacomini controls at best every parameter of the system to achieve the utmost efficiency at all times.

Energy saving

The small difference between the temperature of the air conditioned room and the external air enables to cut down heat dispersions and achieve major energy saving in compliance with the new regulations.

In addition, the delivery temperatures typical of radiant systems enable to exploit energy sources included in a more efficient working range (solar panels, heat pumps, condensation boilers).

Total decoration freedom

Flexibility of the living space and total freedom of decoration are by now essential requirements in modern residential units. Radiant floor systems put no limit to interior decoration creativity, eliminating any functional and aesthetic limitation of traditional air conditioning terminals (radiators, fan coils). The system represents the perfect solution also for historical buildings, where it would be almost impossible to install surface-mounting heating elements: the living space is aesthetically unaltered with an impeccable look.

Soundproofing

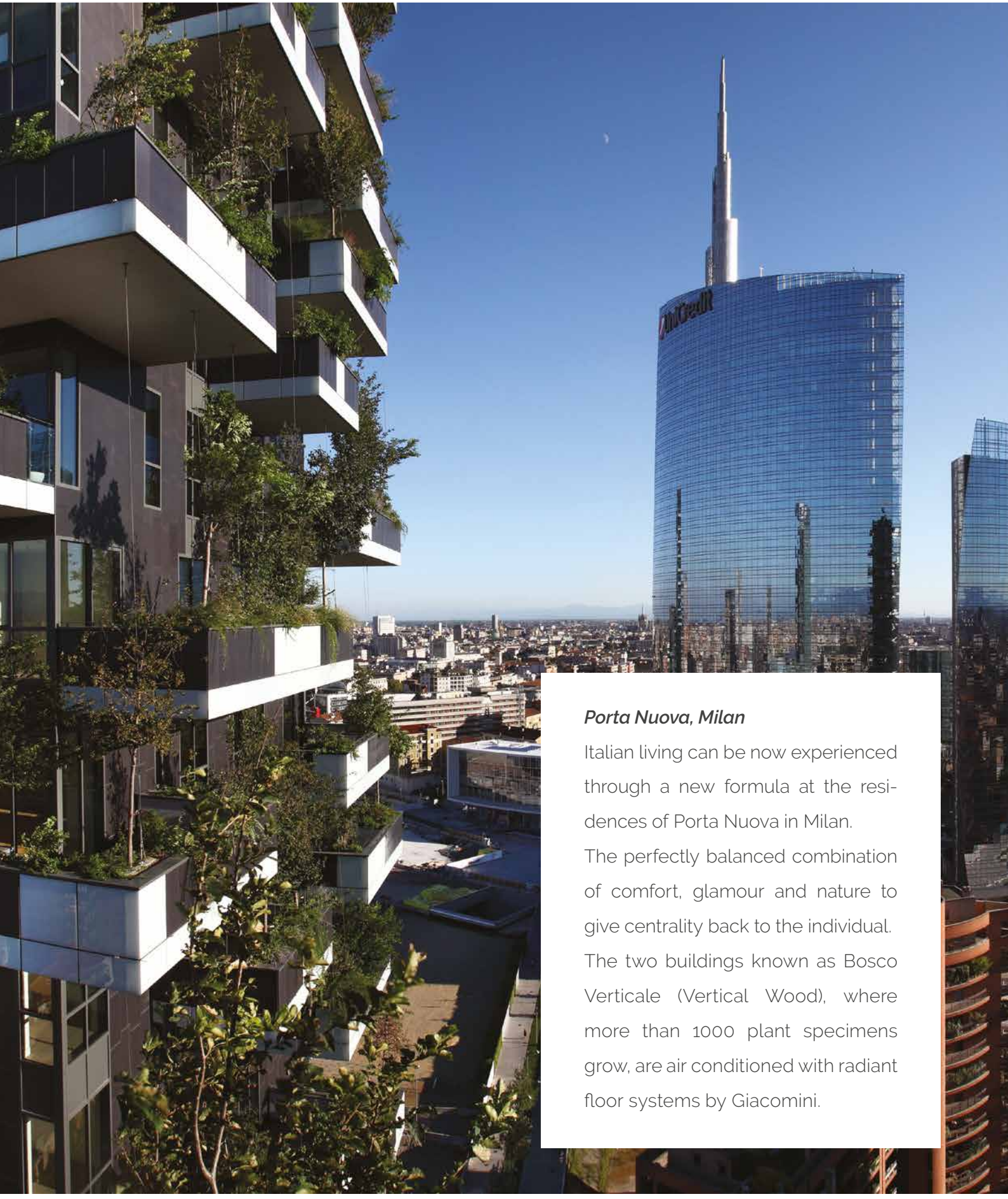
The low speeds of the water flowing inside the synthetic pipes guarantee a quiet operation.

The insulation panel of the radiant pack works also as soundproofer, reducing the noise from trampling on other floors.

Long-lasting and limited maintenance

All components of the system feature long duration in time, generally longer than the useful life of the building itself.

The plastic pipes used in distribution loops cannot break for corrosion. Insulation panels are not affected by installation or environment stress once fitted under the radiant screed. All the other components of the system do not require specific maintenance as they include very few metal parts.



Porta Nuova, Milan

Italian living can be now experienced through a new formula at the residences of Porta Nuova in Milan.

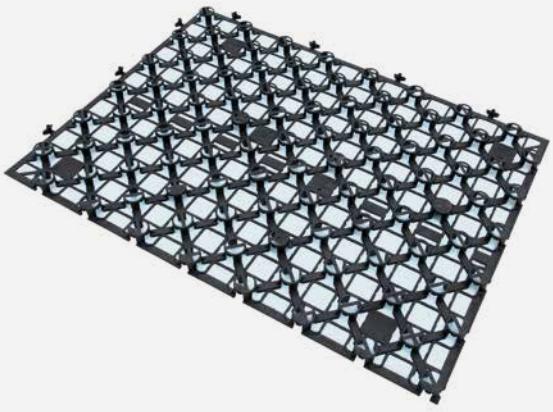
The perfectly balanced combination of comfort, glamour and nature to give centrality back to the individual.

The two buildings known as Bosco Verticale (Vertical Wood), where more than 1000 plant specimens grow, are air conditioned with radiant floor systems by Giacomini.

Radiant floor and wall air conditioning for residential and tertiary use

ESSENTIAL COMPONENTS

The basic components of the system include: the **insulation panels**, the **pipes**, the **edge strip**, the **distribution manifolds**. The insulation panels form the support layer required to install the synthetic pipes and they channel the thermal energy towards the radiant screed limiting dispersions, while the edge strip absorbs the mechanic dilations and the thermal dispersions along the entire vertical surfaces (walls, pillars, etc.). The manifolds provide water distribution inside the circuits or control its flow and temperature.



THERMOREGULATION

When it comes to indoor thermoregulation, planners, installers and users' needs have become more and more demanding in time. Appropriate climatic comfort, sensible energy saving, reduced maintenance and greater safety are by now a must in every type of residential or tertiary building.

To achieve this, we provide innovative thermoregulation systems developed with cutting-edge technologies expressly dedicated to climatic regulation of heating and cooling radiant systems.

AIR TREATMENT

Comfort also stands for quality and healthy air of the environment where we spend most of our time. In modern buildings, growing more and more hermetic for energy saving purposes, it is essential to ensure proper air exchange and control of the hygrometric conditions. Our radiant systems can be combined to machines for humidity control in summer, forced air exchange and heat recovery.

HEAT PUMPS

Energy saving is achieved by exploiting renewable energy sources and that is why Giacomini's product range includes heat pumps.

Split or monoblock pumps for the best integration in your system. A symbiotic solution combined to thermoregulation and humidity control, heat pumps provide DHW, heating and cooling with just one energy source.

Panel rapid selection

PANEL CODE	SMOOTH	WITH PROTRU-SIONS	REDUCED THICKNESS	INSULATION	INSULATION HEIGHT (mm)	PANEL TOTAL HEIGHT (mm)	THERMAL RESISTANCE	
R979BY113		•		EPS	10	32	0,29	p. 16
R979BY114		•		EPS	20	42	0,57	p. 16
R979BY115		•		EPS	30	52	0,86	p. 16
R979BY116		•		EPS	40	62	1,14	p. 16
R979BY117		•		EPS	53	75	1,51	p. 16
R979TGY003		•		EPS GRAPHITE EXPANDED POLYSTYRENE	11	30	0,34	p. 14
R979TGY005		•		EPS GRAPHITE EXPANDED POLYSTYRENE	31	50	0,97	p. 14
R979TGY006		•		EPS GRAPHITE EXPANDED POLYSTYRENE	44	63	1,38	p. 14
R979GY003		•		EPS GRAPHITE EXPANDED POLYSTYRENE	10	32	0,32	p. 15
R979GY004		•		EPS GRAPHITE EXPANDED POLYSTYRENE	20	42	0,65	p. 15
R979GY094		•		EPS GRAPHITE EXPANDED POLYSTYRENE	23	45	0,75	p. 15
R979GY005		•		EPS GRAPHITE EXPANDED POLYSTYRENE	30	52	0,97	p. 15
R979GY006		•		EPS GRAPHITE EXPANDED POLYSTYRENE	40	62	1,29	p. 15
R979GY007		•		EPS GRAPHITE EXPANDED POLYSTYRENE	53	75	1,71	p. 15
R981BY003	•			EPS	30	30	0,91	p. 17
R981BY004	•			EPS	40	40	1,21	p. 17
R981BY005	•			EPS	50	50	1,52	p. 17
R981BY006	•			EPS	60	60	1,82	p. 17
R981AGY003	•			EPS GRAPHITE EXPANDED POLYSTYRENE	25	25	0,81	p. 19
R981AGY004	•			EPS GRAPHITE EXPANDED POLYSTYRENE	40	40	1,29	p. 19
R981XY002	•			XPS300	20	20	0,59	p. 18
R981XY003	•			XPS300	30	30	0,85	p. 18
R981XY004	•			XPS300	40	40	1,15	p. 18
R981XY005	•			XPS300	50	50	1,45	p. 18
R981XY006	•			XPS300	60	60	1,75	p. 18
R981XY015	•			XPS500	50	50	1,45	p. 18
R981XY016	•			XPS500	60	60	1,75	p. 18
R979SY101			•	-	-	22	-	p. 21
R979SY011			•	-	-	22+13 (pin))	-	p. 21
R979SY021			•	EPS	0,6	28	0,19	p. 21
R979SY005			•	-	-	15	-	p. 22
R979SY025			•	EPS	0,6	21	0,19	p. 22
R979SAY023			•	GRAPHITE-ENHANCED EPS-T	30	52	1	p. 24
R979SAY025			•	GRAPHITE-ENHANCED EPS-T	50	72	1,67	p. 24
R979SCY021			•	ESP CAM	10	32	0,3	p. 23
R979SCY022			•	ESP CAM	20	42	0,61	p. 23
R979SCY023			•	ESP CAM	30	52	0,91	p. 23
R979SCY024			•	ESP CAM	40	62	1,21	p. 23
R979SCY025			•	ESP CAM	50	72	1,52	p. 23
R883Y101			•	EPS	28	28	0,65	p. 26
R884Y101			•	EPS	28	28	0,65	p. 26

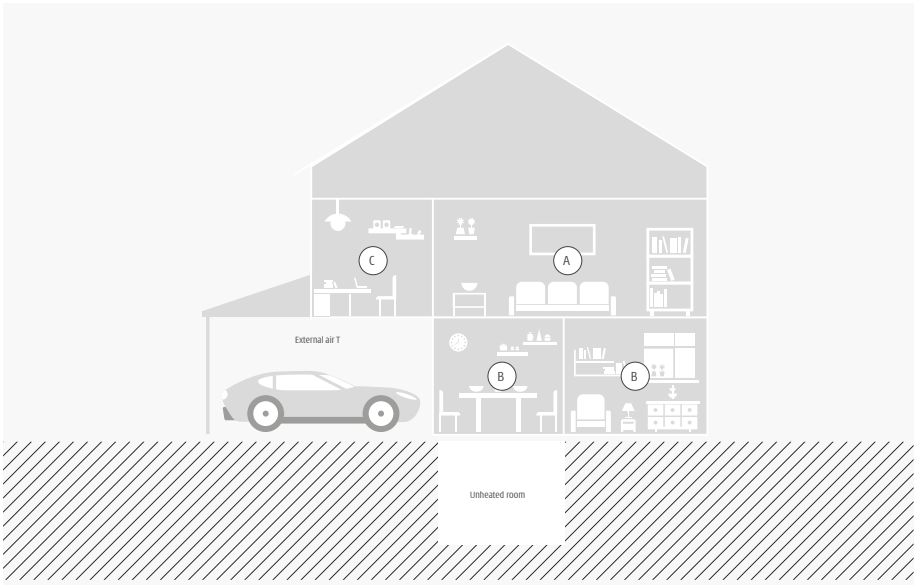
Klima New Building

Klima **New Building** is our radiant floor system designed for **new constructions** or installations with no specific thickness requirement. Panels are available smooth or with protrusions to satisfy every need, from residential to tertiary buildings.

Models R979B, R979G and R979TG include protrusions designed to provide a convenient and quick clip-free pipe locking system.

Every model features **efficient soundproofing**.

MINIMUM INSULATION REQUIREMENTS IN COMPLIANCE WITH STANDARD UNI EN 1264-4. THERMAL RESISTANCE.



INSULATION CASE A
Heated room below.
$R \geq 0{,}75\ m^2\ K / W$

INSULATION CASE B
Room below heated
or not insulated from the ground.
$R \geq 1{,}25\ m^2\ K / W$

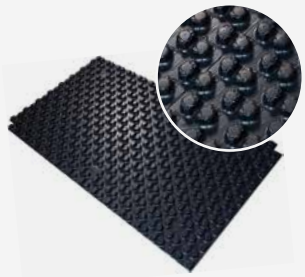
INSULATION CASE C
Room in contact with external air.
Project external air temperature:
$-5\ ^\circ C > T_{external\ air} \geq -15\ ^\circ C$.
$R \geq 2{,}00\ m^2\ K / W$

KLIMA NEW BUILDING WITH R979TG PANELS

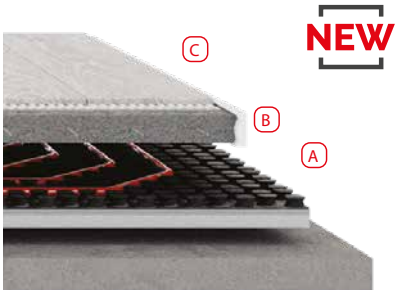
Preformed insulation panels R979TG are the natural evolution of panel R979N, featuring the same geometric characteristics but with enhanced insulation capacity, thanks to the EPS graphite expanded polystyrene insulation. The panels include a graphite expanded polystyrene sheet (EPS), which features dual density in the two thicker sizes, able to increase soundproofing and combined to a 0,6 mm-thick surface protection layer in preformed polystyrene. They cut down manpower thanks to their special protrusions, with preformed fins that hold the pipes firmly in place without clips. Fit for circuits with 50 mm-multiple pitches and pipes with a 16-17 mm external diameter. Model R979TG also provides for pipe diagonal installation with a 70 mm pitch, a solution highly in demand for modern residential units with customized geometries.

Why choose it?

- EPS graphite expanded polystyrene insulation with dual density
- EPS graphite expanded polystyrene for efficient thermal and acoustic insulation
- The ideal solution for new constructions and when there is no specific requirement for reduced thicknesses
- Wide range of thicknesses
- Certified and guaranteed products



PANEL CODE	(A) PANEL TOTAL HEIGHT - mm	INSULATION PROTRUSION HEIGHT - mm	(B) SCREED MINIMUM HEIGHT - mm	(C) A+B MINIMUM HEIGHT WITHOUT COATING - mm
R979TGY003	30	11/19	30	60
R979TGY005	50	31/19	30	80
R979TGY006	63	44/19	30	93



Section with panel R979TG

KLIMA NEW BUILDING WITH R979G PANELS

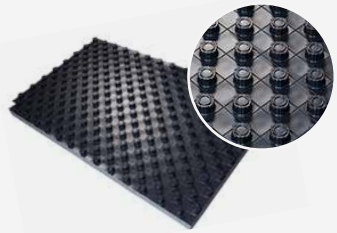
Preformed insulation panels R979G are the natural evolution of panel R979, featuring the same geometric characteristics but with enhanced insulation capacity thanks to the EPS graphite expanded polystyrene insulation. The panels include a dual-density graphite expanded polystyrene sheet (EPS) combined to a 0,6 mm-thick surface protection layer in preformed polystyrene. They cut down manpower thanks to their special protrusions, with preformed fins that hold the pipes firmly in place without clips.

Fit for circuits with 50 mm-multiple pitches and pipes with a 16-18 mm external diameter.

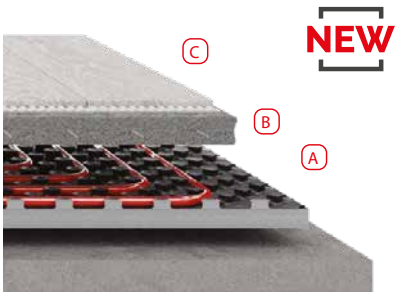
The R979G range is one of the widest available on the market for its thicknesses and thermal resistance values.

Why choose it?

- EPS graphite expanded polystyrene for efficient thermal insulation
- The ideal solution for new constructions and when there is no requirement for reduced installation thicknesses
- Wide range of thicknesses
- Certified and guaranteed products



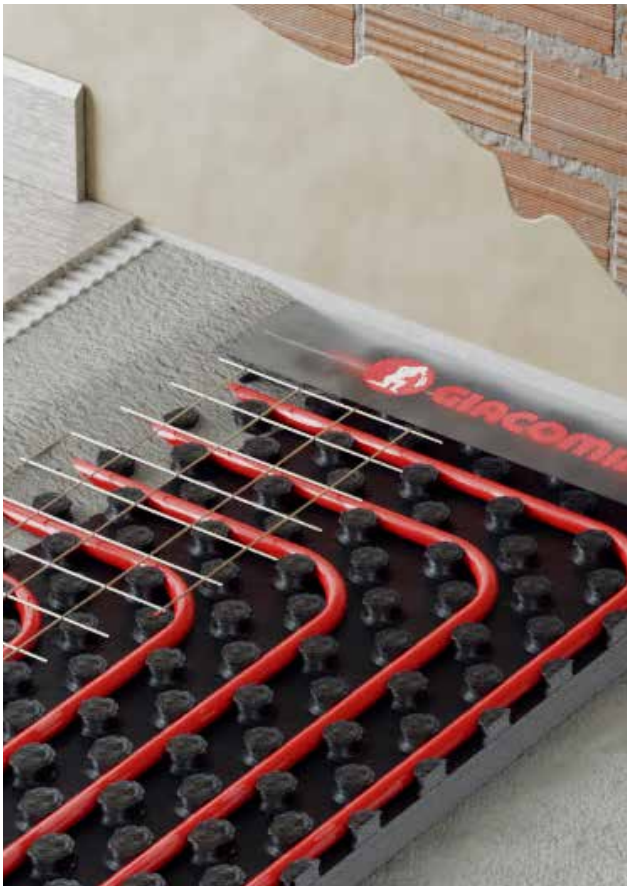
PANEL CODE	(A) PANEL TOTAL HEIGHT - mm	INSULATION PROTRUSION HEIGHT - mm	(B) SCREED MINIMUM HEIGHT - mm	(C) A+B MINIMUM HEIGHT WITHOUT COATING - mm
R979GY003	32	10/22	30	62
R979GY004	42	20/22	30	72
R979GY094	45	23/22	30	75
R979GY005	52	30/22	30	82
R979GY006	62	40/22	30	92
R979GY007	75	53/22	30	105



Section with panel R979G

KLIMA NEW BUILDING WITH R979B

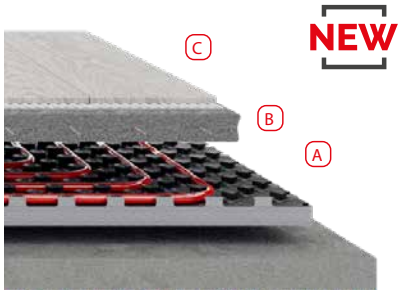
The panels include a graphite-enhanced polystyrene sheet (EPS) combined to a 0,5-mm preformed polystyrene surface-protection layer. They cut down manpower thanks to their special protrusions, with preformed fins that hold the pipes firmly in place without clips. Fit for circuits with 50 mm-multiple pitches and pipes with a 16-17 mm external diameter. The R979B range is one of the widest available on the market for its thicknesses and thermal resistance values.



Why choose it?

- ESP insulation for efficient thermal insulation
- Fit for new constructions and whenever there is no specific requirement for reduced installation thicknesses
- Wide range of thicknesses
- Certified and guaranteed products

PANEL CODE	(A) PANEL TOTAL HEIGHT - mm	INSULATION PROTRUSION HEIGHT - mm	(B) SCREED MINIMUM HEIGHT - mm	(C) A+B MINIMUM HEIGHT WITHOUT COATING - mm
R979BY113	32	10/22	30	62
R979BY114	42	20/22	30	72
R979BY115	52	30/22	30	82
R979BY116	62	40/22	30	92
R979BY117	75	53/22	30	105



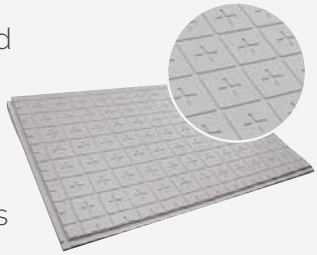
Section with panel R979B

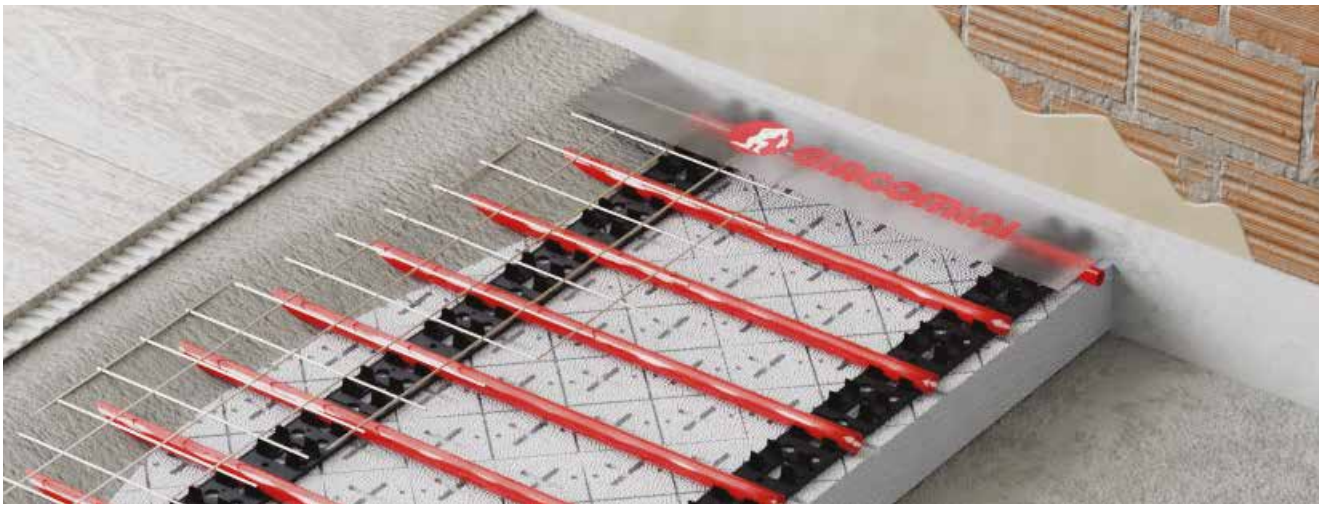
KLIMA NEW BUILDING WITH R981B PANELS

Smooth insulation panels R981B consist of an expanded polystyrene sheet (EPS) including a surface layer with a grid for simplified pipe laying. Fit for a variety of applications in both residential or tertiary buildings, these panels are especially recommended for large surfaces (churches, industrial warehouses, etc.). The panels are smooth with tapping for coupling and the radiant coils can be fitted on top using pipe installation tracks (K389 or K389W) or the special clips R983 (with clip tacker R863).

Why choose it?

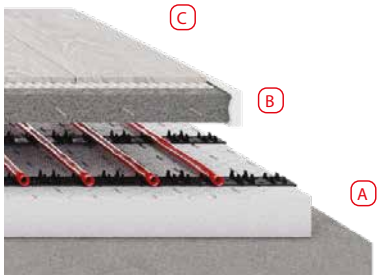
- EPS insulation
- The ideal solution for new constructions and when there is no specific requirement for reduced thicknesses of installation
- Wide range of thicknesses
- Certified and guaranteed products





PANEL CODE	(A) PANEL TOTAL HEIGHT - mm	(B) SCREED MINIMUM HEIGHT - mm	(C) A+B MINIMUM HEIGHT WITHOUT COATING - mm
R981BY003	30	30*	60+d. pipe
R981BY004	40	30*	70+d. pipe
R981BY005	50	30*	80+d. pipe
R981BY006	60	30*	90+d. pipe

* Starting from the pipe top



Section with panel R981B

KLIMA NEW BUILDING WITH R981XPS PANELS

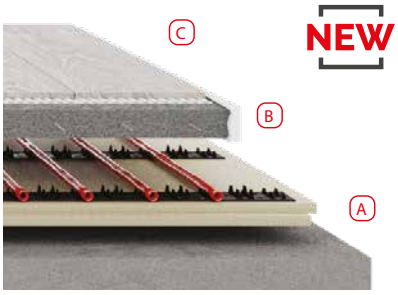
Smooth insulation panels R981XPS consist of an extruded polystyrene foam sheet (XPS). Fit for a variety of applications in both residential or tertiary buildings, these panels are especially recommended for large surfaces (churches, industrial warehouses, etc.) or when high resistance to crushing is required. Available in XPS300 and XPS500. The panels are provided smooth with shiplap edge for rapid and firm coupling and the radiant coils can be fitted using pipe installation tracks (K389 or K389W) or the special clips R983 (with clip tacker R863) after covering the panel surface with the polyethylene protection sheet R984.

Why choose it?

- XPS insulation
- The ideal solution for new constructions and when there is no specific requirement for reduced installation thicknesses
- Wide range of thicknesses
- Certified and guaranteed products

PANEL CODE	(A) PANEL TOTAL HEIGHT - mm	(B) SCREED MINIMUM HEIGHT - mm	(C) A+B MINIMUM HEIGHT WITHOUT COATING - mm
R981XY002	20	30*	50+d.pipe
R981XY003	30	30*	60+d. pipe
R981XY004	40	30*	70+d. pipe
R981XY005	50	30*	80+d. pipe
R981XY006	60	30*	90+d. pipe
R981XY015	50	30*	80+d. pipe
R981XY016	60	30*	90+d. pipe

* Starting from the pipe top



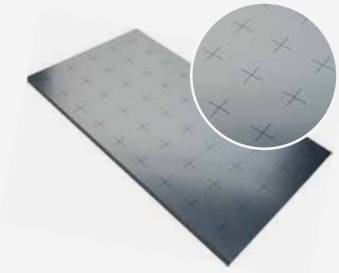
Section with panel R981XPS

KLIMA NEW BUILDING WITH R981AG PANELS

Insulation panels R981AG are the top of the smooth panel range and fit for refined and high-performance applications. The panels include a dual-density graphite expanded polystyrene sheet EPS combined to a 0,25 mm-thick aluminum protection layer with a grid for simplified pipe laying. The aluminum sheet distributes heat evenly and rapidly along the entire floor surface. They are fit for a variety of residential and tertiary applications. The smooth panels feature an aluminum adhesive side extending outwards for rapid coupling to the adjacent one and firm laying. The radiant coils can be fitted on top using pipe installation tracks (K389 or K389W) or the special clips zR983 (with clip tacker R863).

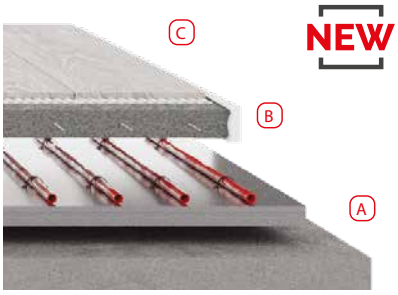
Why choose it?

- EPS graphite expanded polystyrene insulation
- 0,25 mm-thick aluminum sheet
- The ideal solution for new constructions and when there is no specific requirement for reduced installation thicknesses
- Certified and guaranteed products



PANEL CODE	(A) PANEL TOTAL HEIGHT - mm	ALUMINUM - mm	(B) SCREED MINIMUM HEIGHT - mm	(C) A+B MINIMUM HEIGHT WITHOUT COATING - mm
R981AGY003	25	0,25	30*	55+d. pipe
R981AGY004	40	0,25	30*	70+d. pipe

* Starting from the pipe top



Section with panel R981AG

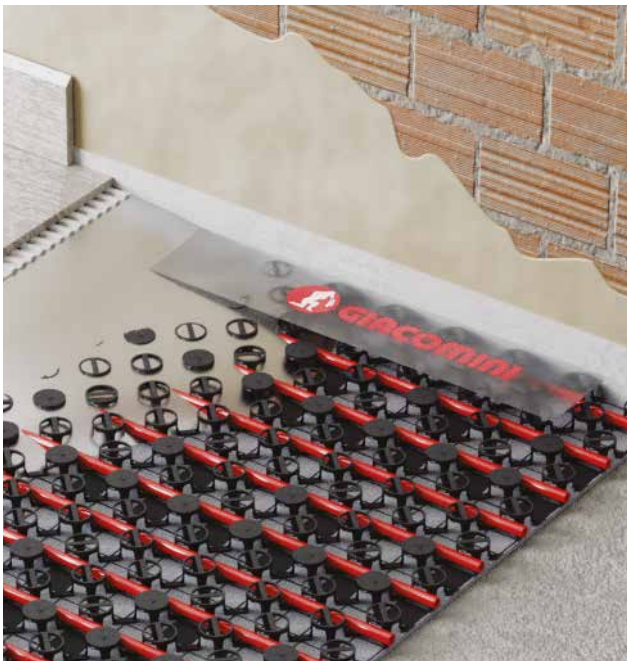
Klima Renew

Klima **Renew** is the system designed to meet the growing demand for radiant floors even in those situations where the thickness available for installation is very reduced: the **perfect solution for renovation works**. It can feature the special plastic **Spider** panels on which 16-17 mm-diameter pipes are fitted (standard version) to guarantee very limited losses of pressure, as circuits identical to those of the more traditional versions can be created. For even lower thicknesses, now available are **Spider Slim** panels, lowered panels fit for 12 mm-diameter pipes. As an alternative, we also provide **fiber-plaster** panels, with 12 mm-diameter polybutylene pipes coated with a self-leveling screed. All Klima **Renew** systems guarantee an extremely reduced thermal inertia.

KLIMA RENEW WITH STANDARD SPIDER PANELS

The Spider R979S panel is a "three-dimensional" grid molded in plastic, or more precisely, in high-resistance polypropylene. Its limited height and shape make it particularly fit for renovation works, with a consequent energy efficiency upgrade.

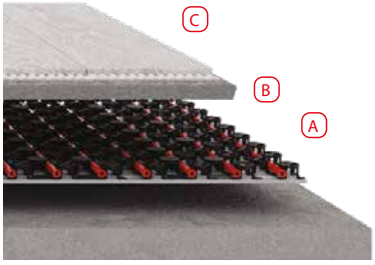
The patented geometry of the three-dimensional grid enables to firmly fit the pipe during laying while drowning it completely in the screed. This provides an even and flawless heat distribution along with limited thermal inertia. It is available in three versions: R979SY101, with adhesive base to glue it on existing floors or foundations; R979SY011, with fitting pins for installation on pre-existing insulation layers; R979SY021, combined to a 6 mm-thick high-density insulation layer.



Why choose it?

- The ideal solution for renovation works and when low installation thicknesses are required
- Low thickness
- 16-17 pipe
- Reduced thermal inertia

PANEL CODE	(A) PANEL TOTAL HEIGHT - mm	INSULATION PROTRUSION HEIGHT - mm	(B) SCREED MINIMUM HEIGHT - mm	(C) A+B MINIMUM HEIGHT WITHOUT COATING - mm
R979SY101	22	-	25 (with self-leveling screed)	25 (with self-leveling screed)
			35 (with anhydrite screed)	35 (with anhydrite screed)
			40 (with sand + cement)	40 (with sand + cement)
R979SY011	22 + pins	S_i*	35 (with anhydrite screed)	35 + S_i (with anhydrite screed)
			40 (with sand + cement)	40 + S_i (with sand + cement)
R979SY021	28 (6 mm insulation included)	6	30 (with self-leveling screed)	36 (with self-leveling screed)
			35 (with anhydrite screed)	41 (with anhydrite screed)
			40 (with sand + cement)	46 (with sand + cement)



Section with Spider panel

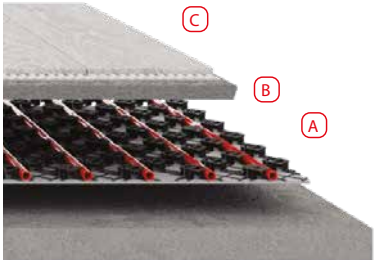
KLIMA RENEW WITH SPIDER SLIM

The Spider Slim R979S panel is a "three-dimensional" grid molded in plastic, more precisely in high-resistance polypropylene. Its limited height and shape make it particularly fit for renovation works, with a consequent energy efficiency upgrade. The 3D grid pattern enables to firmly fit the pipe during laying while drowning it completely in the screed. This provides an even and flawless heat distribution along with limited thermal inertia. It is available in two versions: R979SY005, with adhesive base to glue it on existing floors or foundations; R979SY025, combined to a 6 mm-thick high-density insulation layer.

Why choose it?

- The ideal solution for renovation works and when low installation thicknesses are required
- Very low thickness (lower than standard version)
- 12 pipe
- Reduced thermal inertia

PANEL CODE	(A) PANEL TOTAL HEIGHT - mm	INSULATION PROTRUSION HEIGHT - mm	(B) SCREED MINIMUM HEIGHT - mm	(C) A+B MINIMUM HEIGHT WITHOUT COATING - MM
R979SY005	15	-	20 (with self-leveling screed)	20 (with self-leveling screed)
			35 (with anhydrite screed)	35 (with anhydrite screed)
			40 (with sand + cement)	40 (with sand + cement)
R979SY025	21	6	20 (with self-leveling screed)	26 (with self-leveling screed)
			35 (with anhydrite screed)	41 (with anhydrite screed)
			40 (with sand + cement)	46 (with sand + cement)



Section with Spider panel

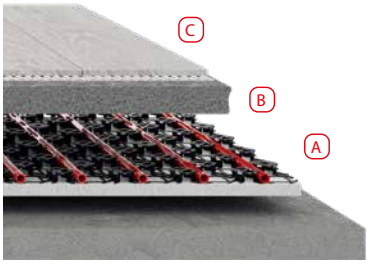
KLIMA RENEW WITH SPIDER CAM

The R979SC Spider panel is a "three-dimensional" grid molded in plastic, or more precisely, in high-resistance polypropylene, combined to a CAM-certified EPS panel (Environmental Minimum Criteria) and therefore fit for installation in public premises. This panel range includes a variety of heights, from 10 mm up to 50 mm. The patented geometry of the three-dimensional grid enables to firmly fit the pipe during laying while drowning it completely into the screed. This ensures an ideal and even distribution of heat combined to a lower screed height above the pipe compared to traditional systems.

Why choose it?

- CAM-certified insulation panel
- Reduced screed thickness compared to traditional radiant floor systems
- 17x2 - 16x2 pipe

PANEL CODE	(A) PANEL TOTAL HEIGHT - mm	INSULATION PROTRUSION HEIGHT - mm	(B) SCREED MINIMUM HEIGHT - mm	(C) A+B MINIMUM HEIGHT WITHOUT COATING - MM
R979SCY021	32	10/22	40 (with sand + cement)	50
R979SCY022	42	20/22		60
R979SCY023	52	30/22		70
R979SCY024	62	40/22		80
R979SCY025	72	50/22		90

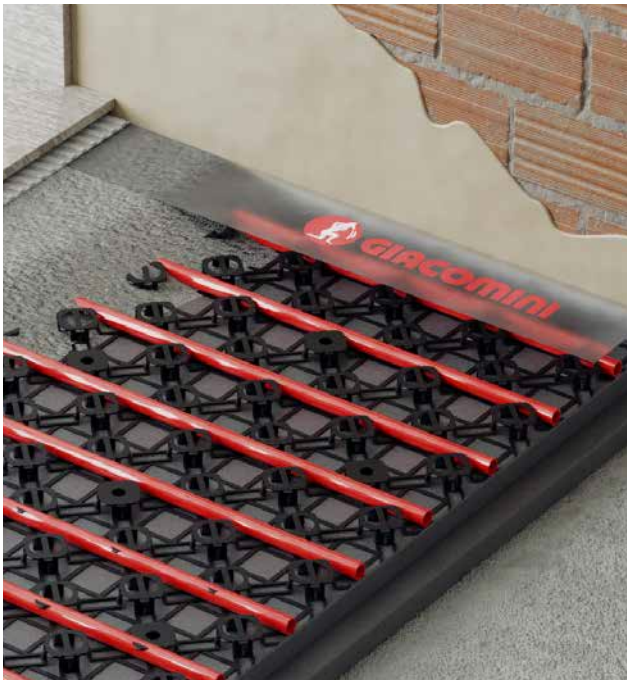


Section with panel R979SC

KLIMA RENEW WITH SOUNDPROOFING SPIDER

The R979SA Spider panel is a "three-dimensional" grid molded in plastic, or more precisely, in high-resistance polypropylene, is combined to an EPS elasticized panel with graphite. It features reduced dynamic stiffness and therefore offers enhanced soundproofing in proper screed thicknesses (MIN HEIGHT 60 MM above insulation).

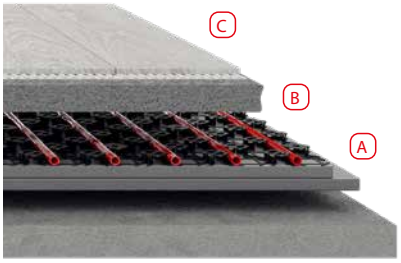
The range includes a variety of accessories, such as the wall-edge soundproofing strip, to complete this dedicated technical solution. The patented geometry of the three-dimensional grid enables to firmly fit the pipe during laying while drowning it completely into the screed. This ensures an ideal and even distribution of heat and enhanced soundproofing.



Why choose it?

- EPS elasticized panel with graphite for enhanced soundproofing
- Enhanced thermal insulation
- 17x2 - 16x2 pipe

PANEL CODE	(A) PANEL TOTAL HEIGHT - mm	INSULATION PROTRUSION HEIGHT - mm	(B) SCREED MINIMUM HEIGHT - mm	(C) A+B MINIMUM HEIGHT WITHOUT COATING - MM
R979SAY023	52	30/22	60	90
R979SAY025	72	50/22	60	110



Section with panel R979SA

Klima Dry

Klima Dry is the screed-free radiant floor system for situations where it is preferable not to load the structures excessively, thus avoiding the use of cement screeds to support the surface finish. It uses preformed panels R883-1 in polystyrene foam and features an aluminum diffusor layer to enhance heat exchange between the pipes and the surface. Head panels R884 enable to properly fit the circuit abduction pipes and support the bends.

The layer supporting the surface finish provides for dry laying of a double layer of galvanized steel sheets which guarantees an even distribution of the mechanical loads.

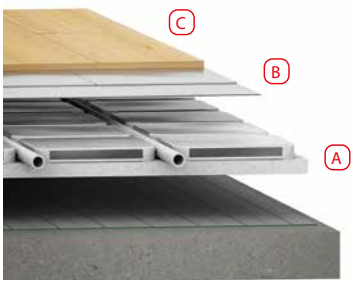
KLIMA DRY

Preformed insulation panels R883-1 are made with polystyrene foam fitted to a thermoconductor profile consisting of a 0,3 mm-thick aluminum sheet. The four sides of the panel feature special joints for simplified connection to the adjacent ones and elimination of thermal bridges. Head panels R884, made with polystyrene foam with a thermoformed aluminized film, enable to properly fit the circuit abduction pipes and support the bends. The layer supporting the surface finish, for distribution of the mechanical loads, consists of a double layer of galvanized steel sheets: R805P for the first layer, R805P-1 with double-sided adhesive for the second.

Why choose it?

- No screed required
- Low thickness and light
- The ideal solution for renovation works and when low installation thicknesses are required

PANEL CODE	(A) PANEL TOTAL HEIGHT - mm	(B) DISTRIBUTION LAYER HEIGHT - mm	(C) A+B TOTAL HEIGHT WITHOUT COATING - mm
R883-1/ R884	28	2 (1+1)	30

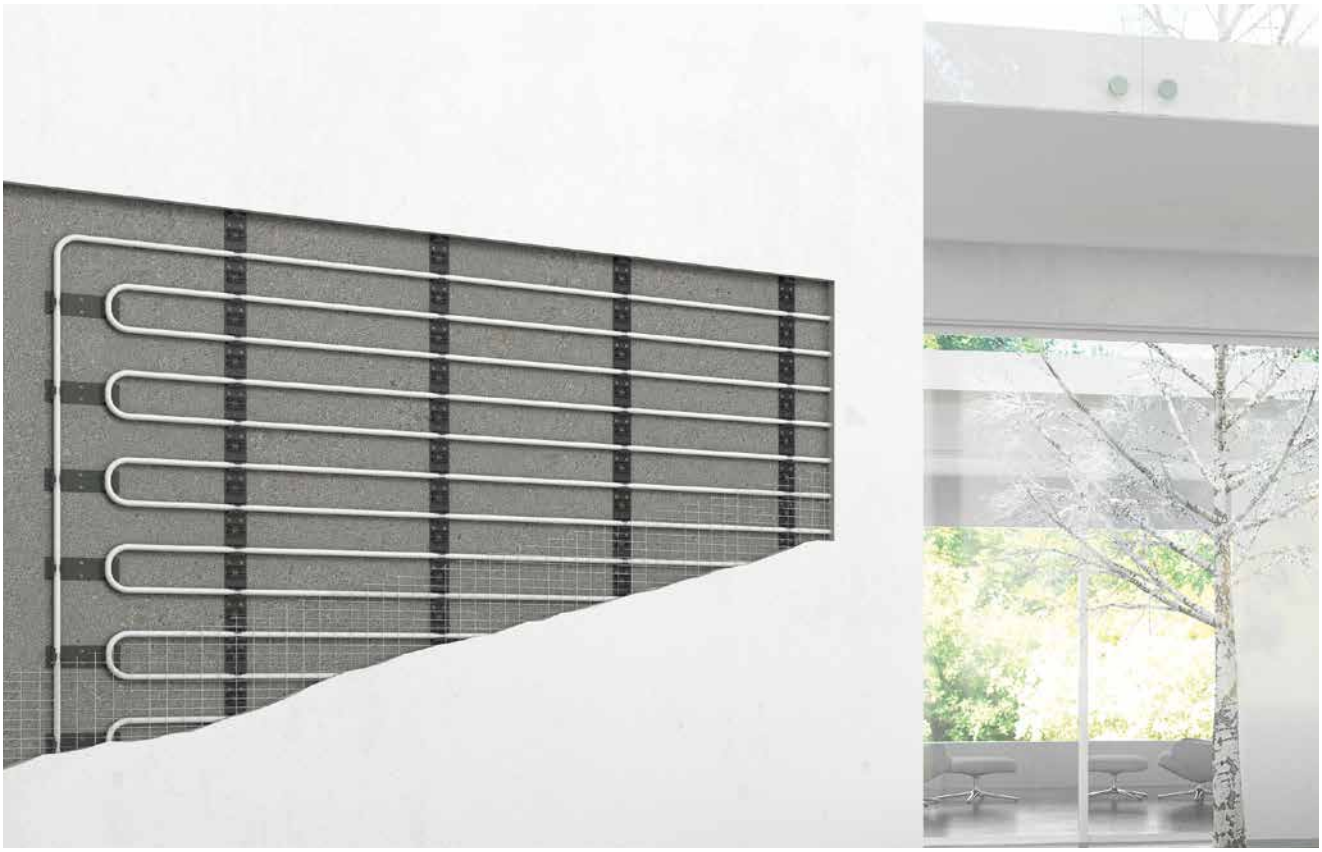


Klima Wall

Klima Wall is our radiant wall system. It represents the ideal solution when other radiant systems cannot be installed or when heat integration is required.

The radiant wall circuits can derive directly from the distribution manifolds of the floor system.

The **Klima Wall** radiant system is installed using the convenient track K389W, available as easy-to-connect 1 m bars to obtain the required support for the circuits. Wall mounting on the rough surface and fitting the pipes in place is quick and easy.



Why choose it?

- The ideal solution for situations where other radiant systems cannot be installed
- Even distribution of heat
- Reduced thermal inertia
- Easy to install
- Use of pipes with a 16-17 mm external diameter

Find out more at giacomini.com

K389W

Pipe installation track with quick-fit elements, for floor or wall radiant system circuits.

R996T

PEX-b closed-cell polyethylene pipe, with external anti-oxygen barrier.
Enhanced flexibility.

R999

PEX-Al-PEX multilayer metal-plastic pipe consisting of two PEX-b layers, internal and external, and a middle layer of aluminum, welded head to head with laser technology.

Laying pitches

Laying pitch: multiples of 50-100 mm

Suitable pipes: Ø 12-22 mm

Min. thickness required (track + pipe + plaster + mesh)

CODE	H min - mm
K389WY001	40

The plaster layer must be reinforced with plastering mesh. The thickness of the coating covering the system must be at least 10 mm.

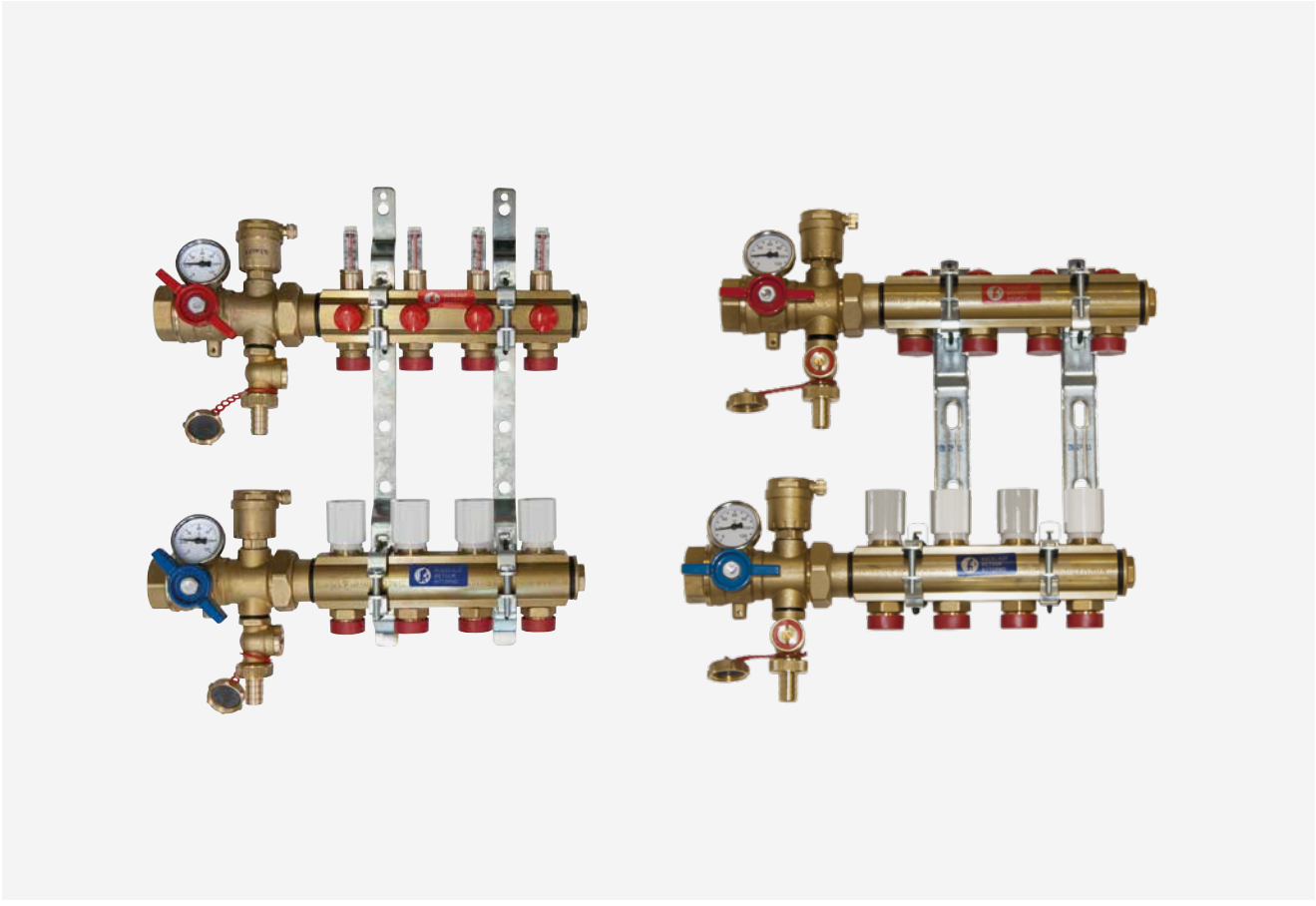
Manifolds

Distribution manifolds of radiant panel systems play a key role: they hydraulically supply every single circuit with the flow rate required for proper operation. Different systems have different needs: that is why Giacomini has designed a full range to cover every type of installation. From basic distribution manifolds to pre-assembled units integrating water mixing and distribution. In brass, plastic and stainless steel. The hydraulic solution for every type of radiant system.

Basic distribution manifolds
R553FK / R553DK

The best solution for water distribution in radiant air conditioning systems. The unit, pre-assembled on brackets or fixing clamps, consists of a delivery manifold, provided with balancing lockshields and flow rate meters (R553FK only), and a return manifold with shut-off valves where the thermo-electric actuators can be installed.

It also includes multifunction valves R269T to intercept the water flow, display the temperature, fill/empty the system or vent the air from inside.



Basic distribution manifolds
R553FP

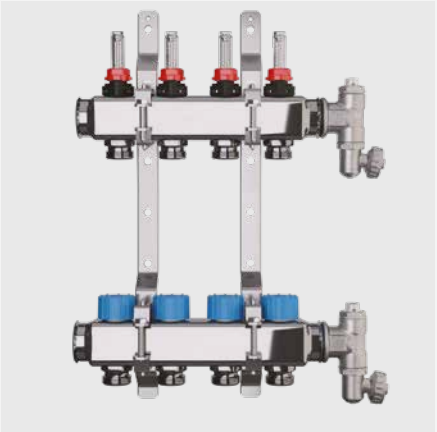
Technopolymer manifold fit for cooling as its plastic construction material, with its enhanced insulation characteristics, allows for an insulation-free system. The unit consists of a delivery manifold, provided with balancing lockshields and flow rate meters, and a return manifold with shut-off valves where the thermo-electric actuators can be installed. Its modular design enables to add or remove the modules (outlets).

The special o-ring provides hydraulic seal between the modules while the mechanical fixing is obtained through special plastic clips. This model includes multifunction valves R269T too.

Basic distribution manifolds
R553FS

Stainless steel manifold to complete the range of radiant systems and meet every installation need.

It consists of a delivery manifold, provided with balancing lockshields and flow rate meters, and a return manifold with shut-off valves where the thermo-electric actuators, terminals with manual vents and adjustable drain cock can be installed. A variety of shut-off kits are available with ball valves, meter spacers or bottom connections.



Pre-assembled manifolds with integrated dynamic balancing

DB Series

NEW

All basic distribution manifolds by Giacomini are equipped with the innovative Giacomini DB bonnet, for accurate and independent flow rate control in every circuit of your system.

• Pre-assembled units for heating and cooling systems with automatic flow rate control.

• Available in a range of materials to meet the market demand: brass, technopolymer, stainless steel

• Return manifold with thermostatizable inserts and continuous regulation (dynamic) of the flow rate inside every circuit Delivery manifold with flow meters to set the circuit maximum flow rate and shut-off function

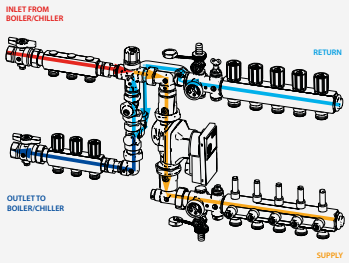
• Based on the version, they are equipped with intermediate or terminal fittings with a variety of functions (shut-off, temperature reading, drain cock, air venting)

PATENTED

Mixing and distribution manifolds
R559N

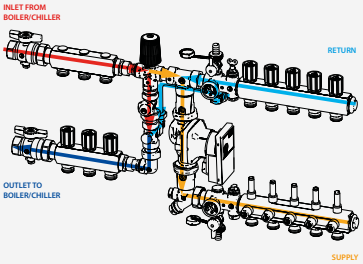
Pre-assembled unit for heating and cooling control of combined systems, that is those with simultaneous installation of high-temperature (heated towel rails or radiators) and low-temperature (fan coils and dehumidifiers for cooling integration) heating elements along with radiant panel circuits to be supplied with properly mixed water. It features electronic temperature regulation with motorized mixer controlled by the klimabus thermoregulation, sold separately, as well as the specific completion kits for combined systems.

It includes a self-modulating circulator complying with directive ErP 2009/125/CE for energy saving.



Mixing and distribution manifolds
R557R-2

Mixing pre-assembled unit with fixed-point regulation for heating-only radiant floors. Temperature control of the delivery water to the radiant circuits is obtained through a 3-way valve with a temperature-limiter thermostatic head. Combined systems can be created by purchasing separately specific completion kits to supply high-temperature heating elements simultaneously (heated towel rails or radiators). Included are the variable flow-rate circulator, complying with directive ErP 2009/125/CE for energy saving, and safety thermostat K373.



Pipes

The synthetic pipes used to lay the insulation panels play a key role in radiant floor systems. They are highly reliable on a long term, meaning they feature enhanced mechanical resistance to temperature and pressure stress, they are corrosion-free as opposed to metals (this is a major benefit considering that the pipes are drowned in the floor) and highly flexible, enabling installers to easily create coil-patterned radiant circuits. Giacomini's range includes PEX (closed-cell polyethylene), PE-RT (polyethylene with enhanced temperature resistance), PEX/Al/PEX (multilayer) pipes. The pipes are made in house by extrusion which transforms the base material (pellet polymer) into the end product. During this production step, a film made with EVOH resin is also applied to the pipe as anti-oxygen barrier. This makes the already reduced quantity of oxygen that may enter the circuits even more negligible. All phases are carried out in compliance with the regulations in force and technically inspected as provided for by regulatory standards.

PEX pipe
R996T

The PEX pipe is no doubt the most popular in radiant systems.

The level of molecule cohesion of the base polymer used to produce it, PE polyethylene, does not guarantee an ideal performance in terms of resistance and duration: that is why the reticulation process increasing the number of chemical-molecular bonds to enhance mechanical and high-temperature resistance is key. There are two ways to obtain this reinforcement process: chemical and physical. Giacomini produces in house all plastic pipes, reticulating them with the silane chemical process (PEX-b). PEX-b pipes R996T feature a very high thermal resistance combined to a very reduced elastic content of enhanced flexibility.

This provides for simple and quick installation along with a major reduction of stresses, even after laying.

PE-RT pipe
R978

The polyethylene pipe with enhanced Thermal Resistance PE-RT R978 differs from the more popular PEX closed-cell polyethylene for the raw material used to produce it, as its compound is specific for this type of production. On a molecular level, it consists of a polyethylene polymeric chain containing a minimum percentage of the 1-ottene molecule, which provides better thermal resistance compared to traditional polyethylene (not reticulated). The resistance to the pressure-temperature combined stress, typical of a PE-RT pipe, makes this product fit for mixed-water distribution in radiant panel systems.

PEX/AL/PEX multilayer pipe
R999

The PEX/Al/PEX metal-plastic multilayer pipe consists of an inner and outer layer of PEX-b and an intermediate layer of aluminum, welded lengthwise with laser technology. The special intermediate adhesive layers evenly connect the aluminum to the inner and outer PEX-b. It combines the mechanical characteristics of metal pipes to enhanced resistance to wear and tear and potential electrochemical interactions typical of plastic pipes. The intermediate aluminum layer, welded head to head with laser technology, offers a safe barrier against oxygen and other gases; it also enables to easily bend the product with a reduced radius while maintaining the laying pattern when installing the circuits. PEX/Al/PEX multilayer pipes R999 are largely used in heating/cooling systems - among which radiant panels – and sanitary distribution.

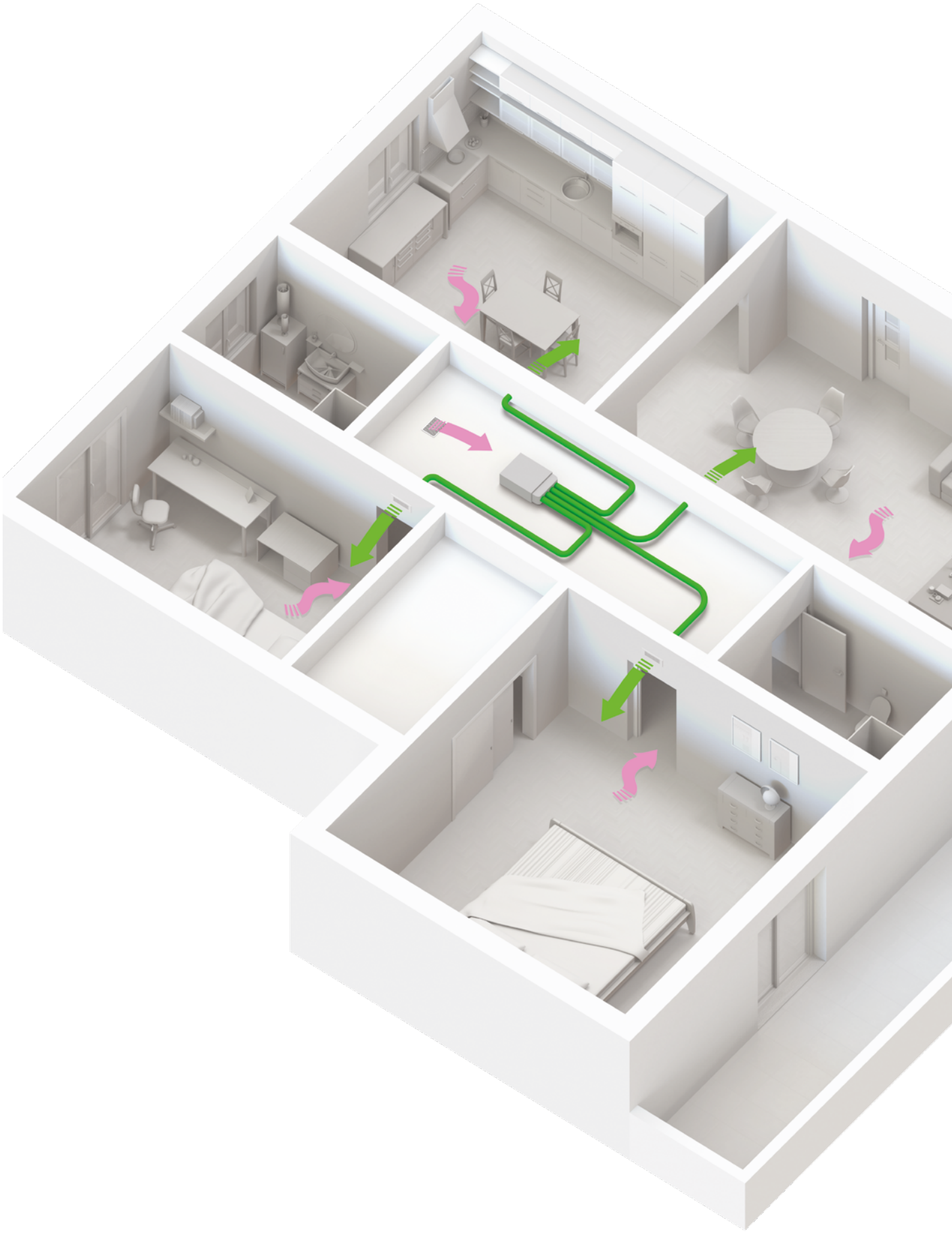
Cooling and air treatment

Summer cooling is by now essential in modern air conditioning radiant systems, including residential ones. In winter, one just needs to increase the room temperature through the heating system while in summer both temperature (cooling) and humidity (dehumidification) need to be reduced to prevent discomfort, ideally by avoiding sudden temperature changes between the inside and the outside and guaranteeing the required protection against condensation. A radiant floor system, combined to units designed specifically for air dehumidification, is a winning option to achieve the ideal thermohygrometric comfort and significant energy saving ratios along the entire yearly cycle of occupancy. Giacomini has designed a full range of dehumidification solutions for radiant systems, including high-efficiency machines, for wall flush mounting (KDP) or duct-type suspended ceiling flush mounting (KDS) that provide dehumidification only (isotherm dehumidifiers) or integration of sensible power and primary air treatment (dehumidifiers with sensible cooling integration). Model KDV represents the top of the range, available with water or air dissipative condenser: in addition to dehumidification and sensible thermal power, it also provides air exchange, with or without heat recovery, and free-cooling, thanks to a high efficiency air-air heat recuperator.

There is a variety of benefits offered by dehumidification units:

- they work on water at 15-18 °C, the same temperature required by cooling radiant systems, and enable cooling units to work at water temperatures higher than the traditional 7 °C of hydronic air conditioning systems, with great benefits in terms of energy efficiency (EER - Energy Efficiency Ratio)
- their high latent power/air flow rate ratio - up to 2,5 W per m^3/h - cuts down the quantity of air required to cover latent loads, resulting in quietness, no drafts and minimum consumption of electric energy

Giacomini thermoregulation controls the entire cooling system by adjusting the water and air temperature, along with indoor humidity, on a constant basis, activating the dehumidification units when needed.



In a nutshell

HRV systems

Heat Recovery Ventilation in Giacomini systems is generally represented by a Centralized Dual-Flow HRV: the ventilation unit, known as heat recuperator, provides air exchange through special ducts in adjoining rooms by extracting exhaust air and introducing fresh air with heat recovery.
Air treatment is also available as optional (dehumidification with or without sensible integration).

As for single-flow systems, this catalog considers exclusively those with decentralized or pinch-point recuperators, with alternated single flow and extraction pinch-point fans (decentralized HRV).

Hygiene and health

- Continuous and autonomous air exchange
- Control of indoor pollutants
- Reduction of pollutants from the outside (particulates)
- No proliferation of mold caused by humidity contained in air
- Healthy and comfortable indoor climate, guaranteed day and night
- Enhanced indoor climate for users with allergies and respiratory diseases

Safety and comfort

- No drafts and sudden thermal changes
- Noiseless and no insects from the outside, as rooms are ventilated with closed windows
- Limited house breaking for open windows
- Exhaust of indoor smells
- Control of indoor humidity
- Noiseless operation, also during the night
- Ideal indoor climate combined to the radiant system
- Safety against condensation of radiant air conditioning systems
- Adapts to seasonal climatic

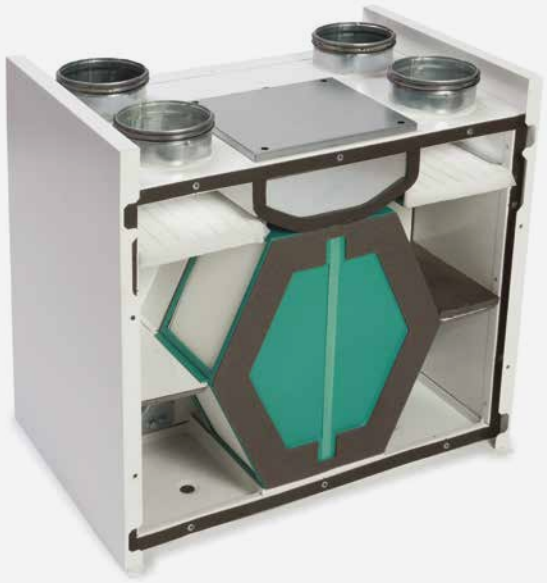
Money-saving and eco-friendly

- Limited heat dispersions
- Thanks to energy recovery, the heating and air conditioning devices feature smaller dimensions
- Sensible and latent heat recovery of exhaust air enables to limit the heating and cooling system activation
- Efficient use of energy and a resulting reduction of polluting emissions
- Cooling circuits with next-generation cooling fluids to guarantee greater energy efficiency and protect the environment
- Ventilation system repaying itself in time through energy saving
- Enhanced energy performance of the building
- Increased value of the building maintained in time
- Tax benefits according to the laws in force

Ventilation units
KHR

KHR machines are HRV units for freestanding (KHR-V), suspended ceiling (KHR-H) or wallmount (KHR-Z) installation. They are duct-type machines fit for air exchange in multiple rooms. They basically consists of a high-efficiency dual-flow heat recuperator. The self-supporting monoblock structure includes of a single galvanized metal sheet panel combined to a polyethylene pad (thickness 10 mm) for thermal insulation and soundproofing.

Its radial centrifugal fans feature reverse blades and EC speed modulation motors, to enjoy high efficiency, low consumptions and reduced noise. All ventilation units by Giacomini can work in free cooling mode with motorized lockshield.



Dehumidification and integration units
KDP / KDS

KDP and KDS machines are monoblock units for wall (KDP) or suspended ceiling (KDS) flush-mounting installation. The suspended ceiling version is a duct-type machine, the perfect solution for air treatment in multiple rooms. Its essential basic elements include a removable filtering unit, a cooling unit (with pre- and post-treatment coil), a finned exchanger and a centrifugal fan. The machine structure is made with galvanized metal sheets coated with soundproofing material.

Wall-mounting KDP machines include a metal counter-case and a front white lacquered wood panel. Along with dehumidification, specific models offer sensible power integration for the air conditioned rooms: in this case, the temperature of the outflow air is cooler than the inflow.

Dehumidification and heat recovery ventilation units
KHR

KHRD and KHRW machines are dehumidification, integration and primary air treatment units. Include a high-efficiency air-air heat recuperator. They also include a removable filtering section, two centrifugal fans, five motorized lockshields (for delivery, recirculation, extraction, fresh air intake, ejection), cooling circuit and exchange coils. Based on the model, they feature hydronic or thermodynamic integration. The inflow air can consist of two flows: the exchange air and the air recirculation, with rates varying based on the type of treatment required for inflow air. The air flow rates can be set through the control panel.

The basic characteristics of the machine are: summer and winter air exchange, with high-efficiency heat recovery, summer dehumidification with temperature control of inflow air, operation with water at the same temperature required by the radiant floor, 15-18 °C in summer, 35-40 °C in winter, foul air extraction, room air recirculation with free cooling control, inflow air temperature set through the control panel, possibility to set operational times when the machine is off, separation from the outside by closing the lockshields.

Thermoregulation

Giacomini thermoregulation offers a wide range of devices fit for operation with radiant systems and able to cover every installation need, from basic installations to more refined and automated ones which are by now very popular in modern buildings. It represents a cutting-edge climatization system able to control at best indoor comfort, both for winter and summer air conditioning, with relating air exchange and humidity control.

It consists of:

• room control (secondary): the user can set the desired comfort conditions through the room thermostats, with optional integrated relative humidity probe

• boiler room control (primary): based on the user's preferences set through the thermostat set-points, the electronic unit - or master controller - controls the mixing units, the generators, the centralized summer/winter commutation along with, in klimabus and klimadomotic systems, air treatment and dehumidification.

The full range of thermostats and control units has two different technological classifications: stand alone and klimabus and klimadomotic systems.

Stand Alone

The Stand Alone range includes thermostats, chronothermostats and chronothermohumidistats able to work as units autonomous from the control units. The interface between primary, in the boiler room, and secondary regulation, in the room, works through basic free-contact exchange. The benefit of this control technique is its simplicity: complex systems are efficiently controlled through a minimum number of devices.

K490I
Digital electronic chronothermostat

K492D
Electronic chronothermostat with humidistat

K494
Room thermostat

K492T

The new K492T thermostat is a Wi-Fi weekly chronothermohumidistat with back-lit touch-screen. The white unit can be installed on the wall or on a 503 3-module civil box. Based on the version, it can control thermo-electric actuators, dehumidifiers and fan coils. Powered at 230 V. It can be programmed for weekly, daily and manual operation, both for heating and cooling, as it features an integrated sensor to read relative humidity.

The K-Domo dedicated app is available for remote control.

Compatible with **"Giacomini Wi-Fi Thermostat" for Alexa and Google Home**

GIACOMINI CONNECT AVAILABLE ON Play Store

GIACOMINI CONNECT AVAILABLE ON App Store

KLIMAbus

The klimabus system by Giacomini has been designed with the most advanced technologies and is dedicated specifically to the climatic regulation of radiant systems to achieve the highest rates of efficiency and comfort. The devices are connected through special wiring used to transfer messages with a specific encoding. Klimabus features electronic units, blind probes and thermostats with relative humidity probes part of a logic and structured system which controls at best summer and winter operation. The klimabus system can be combined to BMS and monitoring systems through Ethernet, Modbus and Konnex extensions.

When cooling, the electronic unit can set the dew points for each zone through the field bus, interfacing with the room thermohumidistats, and adjusts the temperature set-point of the water to be delivered to the circuits; in this way it achieves the highest output while preventing condensation.

K492B
Room thermostat with temperature and humidity probe

K493T
Room touch thermostat with temperature and humidity probe

K495L
Room thermostat with temperature and humidity probe

K495B
Blind thermostat with temperature and humidity probe

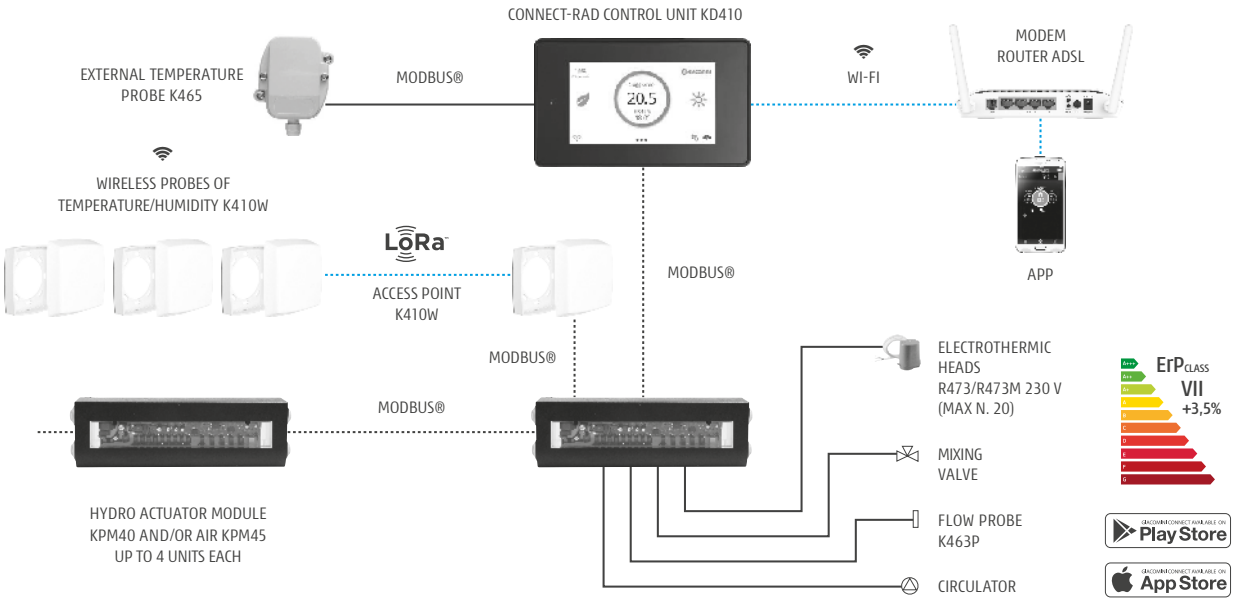
To achieve the highest energy efficiency, it is not enough to control centrally the temperature of the water delivered to the radiant circuits: it can affect comfort levels or unnecessarily overheat some rooms. Needs vary based on the individual perception of heat and cold, use of the rooms and their geographical exposition or the external or internal natural energy ratio. Individual thermoregulation offers a rational and convenient solution to this problem while providing the most appropriate temperature for each room or zone, combining at best comfort and energy saving.

This is achieved by interfacing the thermostats with thermo-electric actuators that serve the individual circuits of the radiant floor or with motorized zone valves.

KLIMAdomotic

KLIMAdomotic is an enhanced smart control system for radiant panel or thermoregulation systems with remote-control (wireless) thermostatic valves. It thus enables to control every element of indoor comfort - from heating to summer air conditioning, air exchange and humidity control - through one single user interface. Control unit KD410 connect is properly set up based on the system installed. The product will have a software version specific for the different types of installations: Connect-Rad for radiant systems and Connect-TRV for thermoregulation systems with thermostatic valves. With KD410 Connect, the user is connected to his system 24/7: it is easy to set up thanks to the user- friendly graphic interface and it can be controlled remotely with most smartphones through the “Giacomini Connect” dedicated app.

LoRa WiFi Modbus®



Benefits of radiant floor systems

Ideal comfort

One single system for heating and cooling

High-efficiency energy saving

The utmost decoration freedom without aesthetic limits

Noiseless operation and ideal soundproofing

THE SHARD
LONDRA - UK

The Shard is the highest skyscraper in Europe and from its top one can enjoy a view over London like never before

The building by Renzo Piano is a true vertical city which redesigns the metropolis skyline to inspire change. The panoramic terrace, between the 69th and 72nd floor, where visitors enjoy a 360° view for 40 miles, is air conditioned with Giacomini radiant systems.

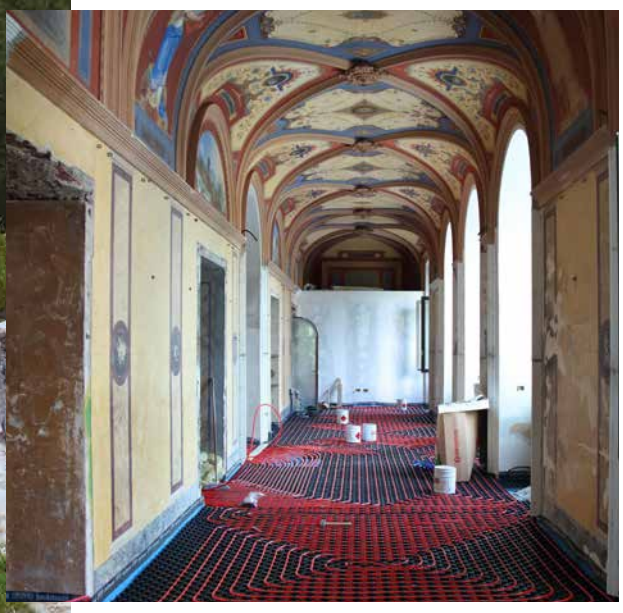
GIACOMINI
WATER E-MOTION

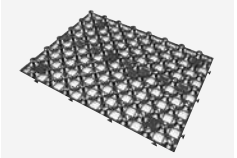
VILLA CANTONI

NOVARA - ITALY

The storied Villa Cantoni upgraded with technological systems by Giacomini for heating, cooling and enhanced indoor air quality.

The need to introduce modern technologies for heating, cooling and enhanced indoor air quality (IAQ) in a century-old single-family residential building, now used for offices and multi-family dwellings, made Giacomini's systems the go-to choice for the managers of the project.

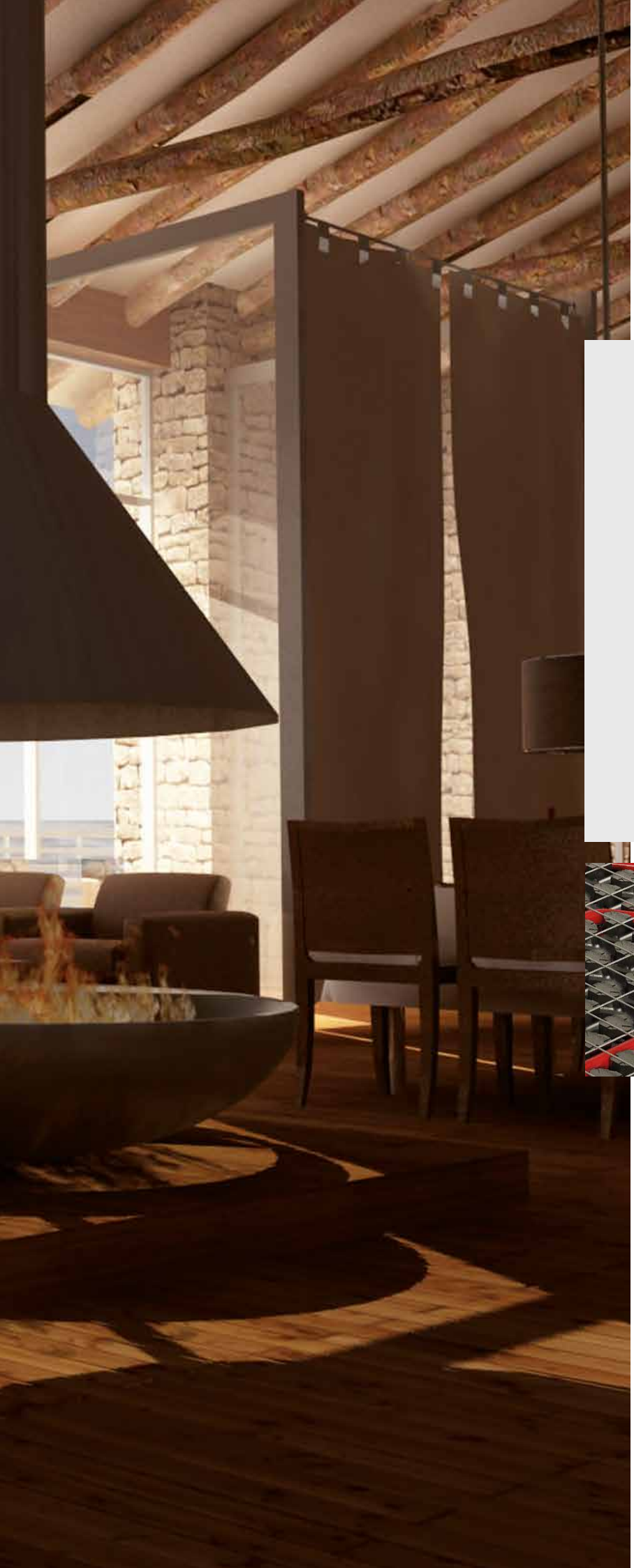




GIACOMINI
WATER E-MOTION

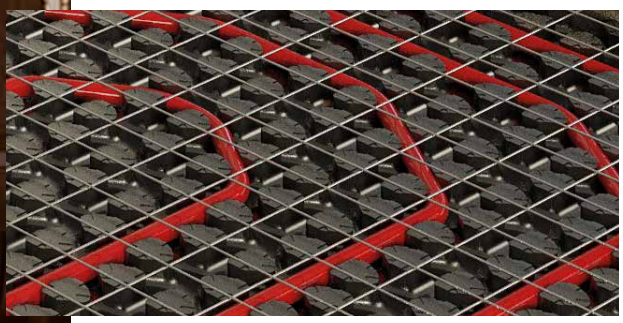
HOTEL TITILAKA

MACHU-PICCHU - PERÙ



Titilaka is a small boutique hotel, located on a private peninsula overlooking Lake Titicaca, Peru.

A 1300 sqm radiant floor system by Giacomini serves a hotel by lake Titikaka, nestled between Bolivia and Peru at the foot of Machu Picchu. The outside of the structure stands at 3900 m of altitude where weather conditions are extreme.



GIACOMINI
WATER E-MOTION

VILLA NIGRA
ITALY

Improving the energy performance of a storied building in a non-invasive way: the low thickness radiant floor by Giacomini inside Villa Nigra.

The need to upgrade a building of great historical importance (the central unit of Villa Nigra dates back to late 1500) called for special attention when installing the system, which used Spider Slim low-thickness panels by Giacomini for their reduced thermal inertia and the outstanding performance in terms of energy comfort.

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GIACOMINI S.P.A.
VIA PER ALZO, 39
28017 SAN MAURIZIO D'OPAGLIO
NOVARA ITALY

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