



EMMETI CLIMA FLOOR

Radiant heating and cooling systems

GB 01



EMMETI
Ideas to install



Comfort throughout the year

For many years the underfloor heating system has been seen as an ideal solution for heating during the winter period.

Regulations aimed at reducing emissions, electronic control systems becoming more advanced and clear and consistent information have all contributed to an almost unexpected growth in the use of these systems.

Today, the development of advanced electronic control systems allows us to enhance the advantages of underfloor heating systems by using the same system for summer cooling, offering a climate control system that can be used 365 days a year.

The benefits of the system

Emmeti Clima Floor is the most comfortable and safe solution for using the floor for heating during the winter and for cooling during the summer.

The thermal energy (hot or cold) will always be well distributed within the building without annoying drafts of cold air, no noise at all, no dust movements and with an invisible system.

Energy saving

The reduction in energy consumption in buildings is an overriding objective in preserving our planet. One of the most important ways to meet this objective is to improve the efficiency of the building envelope and the heating/ cooling plant systems, together with the use of distribution systems which can operate at low temperatures in winter and high temperature in summer.

Solar panels take advantage of the free heat of the sun, which together with heat pumps offer a realistic alternative to fossil fuel heat generators.

With Emmeti Clima Floor during the winter, the low temperature of the system return water boosts the efficiency of condensing boilers and heat pumps, leading to significant reductions in energy consumption.

During the summer, the temperature of the water is continuously adjusted by the electronic control unit based on the temperature and humidity inside the building, with the aim of maximizing the output of the radiant system and optimizing the efficiency of the cooling source, achieving significant cost savings.

A complete system

By adding the components necessary for cooling, an existing Emmeti Floor system (used for heating only), can become an Emmeti Clima Floor system suitable for heating and cooling. For underfloor cooling, the plant is controlled by the PCOC or RCE electronic control unit, which continuously adjusts the temperature and humidity of environments.

The control of the temperature is done continuously by adjusting the temperature of the water of the system through a suitable mixing valve.

The ambient humidity is controlled by specific sensors installed in the building and, if necessary (when approaching the dew point), it is reduced by the activation of optional dehumidifiers.

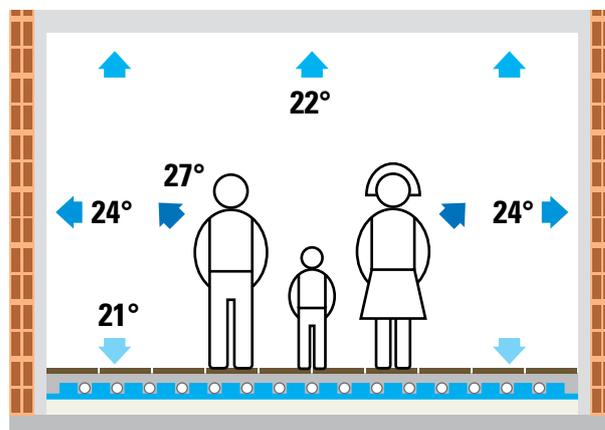
Ultimately, with the addition of some simple components for dehumidification and temperature control, the underfloor system becomes a full winter and summer heating and cooling system.

Cool in summer

During the summer the level of comfort in the rooms is controlled by a combination of the air temperature and the average radiant temperature (representative of the temperature of floors and walls etc in the building), as well as by the level of humidity in the air.

The Emmeti Clima Floor system allows a reduction of the average radiant temperature, ensuring a feeling of comfort with air temperatures slightly higher than conventional systems.

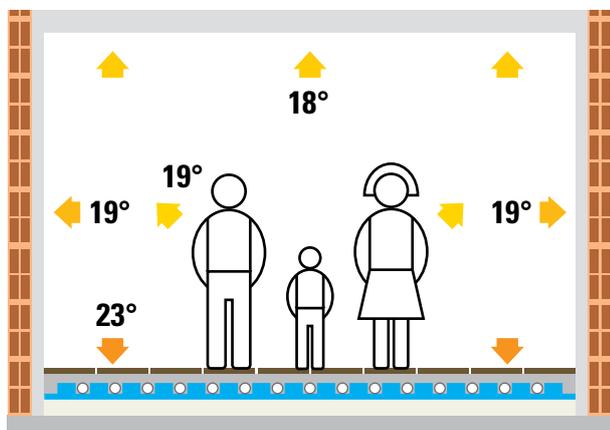
This principle, combined with humidity control, ensures the effectiveness of the floor cooling system during the summer.



Warm in winter

During the winter, the best temperature profile in relation to the height of individual rooms is achieved with the heating system in the floor resulting in the ideal conditions for each living area in the building.

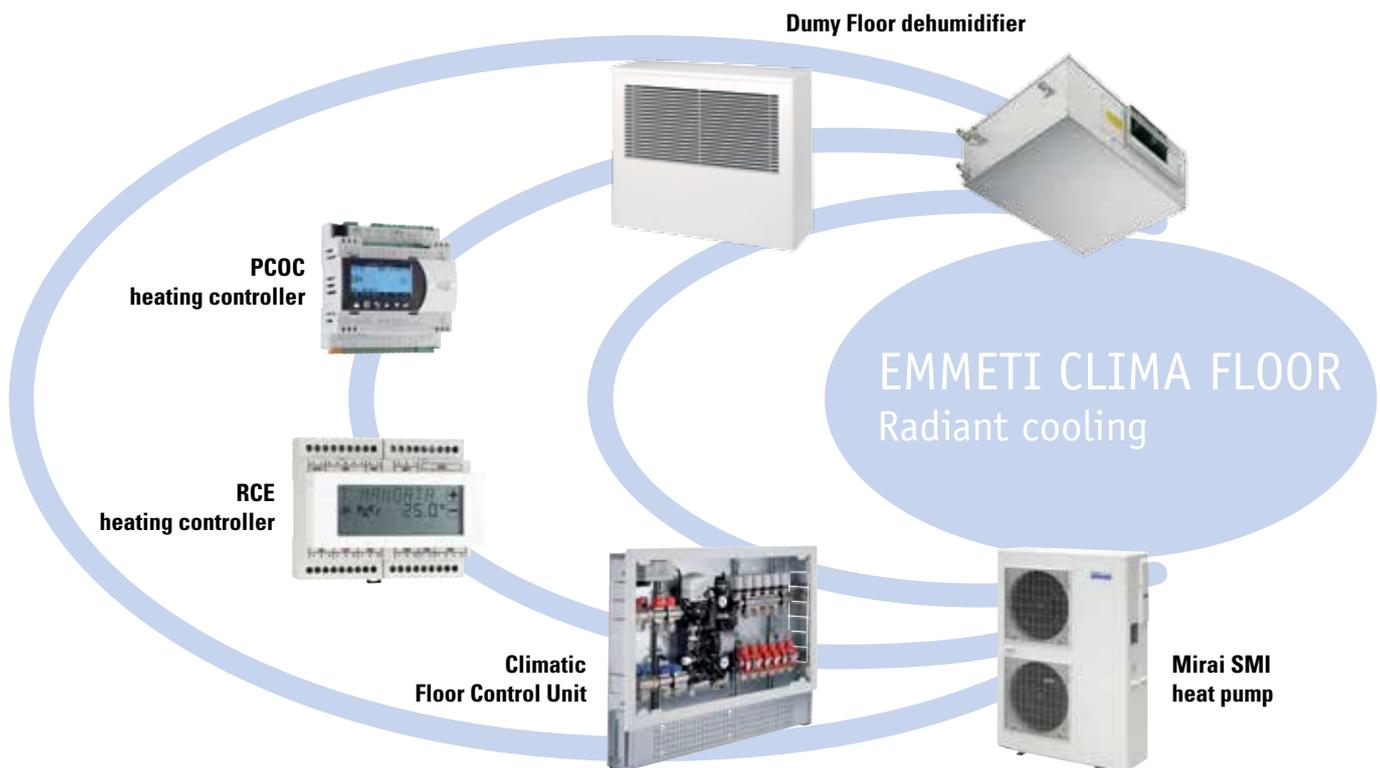
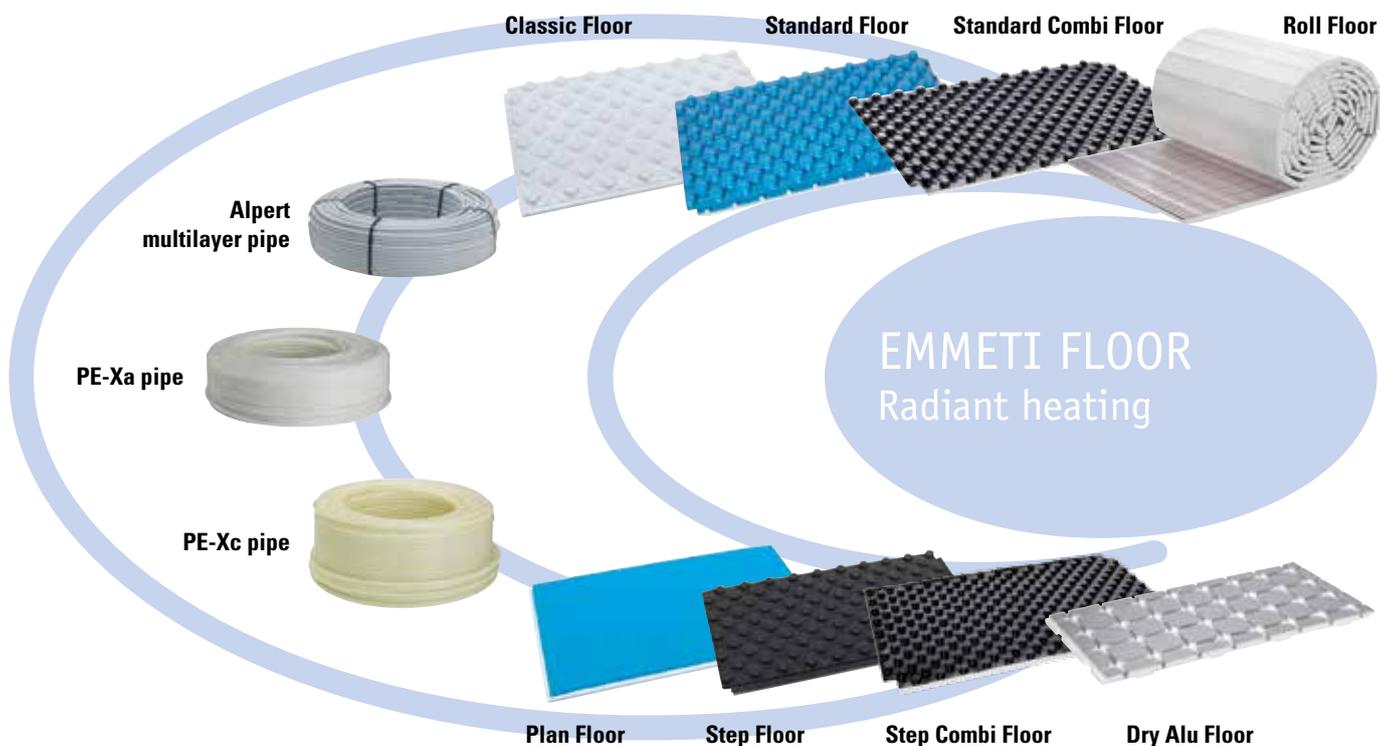
No visual impact, environmental health and energy savings make this system the best solution ever for winter heating.



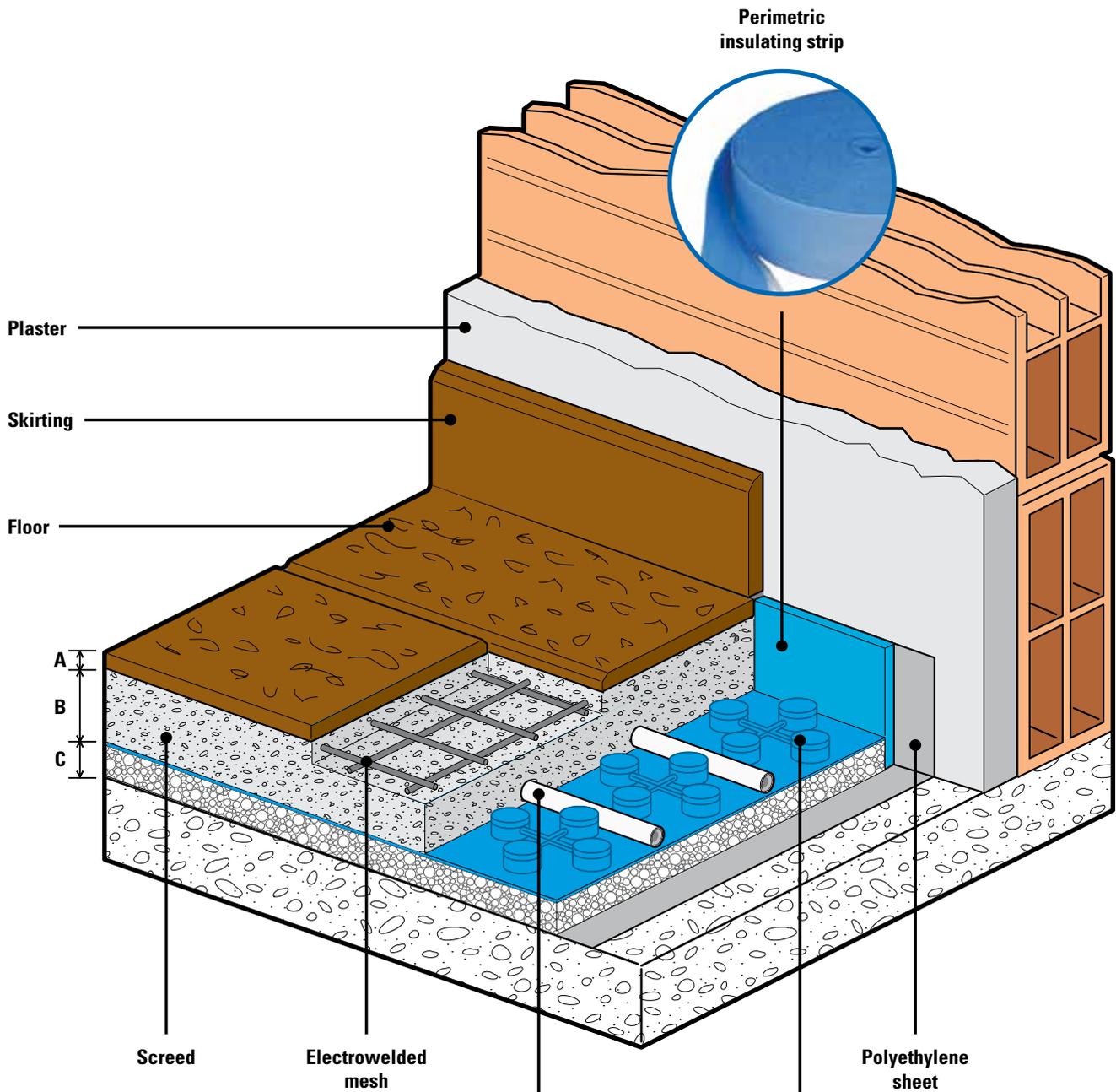
System components

The Emmeti Floor and Emmeti Clima Floor ranges use tried and tested components to achieve, simply and quickly, a durable, reliable and high quality heating or heating and cooling system.

Eight high quality insulation panels and three types of pipe with high technical standards fully meet the needs of any type of building and every modern installer.



Typical system construction



A = variable
 B = min 70 mm *
 min 55 mm **
 C = 10/20/30/40/50/60 mm

* Traditional cement screed
 ** Self-leveling screed



Alpert pipe
 PE-X pipe



Standard Floor
 insulating panel

Climatic Floor Control Unit

The Floor Control Unit which can be used with low temperature or high and low temperature heating and cooling is ideally suited for use with Emmeti Clima Floor systems

The PCOC or RCE controller manages the temperature of the water by operating a motorized actuator fitted to the mixing unit available as an option.

The unit comes pre-assembled, ready to be installed inside a metal box for recessing into a wall.



Dumy Floor dehumidifiers

A full range of dehumidifiers in cabinet or built-in, wall or ceiling mounted, allows you to control the humidity with unit best suited to the construction of the building.

The use of the refrigeration cycle combined with two water coils, allows Dumy Floor dehumidifiers to break down the humidity and maintain the outlet air temperature at the same value of the environment, thus ensuring maximum comfort.

The movement of air will be minimal and localized, since the diffusion of humidity in the environment can occur without the movement of fluid masses.



Mirai SMI heat pumps

Mirai SMI Heat Pumps are the ideal solution for residential heating and cooling, as they match compact dimensions and easy installation with the capacity to work even at external temperatures up to 20 °C below zero.

Through “DC Inverter” technology, Mirai SMI Heat Pumps adapt to the building thermal demand by adjusting the power continuously; power consumption is significantly reduced and a high level of energy efficiency is reached.



Climatic thermoregulation

Emmeti offers two different systems for temperature regulation.

The modular PCOC system was developed from internationally renowned hardware, combined with specially tailored software for underfloor cooling, which allows you to cleverly and automatically manage all the needs of heating and cooling (up to 13 temperature zones, 2 humidity zones and 2 mixing lines).

The PCOC system consists of one or more electronic control units, a display for the remote control, the temperature and humidity sensors, an external sensor, flow sensor and various accessories for the installation.

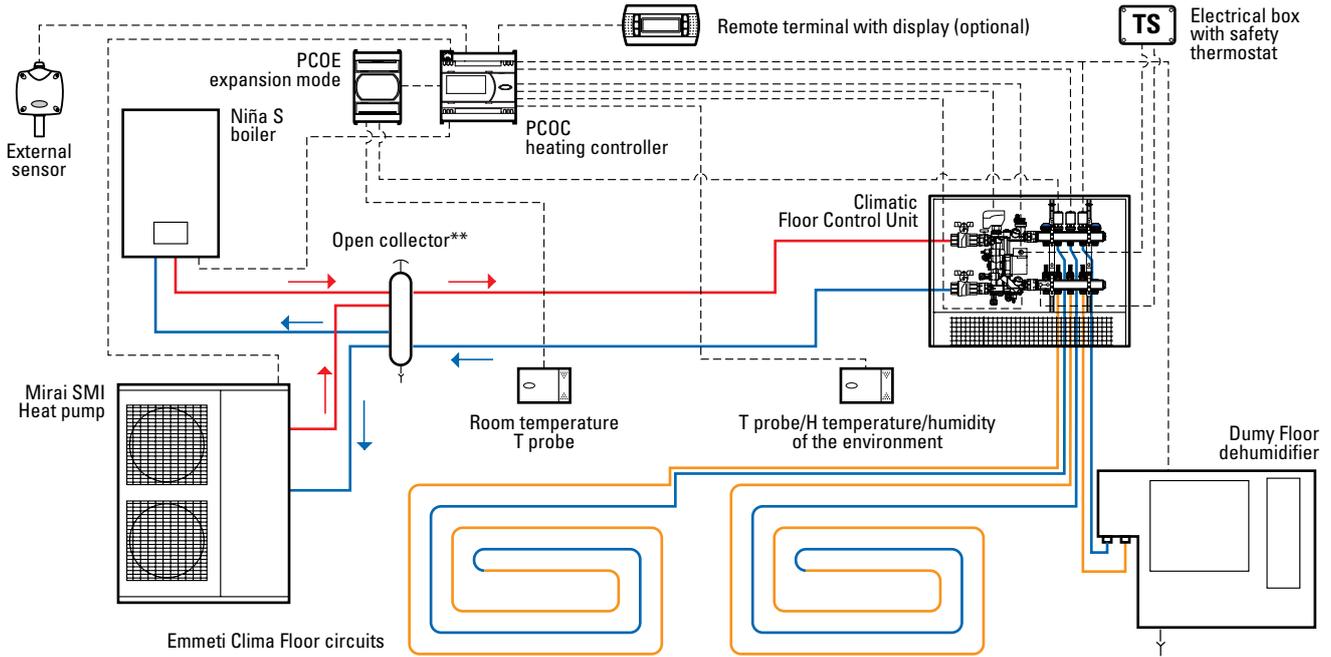
The RCE climate controller adjusts the flow temperature of the radiant circuits using one of three different temperature control modes:

- 1 Fixed temperature mode.
 - 2 Modulating Mode which varies the flow temperature based on the flow and return temperature to the underfloor circuit
 - 3 Weather compensating mode which varies the flow temperature based on the flow temperature and the outside air temperature.
- Optional humidistats and thermostats to control the temperature and humidity of the environment are also available.

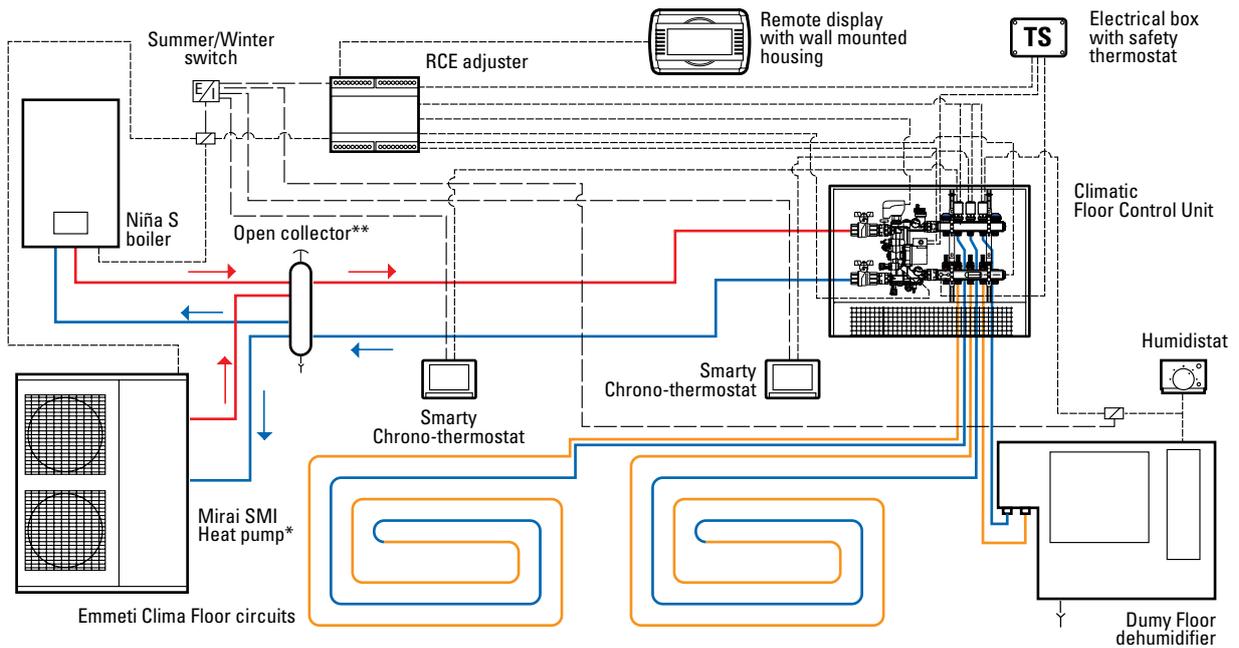


Installation modes

PCOC temperature control system in combination with the mixing unit Floor Control Unit - Climatic control



RCE temperature control system in combination with the mixing unit Floor Control Unit - Fixed point adjustment



* As in this installation example, Mirai SMI Heat Pump works just in cooling mode.
 ** The volume of the open manifold/storage tank must be defined according to the working capacity of the chiller.



Respect the environment!
 For a correct disposal, the different materials must be divided and collected according to the regulations in force.

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