



**HEATING AND COOLING  
INTEGRATED SYSTEM**  
CEILING AND WALLS RADIANT

[www.radiantklimasystem.es](http://www.radiantklimasystem.es)

# SUMMARY

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## HEATING THROUGH CEILING AND WALLS

RADIANT CEILING HEATING IS BASED ON THE MOST COMMON PHYSICAL PHENOMENON OF HEAT TRANSFER THAT OCCURS ON EARTH: THERMAL RADIATION (INFRARED). BY RAISING THE CEILING SURFACE TEMPERATURE, IT WILL LOSE HEAT UNTIL BALANCING ITS TEMPERATURE WITH THE REMAINING ROOM. SOLID ITEMS THAT ARE NEARBY, AT A LOWER TEMPERATURE, WILL RAISE THEIRS, INCLUDING FLOOR AND WALLS. IT WORKS BECAUSE THERE ARE NO MAJOR THERMAL DIFFERENCES BETWEEN DISTINCT ITEMS IN THE ATMOSPHERE, AND WITH THE HOTTEST ITEM BEING AT THE HIGHEST ROOM LOCATION, AIR MOVEMENT THROUGH CONVECTION DOES NOT EXIST. THEREFORE, THE SPACE TO BE HEATED PRESENTS GREAT THERMAL UNIFORMITY AT DIFFERENT ROOM HEIGHTS, WHICH CONTRIBUTES TO OBTAINING MAXIMUM POSSIBLE COMFORT.





# HEATING THROUGH CEILING AND WALLS

## HEATING THROUGH CEILING AND WALLS

- ~ BASIC PRINCIPLES
- ~ ENVIRONMENTAL WELL-BEING AND ENERGY SAVING
- ~ BENEFITS
- ~ APPLICATIONS

### 01 BASES



Radiant ceiling systems or radiant wall systems are based on heat transfer through infrared radiation, based on the most common temperature exchange between two items in nature. Two bodies that are at a different temperature, inside the same space, tend to equalize, even if not in direct contact. This thermal energy interchange is made through heat radiation (type of radiation that is part of the ultraviolet, visible and infrared radiation of the electromagnetic spectrum). The sun heats our planet in the same way. Its thermal energy travels through space and then our atmosphere and before being transferred to solid items on Earth.

### 02 ENVIRONMENTAL WELL-BEING AND ENERGY SAVINGS

Air conditioning systems based on radiation work using large active surfaces: floors, walls or ceilings, with small temperature differences concerning the surrounding environment, thus allowing the usage of renewable energies. The use of aero-thermal, geothermal or solar energy allows considerable financial savings. However, the possibility of using the radiant ceiling for heating or cooling creates an additional economic advantage: two uses with only one installation.

Comfort and hygiene are also two main factors to consider when it is time to select an air conditioning or heating system. The low temperature heating provided by a radiant ceiling allows to reach optimum values. Through these, we can obtain a very high comfort level, with air temperatures below the ones obtained by traditional systems. When heat transport is carried out this way, the convection air movements are reduced to a minimum, preventing the problems that generate domestic dust (hygiene and cleanliness). This way is far better than the traditional methods such as convection), radiant systems present a greater uniformity in room temperatures at different heights.

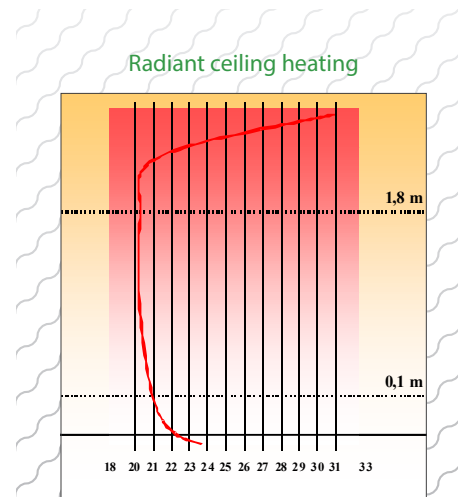




This graph shows the temperature tendency inside a room with a radiant ceiling system.  
The measured temperature values are:

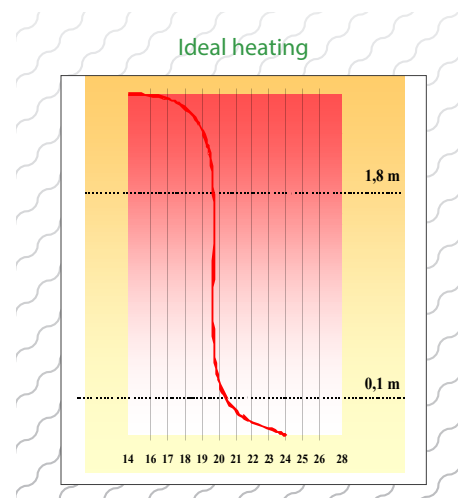
- At ground level: 23°C
- At ceiling surface 34°C
- Environment: 20° C

We must notice that, thanks to the irradiation effect, ground temperature is higher than the air.



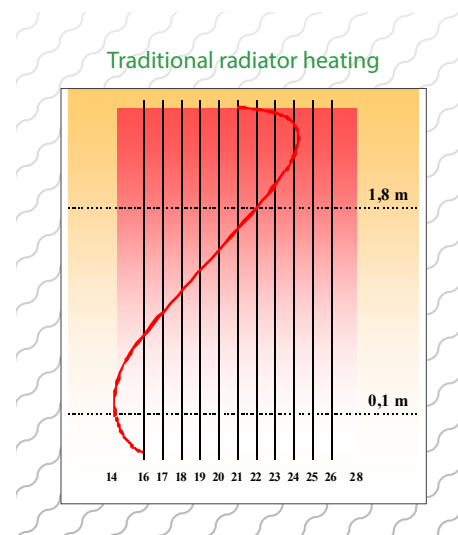
This graph shows the temperature distribution to obtain the perfect thermal comfort inside a room. As you can see, it has a constant temperature around 20°C from 0,1 to 1,8 meters above the ground.

This temperature distribution is comparable to the radiant ceiling system, where the temperature is kept constant at the mentioned distances.



In this graph, we have the temperature distribution in a room with radiators installed.

Here it shows how the temperature is very different, when the height varies, from the ideal 20°C.



Additionally, the radiant panels offer better benefits/savings than any other air conditioning system (cooling mode). This is possible, among other reasons, thanks to insulation placed behind the outer surface, serving as a barrier against thermal charge that hits or is transmitted through conduction. If installed in influential areas, such as windows and glass walls, they are capable of absorbing the convection and radiant charge generated.



03

BENEFITS

	ECOLOGICAL		MODULAR		THERMO-ACOUSTIC INSULATION
	EASY INSTALLATION		HEATING AND COOLING		POWER CONSUMPTION
	INVISIBLE		SELF-BALANCED		COMFORTABLE



ECOLOGICAL

Radiant ceiling systems and radiant wall systems work at low temperatures, which allows to use renewable energies to create heat or coolness in conditioning areas.  
 Our panels are made with materials that have a long life cycle and it can be reused an infinite number of times (100%recyclable components).



MODULAR

For a system to work, besides offering the necessary functions that it was designed for, it should solve in a convenient way the problems that come up with its productive, logistic, installation and functioning processes.  
 Our radiant panels are available in different sizes. The system adapts to all spaces, avoiding cuts and unnecessary waste. The use of closing panels (without circuit), makes the installation adjustable at any room geometry. This panel is suitable to fill spaces that are needed in other installations. Example: lightning or fire prevention systems.



THERMAL AND ACOUSTIC INSULATION

When designing a air conditioning system, this premise must be considered: the heat or cold generated must be used by the system user and not by the next-door neighbours, or have an interchange with the surrounding building and be lost through this to the outside.  
 Avoiding this problem allows indirectly improvements to a building's thermal and acoustic insulation when installing radiant ceiling or walls



EASY TO INSTALL

When its time to develop a new product, the necessary knowledge or training that installers must have must taken into account. Therefore, it is fundamental to keep the system simple. Our radiant surface installation process is very simple.

In the radiant modular system, it is reduced to supporting the radiant panels over the upholding ceiling structure.

If we are talking about a continuum ceiling or wall system, work consists of fastening the panels as if it were a "thicker" drywall/plasterboard plaque.

As for the hydraulic part, the use of push-in connectors patented by Pres Block S.A. make a quick and secure installation easier with minimum tool use.



## HEATING AND COOLING

Traditionally, a room heating/air conditioning system used to be made with two installations, or with one that used air as a way to obtain the desired operation temperature. Using air significantly complicates the achievement of an optimal comfort level in a conventional building.

Radiant walls and ceilings used to climatize a room, has the advantage that only necessary one installation works in both modes, obtaining the highest level of comfort.



## ECONOMIC POWER CONSUMPTION

Radiant heating/cooling systems work at low temperatures in the heating mode and at high temperatures in the cooling mode. Lower temperatures allow significant thermal reduction in the installation, consequently raising the efficiency of heat generators and fridge groups.

Functioning temperature is the parameter that directly influences the sensation of comfort. Radiant systems keep active large surfaces inside a heated or cooled space, reducing equally functioning temperature to air temperature. This way, you get a notable energy saving, reducing consumption by about 25% when compared to any other heating/cooling high temperature system.



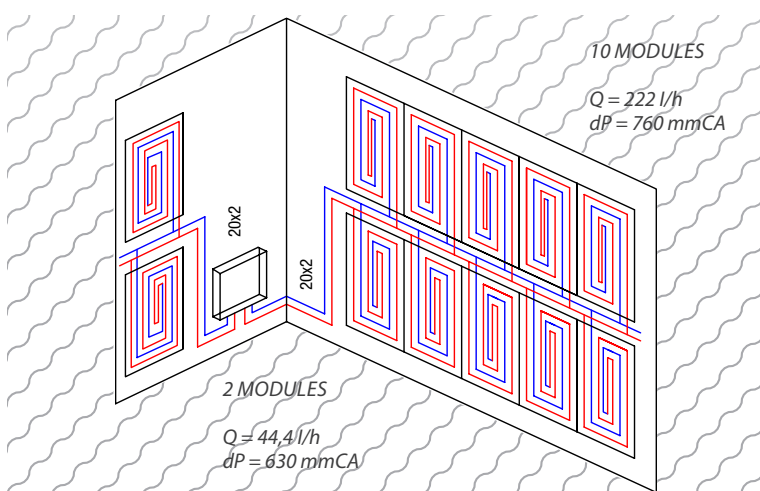
## INVISIBLE

A ceiling surface should not present many structural or architectural elements that interrupt it. So to locate this heating/air conditioning installation and making the integration on just one surface means it goes totally unnoticed. That allows greater use of the room due to the absence of radiators. This installation type presents no application limitations due to the system's efficiency and practicality. So, it is suitable for use at home, in industry, services, tourism or hospital buildings.



## SELF-BALANCED SYSTEM

For a long time, systems like ours presented great complexity in getting them to work, as well as balance, regulation and management. One of the goals for our designers was, for example, lower circuit regulation and lower balance difficulty level. Following a few brief instructions, installation can be performed and the system will function correctly, almost autonomously and in many cases, without balance circuit intervention.



EXAMPLE

*If we have two very different circuits (as in the picture) we can see how charge loss is too small, essentially thanks to the greater distance of the last module, in this case, 10 panels to the right.*



## COMFORTABLE

Temperature samples taken at different heights in a ceiling or wall radiant heated/cooled environment demonstrate, as shown in the previous graphs, that this system is capable of producing a heat curve much closer to what could be described as an optimum comfort environment, with the ideal heat curve.





The ceiling heating, as we saw on the previous page, it is a ideal option in the following cases:

#### HOUSES AND APARTMENTS

The application of this heating system for residential use is highly recommended. The heat energy inter-change system (infrared radiation) allows it to be positioned as one of the fastest to give the desired temperature in room. In this way, we can obtain an optimum efficiency and uniform heat in a much smaller time lapse while continuing to work at low temperatures.

#### REHABILITATION

The system was created to eliminate the difficulties that are created in rehabilitation. It is not always possible to have the necessary heights to use other types of systems (for example: radiant floor). In this case, we solve that problem, using very few centimetres without any demolition.

#### WORKING OR PUBLIC SPACES

One of the advantages of using this system in commercial and service buildings (offices, hotels, hospitals, etc.) is the large energy saving that it allows, without forgoing uniform heat.

#### ADVISORY

If you need to create a radiant heating/cooling system, RKS-Radiant Klima System will give you all the instructions, technical datasheets and manuals, so you can carry out your installation in a satisfactory way.









# DRYWALL/ PLASTERBOARD RADIANT CEILING SYSTEM

HEATING AND COOLING SOLUTIONS WITH DRYWALL/PLASTERBOARD BOARDS ARE THE LOGICAL EVOLUTION OF THE RADIANT HEATING AND COOLING SECTOR IS HEADING. EXPERIENCE IN DESIGN, CONSULTANCY AND THE USE OF RADIANT TRADITIONAL INSTALLATIONS (BY FLOOR) SHOWED US THE LIMITATIONS THAT EXIST IN THOSE SYSTEMS: GREAT THERMAL INERTIA (NOT ADVISED FOR SPORADICALLY USED BUILDINGS, SUCH AS HOLIDAY HOMES); DIFFICULT TO INTEGRATE DURING RENOVATIONS; THESE INTRINSIC SPECIFICATIONS MAKE IT INADVISABLE IN ALL SITUATIONS AND LEAVE A MARK INDICATING THE ROUTE TO FOLLOW: DEVELOP AN ALTERNATIVE OR COMPLEMENTARY SYSTEM THAT ELIMINATES, AS MUCH AS POSSIBLE, ALL THE AFOREMENTIONED NEGATIVE FEATURES, WITHOUT RENOUNCING ITS ADVANTAGES: MAXIMUM CONFORMITY BY UNIFORMITY AT HEAT DELIVERY, MINIMUM CONVECTION AIR MOVEMENTS AND FINALLY, IMPORTANT ENERGY SAVINGS.



# DRYWALL/PLASTERBOARD RADIANT CEILING SYSTEM

## DRYWALL/PLASTERBOARD CEILING

### HEATING AND COOLING

~	DESCRIPTION	~	ASSEMBLING INSTRUCTIONS
~	TECHNICAL DATA	~	SPECIFICATIONS
~	CROSS SECTION DETAIL	~	SYSTEM ASSEMBLY
~	AVAILABLE SIZES	~	ACCESSORIES
~	SYSTEM YIELD		

## 01

### DESCRIPTION

The pre-assembled panel is suitable for heating and cooling, from ceiling to walls. It can be installed as a false ceiling or as a coating (drywall/plasterboard) for walls and divisions. Moreover, it allows thermal and acoustic insulation and has an integrated finishing surface. The panel is presented in a one-piece format. It is made of a drywall/plasterboard board (12,5 mm thick, fireproof, with CE imprint), an insulating panel in expanded polystyrene (EPS, high density, Euroclass fire resistance and 30mm thick, following UNI standard). One or more independent and modular hydraulic circuits are inserted between them.

Panels are available in three sizes: 2000 x 1200, 1000 x 1200 e 500 x 1200 (mm). These three sizes allow any composition, so they can be mixed. This way, large surfaces can be covered with less installed units or adjust to irregular geometry spaces, reaching the necessary radiant installation percentages.

Panel fastening is made with standard drywall/plasterboard metal profiles. Each radiant module should be placed in a way to facilitate union between panels and distributors (simple 2 or 4 ways reductions). These distributors are placed over the Ø20x2 insulated multilayer pipe and conveys the liquid through the side and opposite connectors as far as the Ø8x1mm pipes of internal circuits (made with Ø8x1mm PERT).

Charge loss is almost constant with the supplied module variation, allowing circuit self-balance with inverse supplies and main distribution manifold valve malfunction, as it remains completely open.

The maximum loss 2000x1200 panel size is 59,2Kpa at 20°C room temperature and when water supply temperature is 14°C,

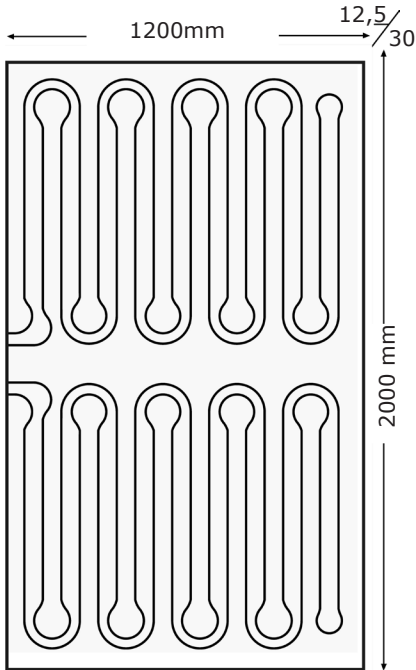
Radiant surface finishing is made in the traditional way for drywall/plasterboard panels (union paste with strap tape or joint paper, final decoration with paint, plaster, etc.)



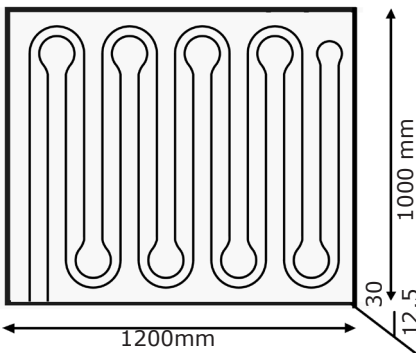


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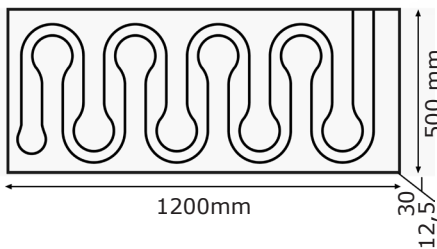
TECHNICAL DATA



Panel size:	1200 x 2000 x 42,5 mm
Panel weight:	21 kg
Internal circuits:	2
Panel $\Delta P$ (with water supply at 39°C):	61
mbar with Q=	22,2 l/h
Nominal power at heating mode $T_{thrust}$ = 39 °C And room temperature $T_a$ = 20°C:	230 W
Nominal power at cooling mode $T_{thrust}$ = 15 °C And room temperature $T_a$ = 26°C:	135 W
Advised water flow per circuit:	22,2 l/h



Panel size:	1200 x 1000 x 42,5 mm
Panel weight:	10,5 kg
Internal circuits:	1
Panel $\Delta P$ (with water supply at 39°C):	61
mbar with Q=	22,2 l/h
Nominal power at heating mode $T_{thrust}$ = 39 °C And room temperature $T_a$ = 20°C:	115 W
Nominal power at cooling mode $T_{thrust}$ = 15 °C And room temperature $T_a$ = 26°C:	68 W
Advised water flow per circuit:	22,2 l/h



Panel size:	1200 x 500 x 42,5 mm
Panel weight:	5,5 kg
Internal circuits:	1
Panel $\Delta P$ (with water supply at 39°C):	31
mbar with Q=	22,2 l/h
Nominal power at heating mode $T_{thrust}$ = 39 °C And room temperature $T_a$ = 20°C:	57 W
Nominal power at cooling mode $T_{thrust}$ = 15 °C And room temperature $T_a$ = 26°C:	34 W
Advised water flow per circuit:	11,1 l/h

It is recommended not to connect in the same circuit, more than 5 to 1200x2000 panels, or more than 10 to 1200x1000 panels and no more than 20 to 1200 x 500 panels, for an approximate maximum flow of 230 l/h.





## 03 CROSS SECTION DETAIL

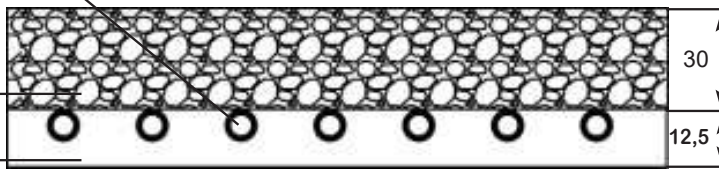
The radiant ceiling and wall system is made with laminated drywall/plasterboard, which is fireproof, of standard dimensions and is 12,5mm thick.

Inside there is a PERT coil shape pipe with three-layers oxygen barrier, which is highly conductive and has an 8mm section in a very similar circuit to a radiant floor system. An insulating board of expanded polystyrene is glued to the rear. It is fireproof, in E euroclass, and has a density of 30kg/m<sup>3</sup>.

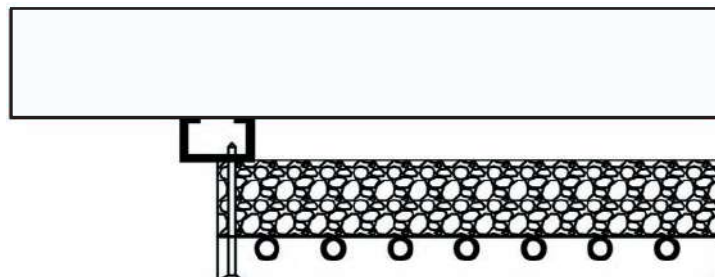
PERT 8X1mm PIPE

Insulation  
in EPS200  
polystyrene

DRYWALL/  
PLASTERBOARD

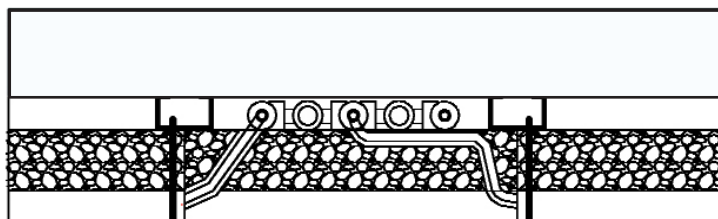


*PANEL COMPOSITION*  
Insulating composition and thickness, pipe, and drywall/plasterboard



*INSTALLATION*  
Simple and quick installation is possible.

The panel can be installed on walls, directly below the ceiling level, or as a false ceiling. Any of the solutions presented have a good sound absorption capacity: they are able to absorb part of the sound energy present in the room and coming from adjacent rooms, reducing the sound pressure level and reverberation time that creates an echo effect.

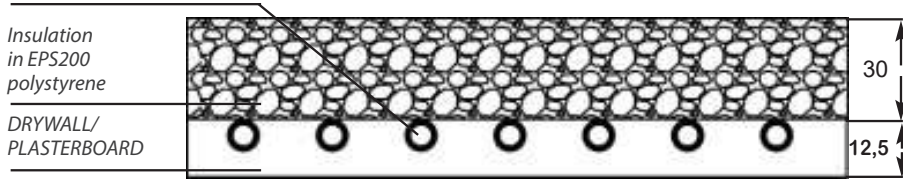


*INSTALLATION*  
A vertical fastening (for walls) is possible as well as horizontal, obtaining good thermal and acoustic insulation.





PERT 8X1mm PIPE



Drywall/plasterboard cross section (measures in mm)

Besides thermal function, wall or ceiling radiant systems integrate thermal insulation and replace gypsum board. The insulation can be cut in order to house electric and hydraulic circuits. Installation is simple and needs no extra work, so it can be mounted as a regular false ceiling, or drywall/plasterboard covering for walls, using aluminium metallic profiles and fastening screws.

Once the panel is secure to the structure, the circuit is joined to the manifolds and the hydraulic test is carried out (tightness and pressure). After the tests have been completed with satisfactory results, the ceiling areas that were pending are covered with the closing panels. Paste is added to the joints and screw heads; it is then sanded and painted.

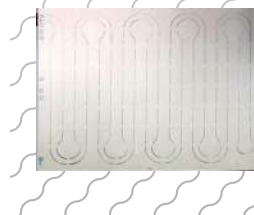
04 AVAILABLE SIZES

Radiant panel 1200x2000mm



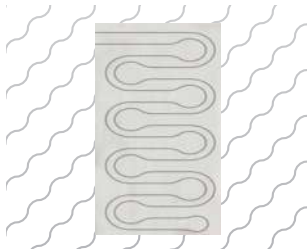
2000x1200 radiant panel, made of a 12,5mm thick laminated drywall/plasterboard, CE imprint,  $\Phi$ 8x1 mm PERT pipe with three-layers oxygen barrier, expanded polystyrene EPS 200 fireproof insulating panel. E euroclass, 30mm thickness, following UNI standard rules.

Radiant panel 1200x1000mm



1000x1200 radiant panel, made of a 12,5mm thick laminated drywall/plasterboard, CE imprint,  $\Phi$ 8x1 mm PERT pipe with three-layers oxygen barrier, expanded polystyrene EPS 200 fireproof insulating panel. E euroclass, 30mm thickness, following UNI standard rules.

Radiant panel 1200x500mm



500x1200 radiant panel, made of a 12,5mm thick laminated drywall/plasterboard, CE imprint,  $\Phi$ 8x1 mm PERT pipe with three-layers oxygen barrier, expanded polystyrene EPS 200 fireproof insulating panel. E euroclass, 30mm thickness, following UNI standard rules.

Closing panels with and without insulation



The panel is made of a 12,5mm thick laminated drywall/plasterboard, CE imprint, size 1200x2000 mm glued to an expanded polystyrene EPS 200 fireproof insulating panel, E euroclass, 30mm thickness, following UNI standard rules (available without insulation)

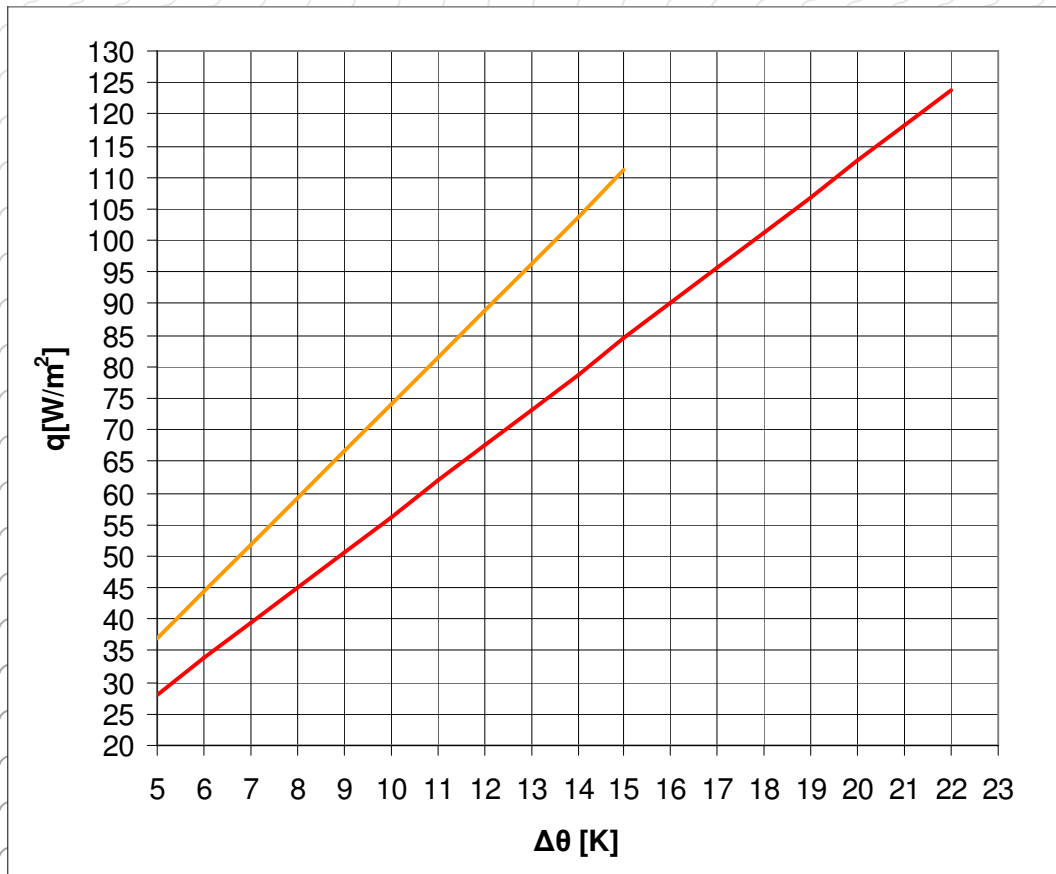






HEATING AND COOLING RADIANT CEILING SYSTEM EFFICIENCY

Here we can see the graph showing ceiling radiant system efficiency, in heating or cooling mode, where, by changing the working temperature, there is also a change in yield.



FUNCTIONING TEMPERATURE CALCULATION

Below, it is a list of factors that influence the yield of a wall or ceiling radiant system:

- Structural nature of the system
- Orientation of the room to be cooled/heated
- Surface temperature consistency
- Temperature differences between the room surfaces (floor, wall, or ceiling) and the internal critical point where the highest condensation formation risk is.

OPERATING TEMPERATURE

$T^{oper} = t^m - t^a$

$T^m = (t^{fm} + t^{fr})/2$

$T_m$ = Average water temperature (°C)

$T_a$ =Room temperature (°C)

$T_{fm}$ = Supply liquid temperature (°C)

$T_{fr}$ =Return liquid temperature (°C)

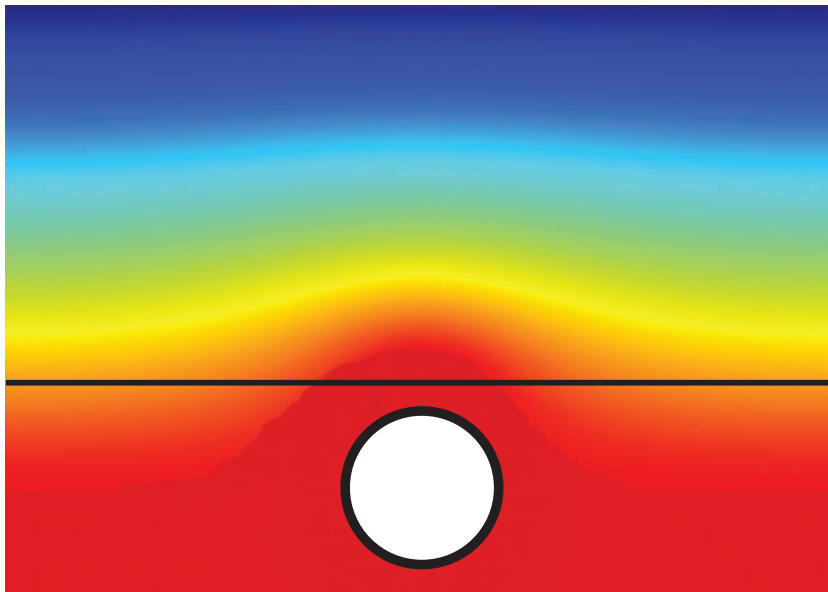




HEAT DISTRIBUTION

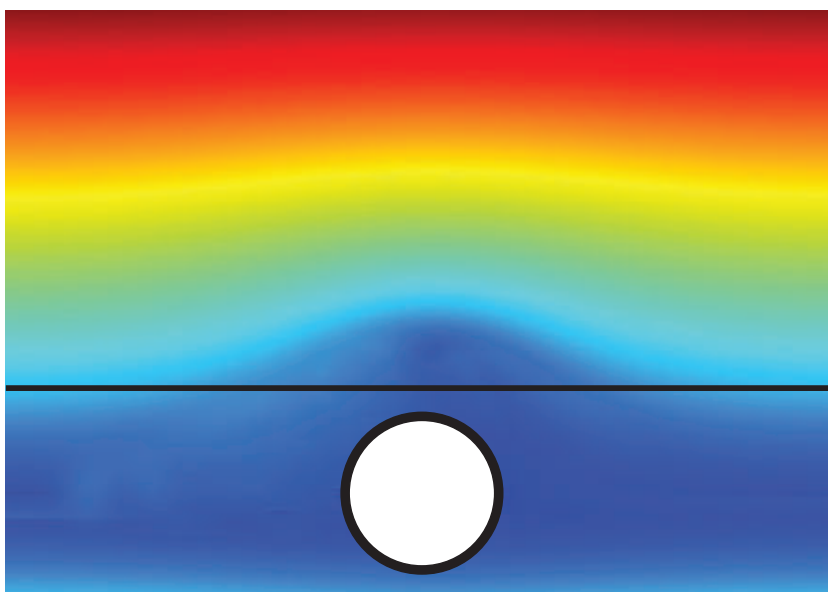
Our system, thanks to the panel configuration and to the effect of tubes being inserted inside drywall/plasticboard can take maximum efficiency. Insulation at the highest point prevents heat leakage through the top.

HEAT DISTRIBUTION IN HEATING MODE



HEATING  
Heating mode dissipation thermograph

HEAT DISTRIBUTION IN COOLING MODE



COOLING  
Cooling mode dissipation thermograph





Two types of installation systems can be found in our panels: locksmith, or installing a false ceiling, and hydraulics. Most of the circuit fixing and connecting is composed of simple steps that require no special skills (an advantage that must be taken into consideration when considering other cooling or heating systems). With the locksmith system, the process is similar to the one used in laminated plasterboard. With regard to the hydraulic part, unions are made with push-in connectors or distributors (mini-manifolds) that connect panels in parallel with the circuit. This means there is no joint leakage, and keeps load loss constant and to a minimum, which simplifies the system's balancing operations.

SYSTEM INSTALLATION STAGES

CEILING OR WALL MODULAR MANIFOLD FASTENING



System for fastening the manifold to the ceiling or wall.  
FIG 1

INSTALL STRUCTURE ACCORDING THE FOLLOWING STEPS

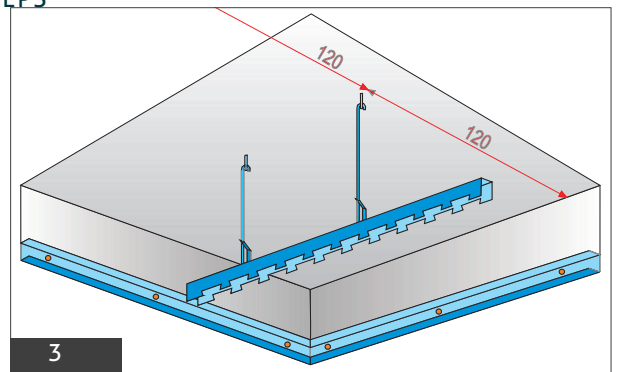
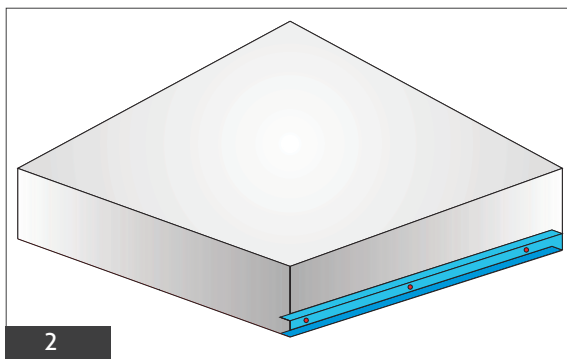


FIG 2-3

Fasten the C shape support around the wall, which will place all the weight on the room's perimeter. Then, fasten the central pending supports at the indicated distance (except in particular cases) for transversal bars. Frequently these profiles present the appropriate shape for the fast and safe support of transversal bars.

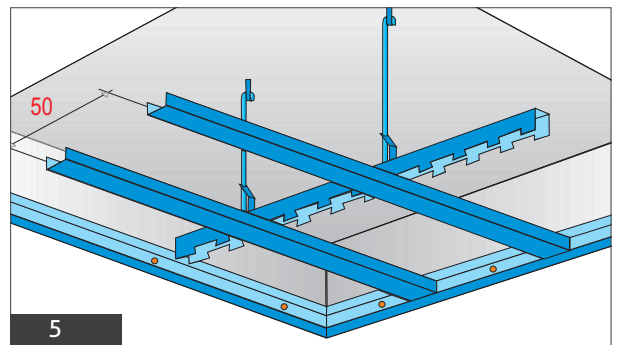
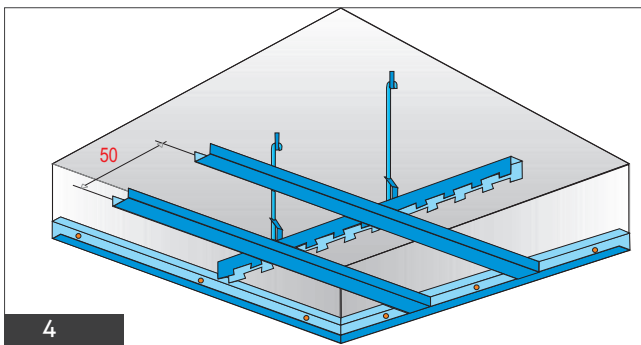


FIG 4-5

At this point, insert the C shape profile crosswise on the supports placed around the perimeter, and also pending from central supports with a distance of 50cm as indicated in the picture (except in special cases). The number of supports and profiles must be quantified by the installer based on the needs of the individual case.





**FASTENING THE PANEL TO THE STRUCTURE AND SUPPLY AND RETURN PIPE INSTALLATION**

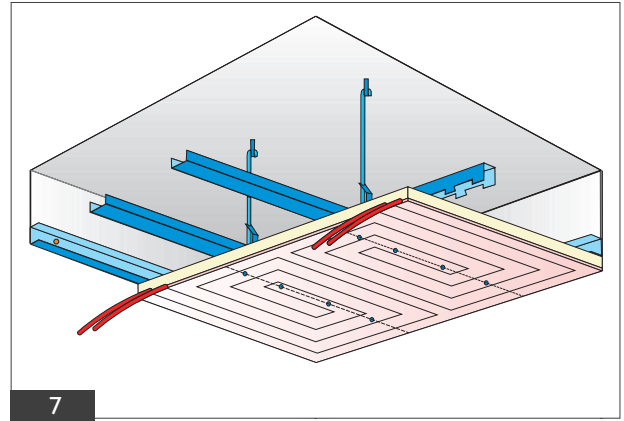
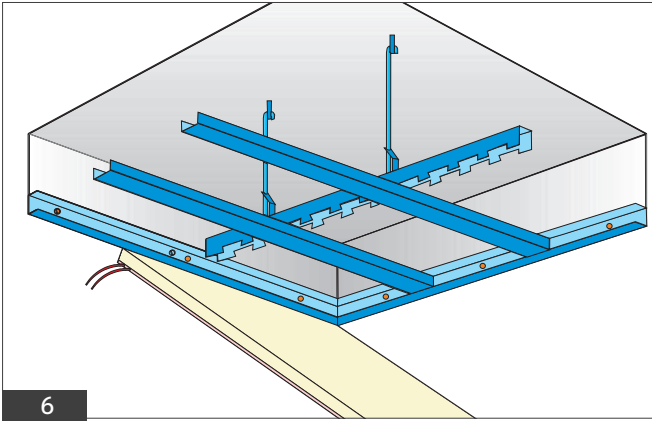


FIG 6-7

Fasten the radiant modules to the ceiling, paying special attention not to drill on the point where the internal circuits are.

**PERFORM CHAMFER AND PIPE CALIBRATION**



FIG 8-9

For a more secure and precise pipe connection, it is necessary to carry out chamfer and pipe calibration, as shown in the picture.

**SUPPLY OR RETURN PIPING CONNECTION TO THE DISTRIBUTOR WITH A SIMPLE INSERTION**

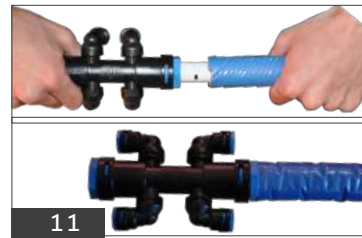


FIG 10-11

Mark each tube with a pen about 4 cm from the top (there is a template for the right measurement), up to where tube must be inserted inside the connector or distributor. Then, insert it according to the previously made mark.

**CONNECTING RADIANT PANELS TO SUPPLY AND RETURN CIRCUITS DISTRIBUTORS.**

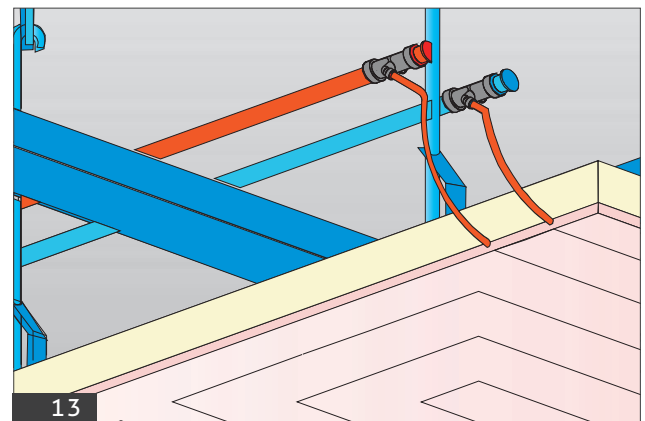
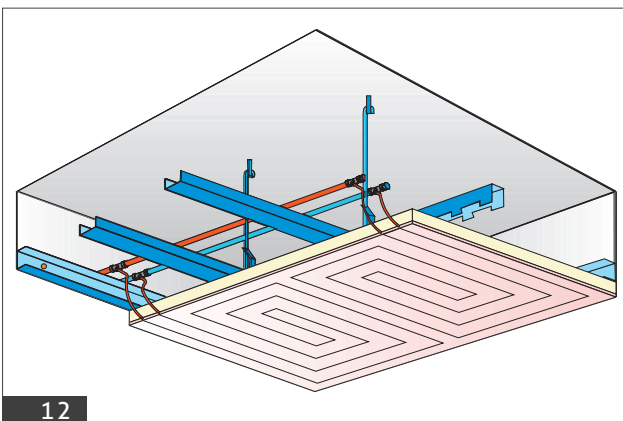


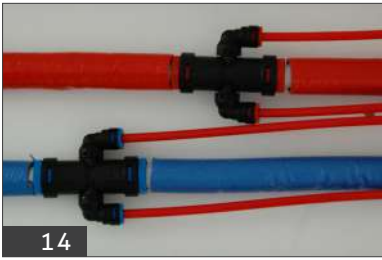
FIG 12-13

Connect ceiling panel to supply and return circuits at distributors.





## RADIANT PANEL UNION TO DISTRIBUTOR



14

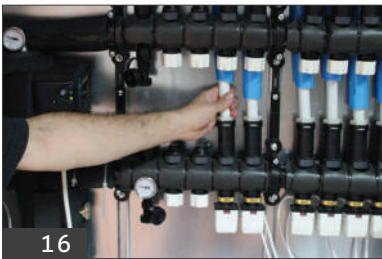


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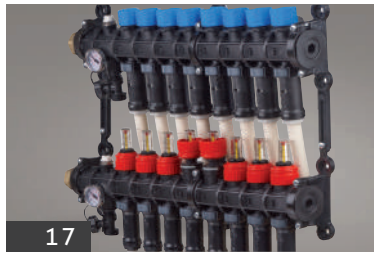
FIG 14-15

Left image. Distributor mounted before placing the insulation cover lid (right image)

## SUPPLY AND RETURN CIRCUITS JOINED TO DISTRIBUTION MANIFOLD



16

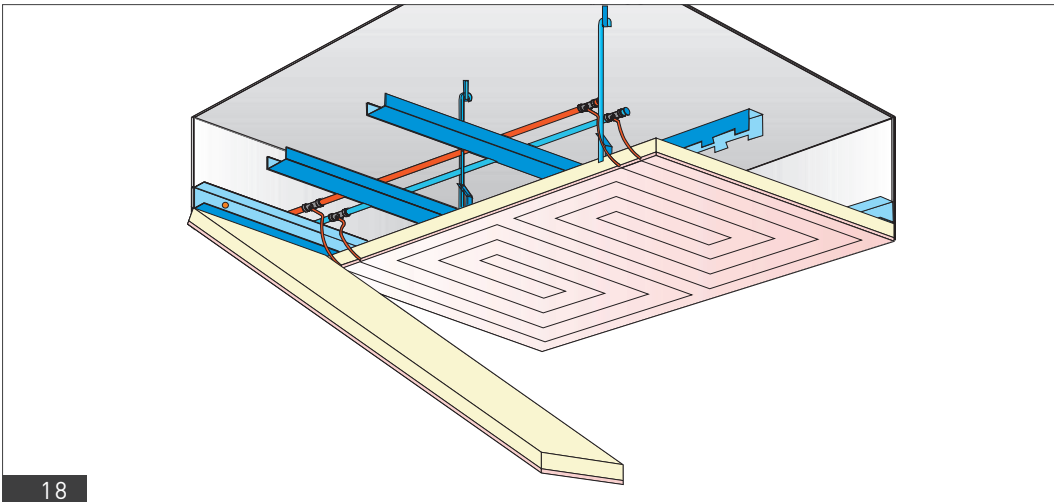


17

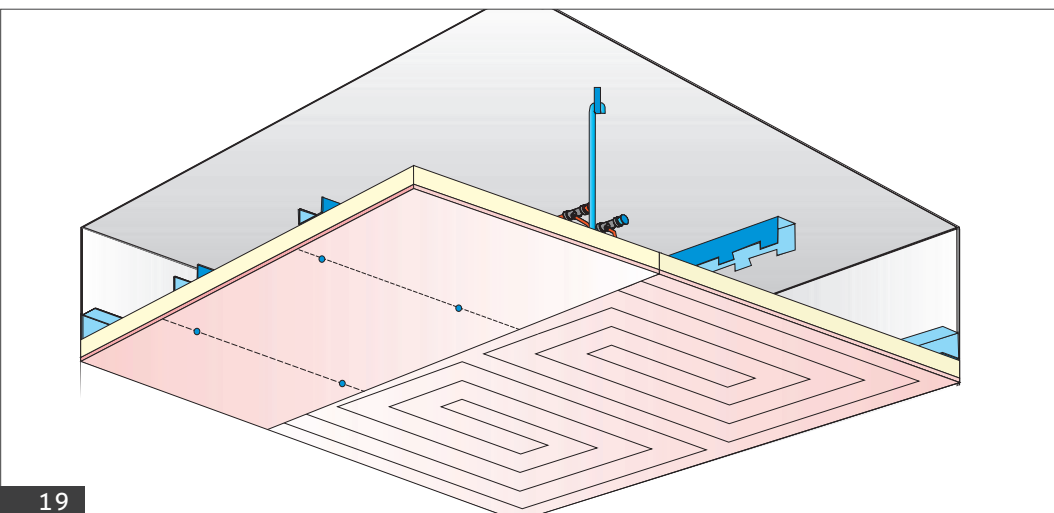
FIG 16-17

Connect supply and return circuits to manifold and perform the tightness and pressure tests.

## FASTENING CLOSING PANELS AT OPEN GAPS



18



19

FIG 18-19

Once all previous steps have been completed all open gaps are closed with closing panels.





RADIANT PANELS JOINED TO DISTRIBUTOR AND MANIFOLD

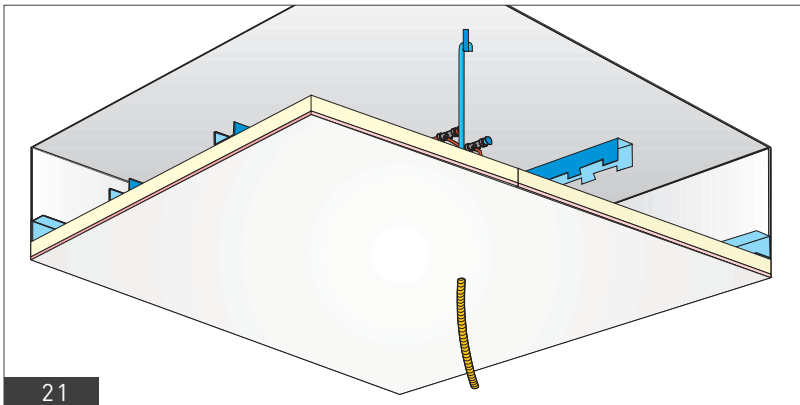
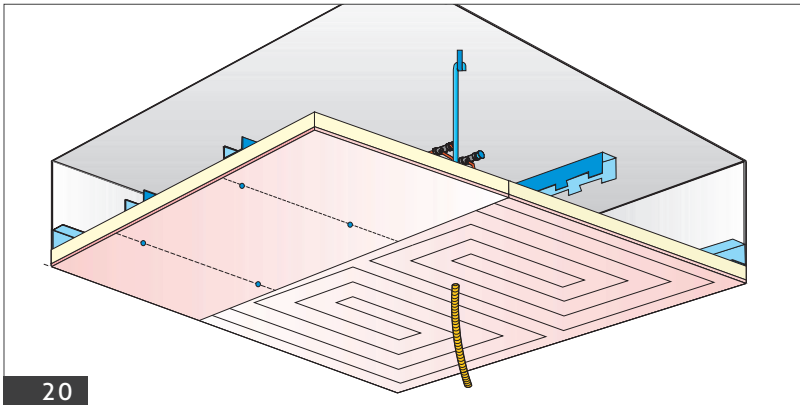
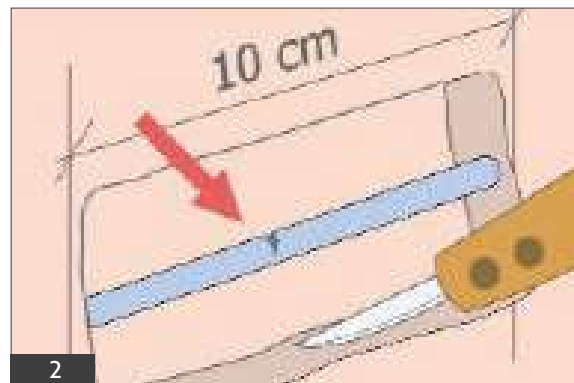
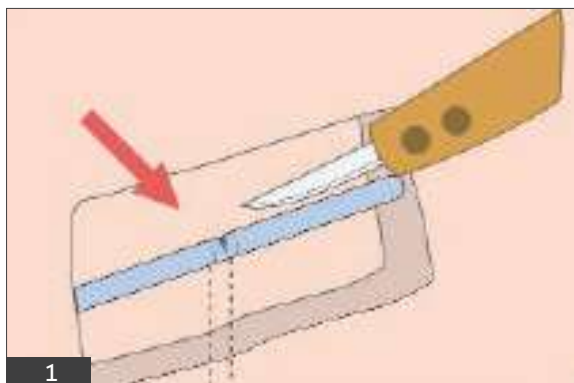


FIG 20-21

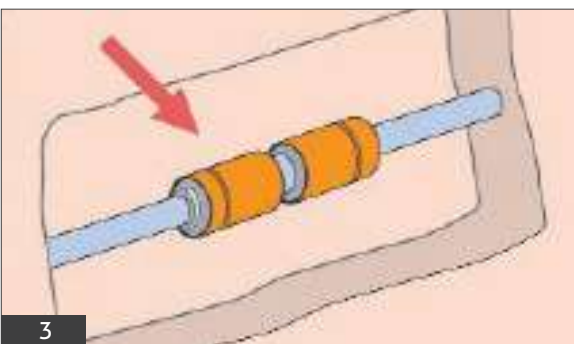
Take notice of circuit arrangement, marked on the panels, in order to make holes or cut them when cables or fixing lights need to pass through. Then, proceed to paint the ceiling.



If a pipe blockage is detected inside the panel, unlike other heating/cooling systems, it can be repaired very quickly and easily. The steps to take are as follows:

**1.** Close the manifold valve for that zone, and with a sharp tool, cut out the drywall/plasterboard until a 10 cm pipe can be seen.

**2.** Cut the damaged pipe perpendicularly to pipe's centre line, right and left from the bursting point, with a total length of around 3 or 4 cm (clean and drain the cut edge so there are no rims that can make it difficult for the forward union (entrance)).



**3.** Connect both ends with an 8x8 straight line connector.

**4.** Verify that the union has no water leaking. Once all verifications have been made, close the gap in the drywall/plasterboard using gypsum or the appropriate paste.





RADIANT CEILING MODULAR SYSTEM de RKS-Radiant Klima System, it supply a wide variety of accessories, including the ones detailed below:



**INSULATED TRIO-FLEX PIPE**

Insulated multilayer pipe for ceiling radiant cooling and heating systems, with exterior aluminium sheet that delivers a double function: No oxygen diffusion following UNI EN ISO 1264-4 standard and mechanical resistance. Also has 2 layers, internal and external, in PERT. Aluminium thickness is 0,2mm and insulation is 6mm.



**CROSS REDUCER 90° CONNECTOR (FOR MULTILAYER AND PE-X PIPE)**

Connector with line in/out, coloured push-in connector for Ø20x2mm pipe and 4 counter-posed outlets, 2 in each side, with coloured swivel push-in connector for Ø8x1mm diameter pipe (red and blue)



**DUAL CROSS REDUCER 90° CONNECTOR (FOR MULTILAYER AND PE-X PIPE)**

Connector with line in/out, coloured push-in connector for Ø20x2mm pipe and 4 counter-posed outlets, 2 in each side, with coloured swivel push-in connector for Ø8x1mm diameter pipe (red and blue)



**CARTRIDGES FOR CROSS REDUCERS (SIMPLE OR DUAL)**

Polystyrene insulation cartridge for simple or dual cross reducers, used in ceiling radiant systems, especially indicated to prevent condensation formation.



**PIPING PLUG (20MM DIAMETER)**

Plug for simple or dual cross reducers, used for closing each circuit end, either supply or return (red or blue). 20mm diameter.



**PIPING PLUG (8MM DIAMETER)**

Plug for simple or dual cross reducer, used each time that one of the 8mm distributor paths is not going to be used. 8 mm diameter



**T CONNECTOR FOR PE-X OR MULTILAYER PIPE**

T union and connector for Ø20x2mm PE-X or multilayer pipe. Used each time the supply or return line must be divided into two perpendicular directions.





#### STRAIGHT LINE CONNECTOR FOR Ø8 AND Ø20MM

Composite straight line connector, with push-in fixing system, for Ø8x1mm and Ø20x2mm pipes



#### HANDLE FOR MULTILAYER PIPE COUNTERSINK TOOL

Handle for multilayer pipe countersink tool. Recommended for any tool used in this kind of job.



#### MULTILAYER PIPE COUNTERSINK TOOL

Multilayer pipe countersink tool. This tool is used to recover the perfect circular shape of pipe that has just been cut. Using a small blade, it cleans the pipe edge both inside and outside, favouring the correct joining of accessories.



#### MULTILAYER PIPE CALLIPERS

Multilayer pipe callipers. This tool is used the same way as the one above, to favour the correct joining of accessories, while only working inside the pipe.



#### COUNTERSINK TOOL KIT CASE

Convenient 180x240mm case for carrying multilayer pipe countersink tools. Each case has two versions: with countersink tools by internal and external diameter or only by internal. Includes sizes: DN14, DN16, DN18, DN20.



#### TUBE CUT SCISSORS

Scissors to cut tube without leaving edges, and make a perfect perpendicular cut in the direction of the pipe.









## RADIANT MODULAR CEILING SYSTEM

RADIANT MODULAR CEILING SYSTEM, HEATING AND COOLING SOLUTION IS ANOTHER EXAMPLE OF THE NATURAL EVOLUTION THAT COMES TO LIGHT AT THE RADIANT AIR CONDITIONING SCOPE. TRADITIONAL INSTALLATIONS (BY FLOOR) ARE NOT THE MOST APPROPRIATE SYSTEM WITH A WORKING SCHEDULE OR SEASONAL OCCUPATION USE. INSERTING THEM ON A BUILDING RENOVATION IS MORE THAN COMPLICATED. IT PROVIDES A SOLUTION FOR BUILDINGS THAT HAVE FALSE OR REMOVABLE CEILINGS (SUCH AS OFFICE BUILDINGS, SHOPPING CENTRES, HOTELS, ETC.) WHICH WOULD NEED A SYSTEM WHICH WAS BOTH TOTALLY NEW AND SPECIFICALLY DESIGNED FOR THE SPECIFIC CASE.

THIS TAILOR-MADE SOLUTION FACILITATES ENORMOUSLY THE REBUILD, SIMPLIFIES REPLACEMENT WORK AND ADDS ALL THE ADVANTAGES OF A RADIANT CEILING: MAXIMUM COMFORT, MAJOR ENERGY SAVINGS, THE AFOREMENTIONED MINIMUM AIR TEMPERATURE CHANGES AT DIFFERENT HEIGHTS, AND THE NON-EXISTENCE OF CONVECTION THROUGH WHICH BUILDING HYGIENE IS IMPROVED.



# RADIANT MODULAR MODULAR SYSTEM

## RADIANT CEILING, HEATING AND COOLING

- ~ MODEL DESCRIPTION
- ~ TECHNICAL DATA
- ~ CROSS SECTION DETAIL
- ~ SYSTEM EFFICIENCY
- ~ SYSTEM INSTALLATION
- ~ ACCESSORIES

### 01 MODEL DESCRIPTION

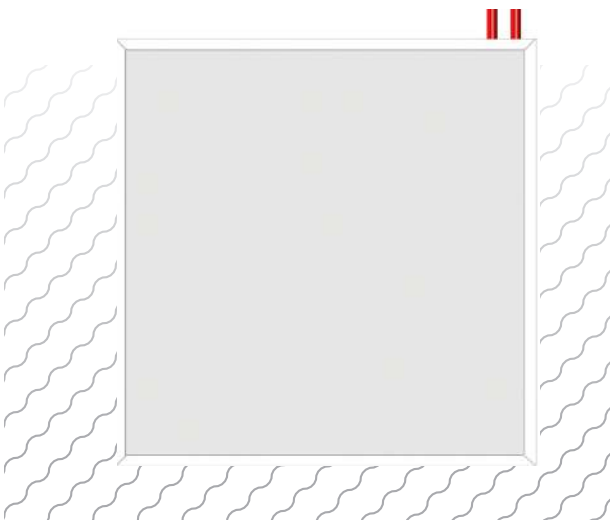
Radiant modular panel is suitable for heating and cooling radiant systems and it is integrated with the proper finishing of removable ceilings. This panel is made with different compositions to adapt to the required aesthetic or technical specifications. These modules present a large insulation on the underside, with 30 mm thick expanded polystyrene (EPS200), or rock wool. Inside, there is a PERT Ø8x 1 with three-layers oxygen barrier.

It is presented with two finishes:

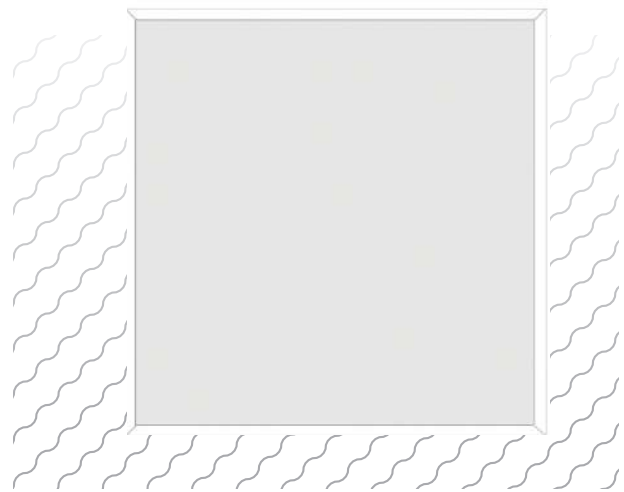
- Drilled aluminium sheet that improves heat diffusion
- Drywall/plasterboard panel

For other finishes, please check availability.

For the closing of non radiant surfaces, there are non-functional panels (without circuits), in these same finishes and sizes.



**RADIANT MODULAR PANEL**  
595X595 mm



**CLOSING MODULAR PANEL**  
595x595 mm





02 TECHNICAL DATA

SPECIFICATION

Type  
 Fire resistance  
 Thermal conductivity W/(mK)  
 Thermal resistance m<sup>2</sup>K/W  
 Compression at 10% deformation  
 Dimensional stability  
 Water absorption  
 (long term EPs / short term rock wool)  
 Steam permeability m

DIMENSIONAL SPECIFICATIONS

Panel size (mm)  
 Panel size (mm)  
 Panel weight (kg)

DECLARED VALUE

	EPS 200	EPS 200	Rock wool
E Class	E Class	E Class	A1
0,033	0,033	0,033	0,035
0,90	0,90	0,90	0,85
Cs(10) 200	Cs(10) 200	Cs(10) 200	---
ds(N) 3%	ds(N) 3%	ds(N) 3%	ds (TH) 1%
WL(T)3	WL(T)3	WL(T)3	WS< 1,0Kg/m <sup>2</sup>
90-120	90-120	90-120	
595 x 595	595 x 1195		
45	45		
4	8		

03 CROSS SECTION DETAIL

30 mm expanded polystyrene/rockwool



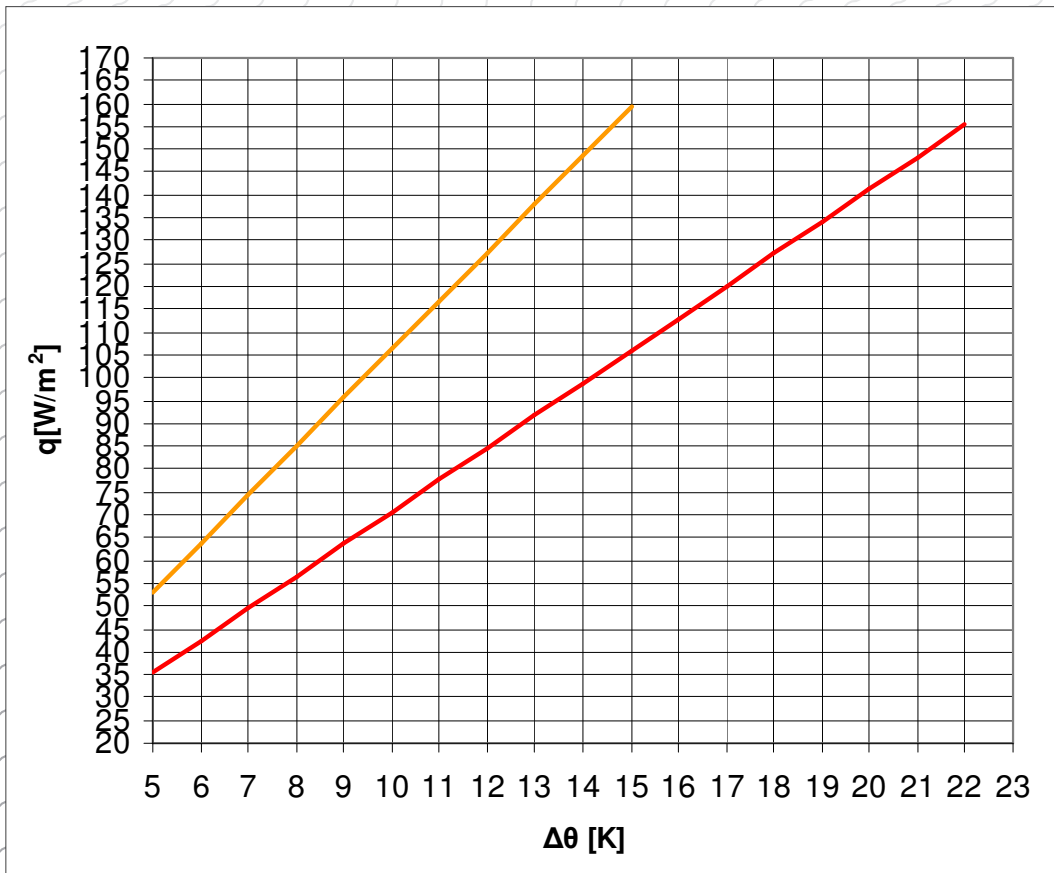
STRUCTURE

Info graphic containing radiant modular panel AL-EPs composition, size 595 x 595 mm and its components



RADIANT CEILING, HEATING AND COOLING SYSTEM YIELD

Next, we can see the graph concerning the radiant ceiling system yield, in heating or cooling mode. It shows the different yield values in function of the working temperature.



FUNCTIONING TEMPERATURE CALCULATIONS

The factors that influence a wall or ceiling radiant air conditioning system yield are:

- Nature of the system construction
- Cooling or heating room orientation
- Superficial temperature consistency
- Temperature difference between the room surfaces (wall or ceiling) and the control of the disruption point to avoid the risk of condensation formation.

OPERATING TEMPERATURE

$$T^{oper} = t^m - t^a$$

$$T^m = (t^{fm} + t^{fr})/2$$

$T_m$ =Average water temperature (°C)

$T_a$ =Room temperature (°C)

$T_{fm}$ = Supply liquid temperature(°C)

$T_{fr}$ =Return liquid temperature (°C)



HEAT DISTRIBUTION

Our system design offers the best efficiency. The choice and strategic placing of its components is a key factor in obtaining the desired power. Circuit integration at insulation and the interposed aluminium sheet prevents heat from scattering to zones where it is not needed, and makes interchange, as it should, with the environment and climate.

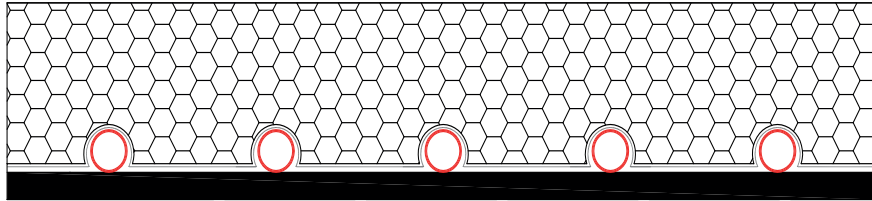
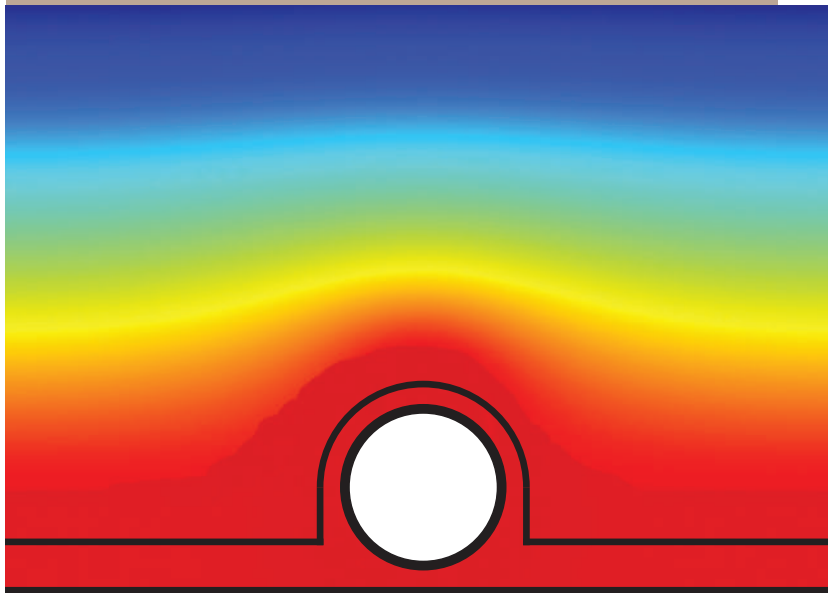


FIG 1/2DA  
Composition of our drywall/  
plasterboard panel  
1. Expanded polystyrene  
2. Heat conduction sheet  
3. Ø8x1mm piping  
4. Drywall/plasterboard  
finishing panel

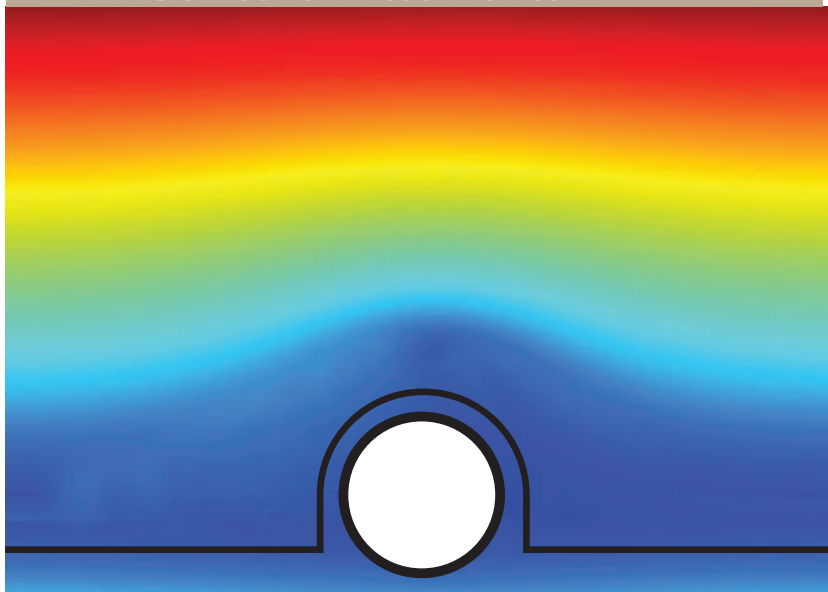
HEAT DISTRIBUTION IN HEATING MODE



HEATING MODE

Thermograph that shows heat dissipation at heating mode. In black, the sheet and pipe contour.

HEAT DISTRIBUTION IN COOLING MODE



COOLING MODE

Thermograph that shows heat dissipation at cooling mode. In black, the sheet and pipe contour.



06 SYSTEM INSTALLATION

Besides composition and structure differences of panels, our system is distinguished by the the simplicity of how circuits are formed (hydraulic union modules). This is made with push-in connectors that remain totally unnoticed. Its assembling is so easy that it requires no extra knowledge, or brickwork, which is so common in other systems. The system is based on RKS patented thermohydraulics. It allows us to offer the best benefits in parameters like charge loss, speed, and connection reliability, and this is translated into union simplicity, functional and circuit balance (either series or parallel mounted) and effective installation.

SYSTEM INSTALLATION STAGES

MODULAR MANIFOLD FASTENING  
(CEILING, WALL OR MANIFOLD CABINET)

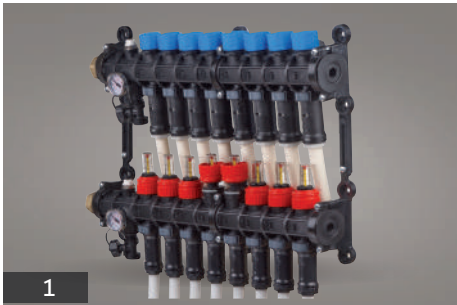


FIG 1

Fasten system manifold at ceiling or wall.

TO MOUNT THE SUPPORT STRUCTURE, FOLLOW THESE STEPS:

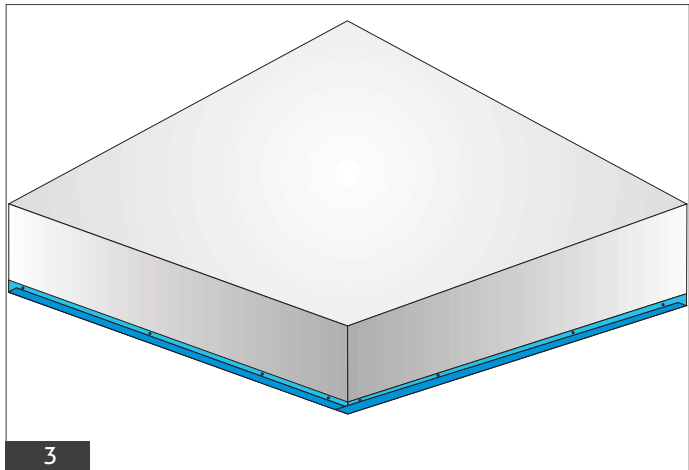
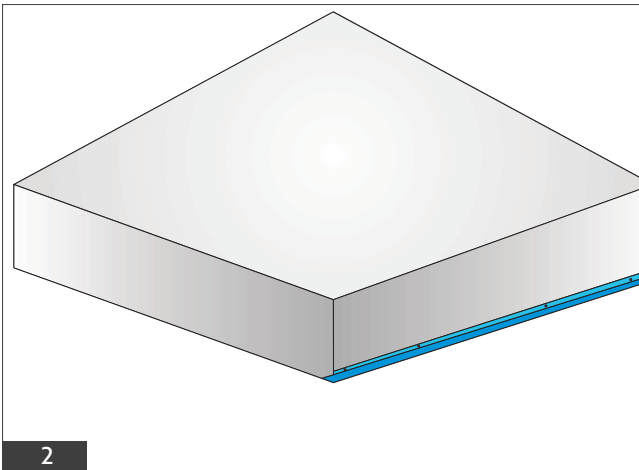


FIG 2-3

Fasten around the wall the angled profile ("L" shape support). It will stay in the room ceiling perimeter and sustain possible endings that will be suspended.

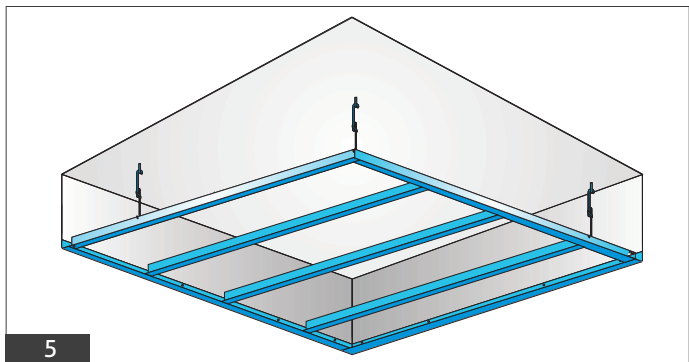
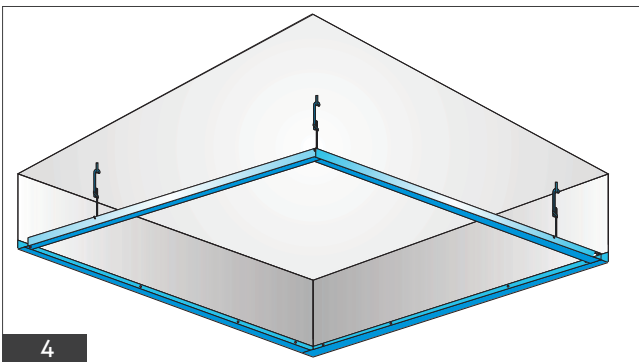


FIG 4-5

Once the perimeter is complete, the central profiles are placed with ceiling connections. Resulting gaps should have a panel size of 60x60 or 60x120 cm, except particular cases or predicted zones to adjust room division in multiples of 60.



**FASTEN PANELS TO STRUCTURE AND PLACE SUPPLY AND RETURN PIPE.**

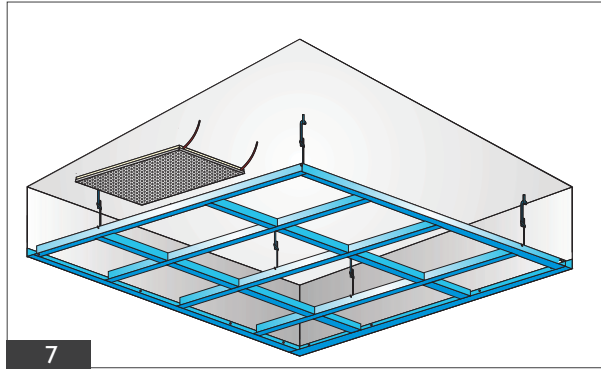
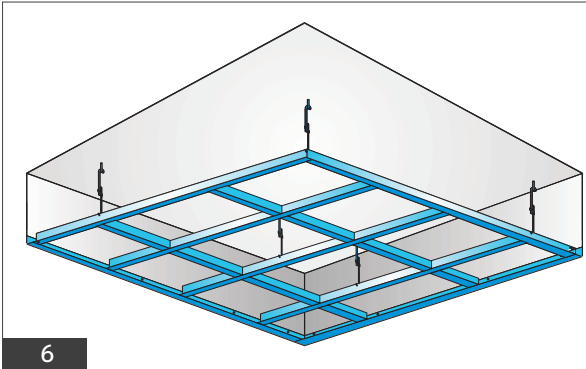


FIG 6-7

Spread and fasten the circuit (supply and return with 20mm insulated multilayer pipe) in each port. Place the radiant panels over socket structure, one at each gap.

**CARRY OUT CHAMFER AND PIPE CALIBRATION**



FIG 8-9

For a more secure and precise pipe connection, it is necessary to perform chamfer and pipe calibration, as shown in the picture.

**SUPPLY AND RETURN PIPE CONNECTION TO DISTRIBUTOR (MINI-MANIFOLDS)**

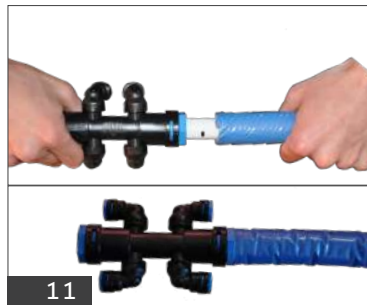


FIG 10-11

Insert the pipe in the distributor (about 4 cm). Make sure pipe introduction is correct and that it has reached the necessary depth. To do this, verify through the distributor hole, designed specially for this purpose, that the pipe has reached the proper place.

**RADIANT PANEL UNION TO DISTRIBUTORS**

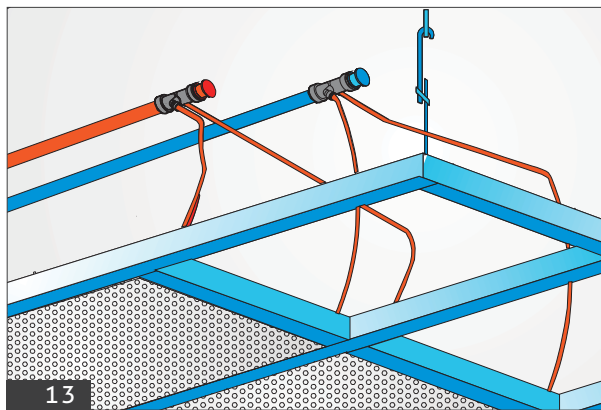
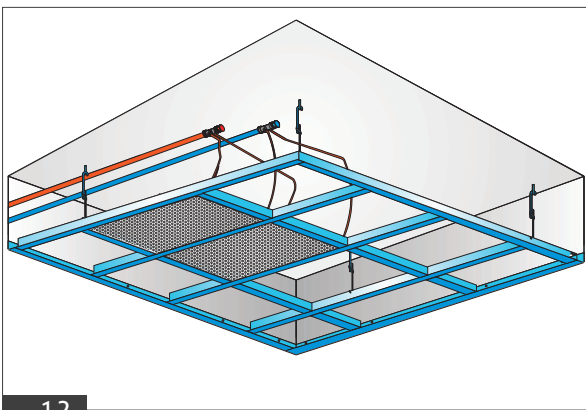


FIG 12-13

Connect each one of the corresponding distributor panels to the supply and return circuits.







RADIANT PANELS AND DISTRIBUTORS UNION



14



15

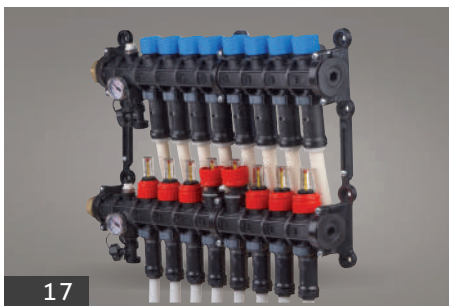
FIG 14-15

Assemble distributors (mini-manifolds) to supply panels. Placed in supply and/or return circuit.

CONNECT SUPPLY AND RETURN CIRCUITS TO MANIFOLD



16

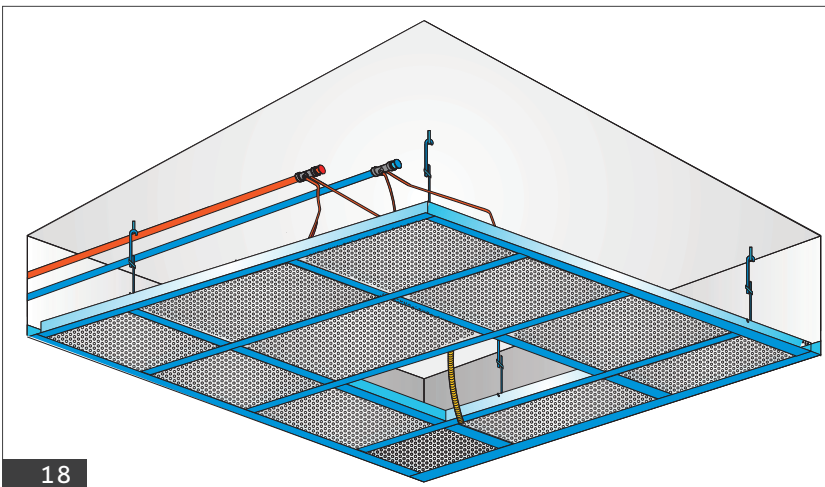


17

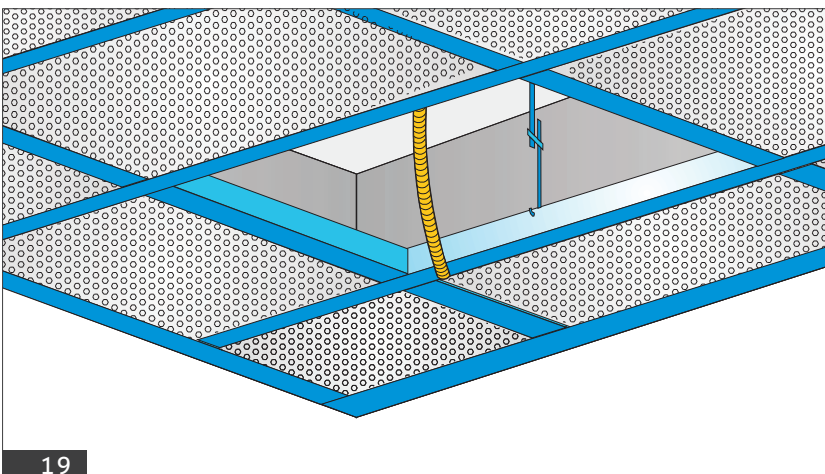
FIG 16-17

FIG 16-17 Insulating cartridge for distributor. Connect different supply and return paths to manifold, with sliding button operated quick couplers.

BEFORE INTRODUCING CLOSING PANELS (WITHOUT CIRCUITS), OTHER INSTALLATIONS THAT WILL STAY ABOVE THE CEILING MUST BE FINALIZED, FOR EXAMPLE, THE ELECTRICAL SYSTEM



18



19

FIG 18-19

Once all prior steps have been carried out, free gaps will be closed with closing panels (without circuits), making sure that all installations that will remain unseen are complete.





### SERIES ASSEMBLING SCHEME

It is recommended that, in the same way as the modular manifold, no more than 15 units of 60x60cm panels should be connected (in the connections between panels, a pipe curve radius no smaller than 5 times the pipe diameter must be kept).

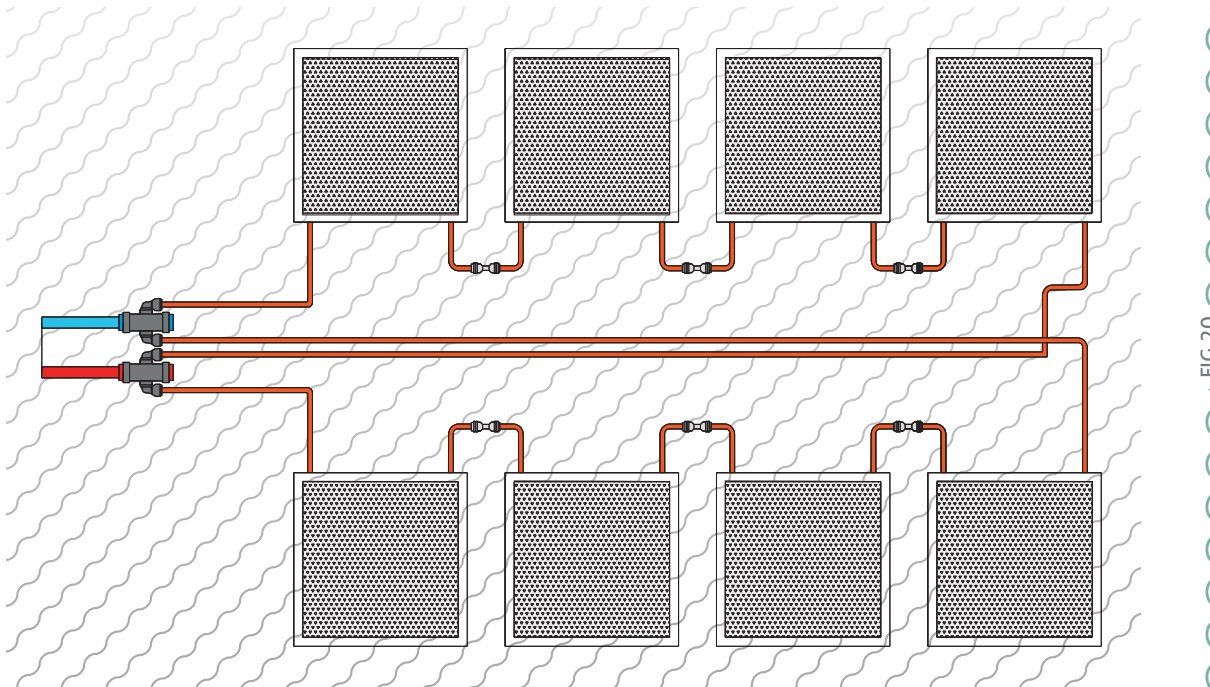


FIG 20

### PARALLEL ASSEMBLING SCHEME

It is recommended that, in the same way as the modular manifold, no more than 15 units of 60x60cm panel should be connected (in the connections between panels, a pipe curve radius no smaller than 5 times the pipe diameter must be kept).

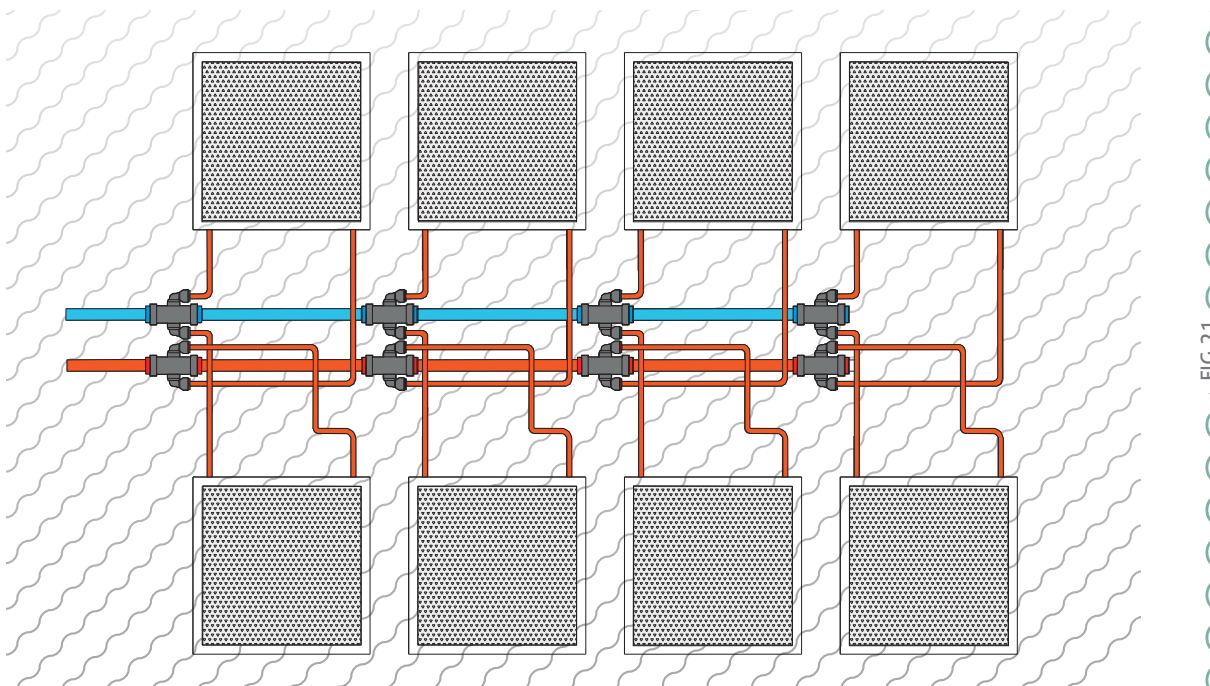
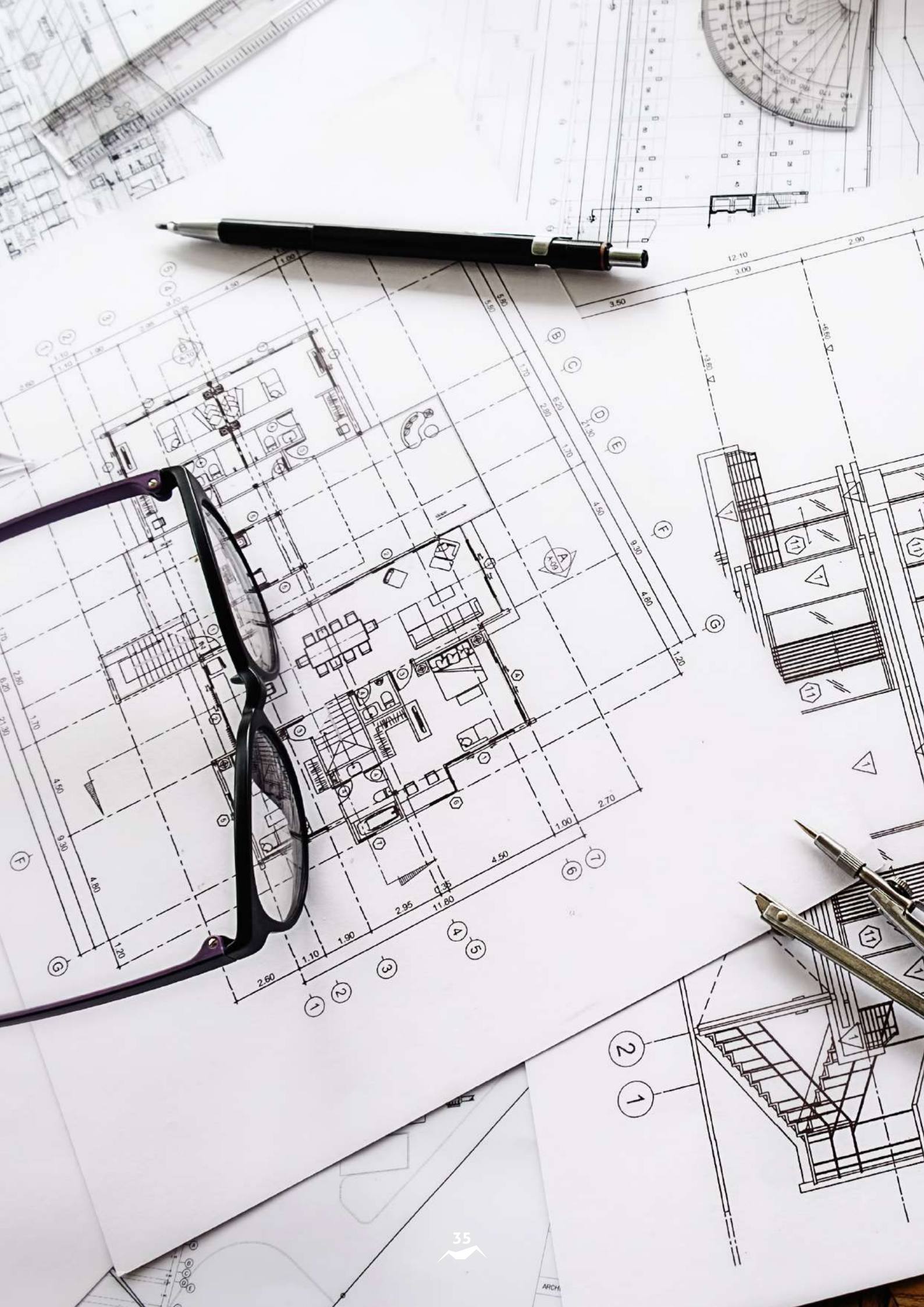


FIG 21







## REFERENCE INSTALLATIONS

THE RKS RADIANT CLIMATIZATION SYSTEMS HAVE ALREADY BEEN INSTALLED ON MANY OCCASIONS. OUR CUSTOMERS, WITH EXTENSIVE EXPERIENCE IN INSTALLING RADIANT SURFACES, HAVE GIVEN US ENCOURAGEMENT FROM THE BEGINNING TO DEVELOP THE DIFFERENT SOLUTIONS NEEDED TO TAKE THESE STRUCTURES TO WALLS AND CEILINGS. THEY WERE INCLUDED IN THE EXPERIMENTAL PHASE, AND COLLABORATED ACTIVELY. LIKE US, THEY BELIEVED IN THE PROJECT AND GAVE US THEIR TRUST TO GO AHEAD TOGETHER. THANKS TO THEIR COOPERATIVE SPIRIT, THEIR FEEDBACK WAS ESSENTIAL AND ALLOWED US TO DEVELOP A WHOLE SPECTRUM OF SOLUTIONS FOR THIS NEW WAY OF PRODUCING INSTALLATIONS. WE HAD TO INVENT MANY ELEMENTS THAT HAD NOT PREVIOUSLY EXISTED.



# EXAMPLE OF INSTALATIONS

01

CAREGGI HOSPITAL

FIRENZE (FI)  
Area 5500 m<sup>2</sup>  
Installation year 2010





02

## PARMA HOSPITAL

PARMA (PR)  
Area 2000 m<sup>2</sup>  
Installation year 2013





03

CHIVASSO HOSPITAL

CHIVASSO (TO)  
Area 3500 m<sup>2</sup>  
Installation year 2014





04

## DESENZANO HOSPITAL

DESENZANO (BS)

Area 500 m<sup>2</sup>

Installation year 2014



04

## CATANIA SCHOOL

CATANIA (CT)

Area 2300 m<sup>2</sup>

Installation year 2014



04

## CAR DISTRIBUTER IN OSTIA

OSTIA (RM)

Area 1700 m<sup>2</sup>

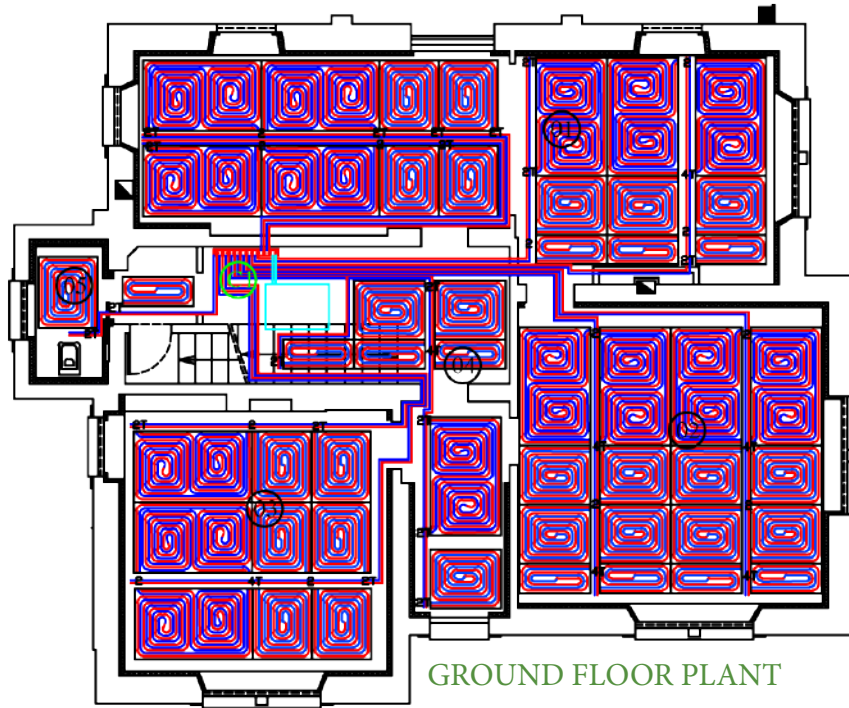
Installation year 2013







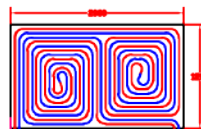
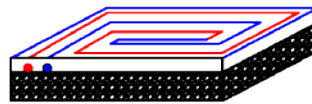
# RADIANT CEILING INSTALLATION SCHEME



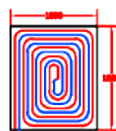
SCALE 1:50

Cliente:		Revisión	Fecha
		1	
Objeto: Esquema de instalación de techo radiante		Referencia:	
Ref. oferta nº	Tabla nº	Filas:	
	1		
<b>RKS</b> Loc. C/ Ferrera 16 - Pol. Ind. Nave de Juss 46300 TORRENT (VALENCIA, ESPAÑA) Tel. +34 961573769 Fax. +34 961500678 e-mail: rks@radiantkincosystem.es www.radiantkincosystem.es		Emitido	
		Despacho Técnico	
		Firma	
Derechos reservados por RKS España a términos de ley. Prohibida la copia aunque sea parcial, y la entrega a terceros sin autorización previa.			

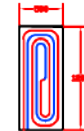
## SPECIFIC PARTS FOR CEILING INSTALLATION



PANEL RADIANTE 1200 X 2000 (mm)  
 Dimensión: 1200x2000  
 Espesor total: 55 mm  
 Espesor aislamiento: 30 mm  
 Peso: 20 kg



PANEL RADIANTE 1200 X 1000 (mm)  
 Dimensión: 1200x1000  
 Espesor total: 55 mm  
 Espesor aislamiento: 30 mm  
 Peso: 12 kg

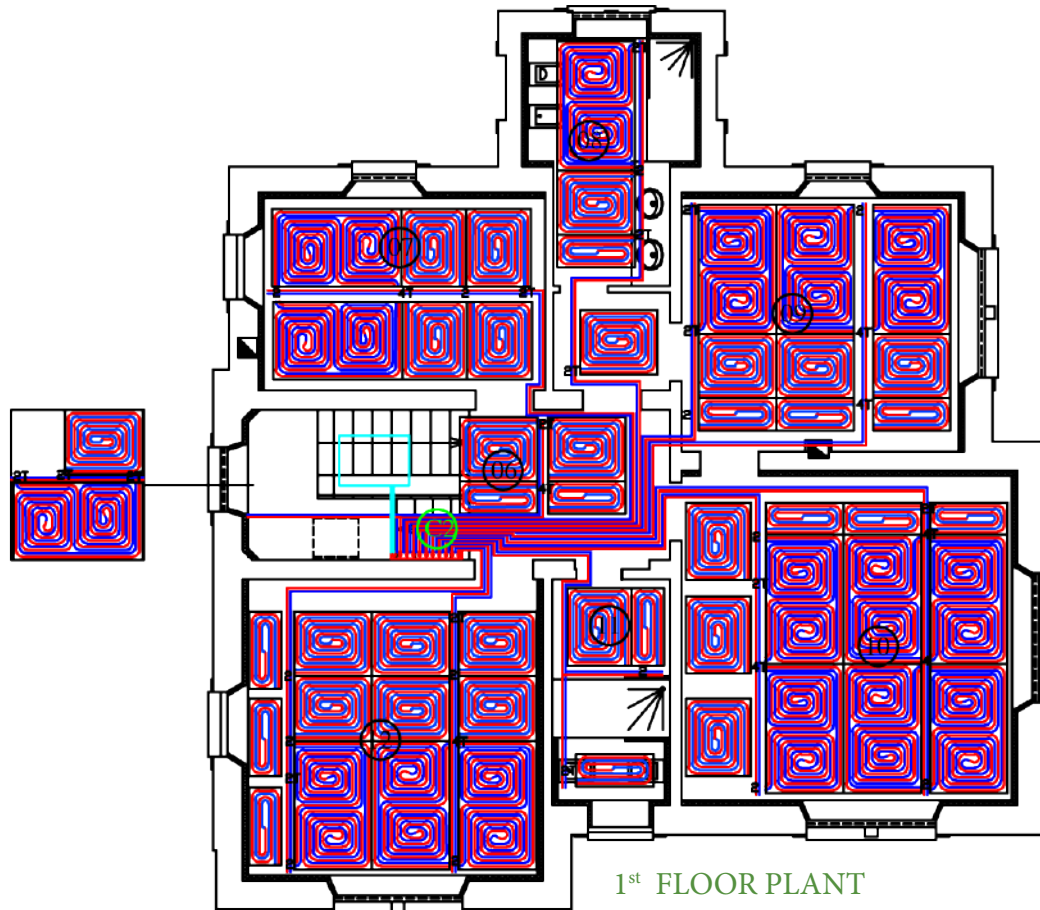


PANEL RADIANTE 1200 X 500 (mm)  
 Dimensión: 1200x500  
 Espesor total: 55 mm  
 Espesor aislamiento: 30 mm  
 Peso: 7 kg

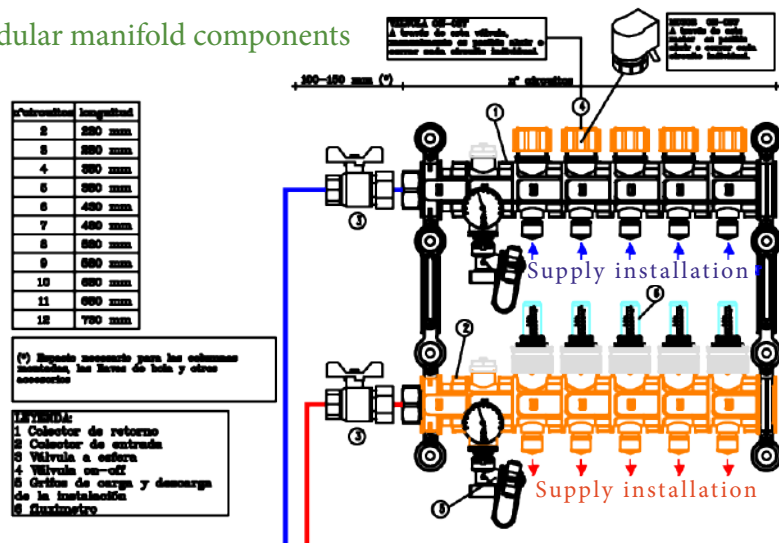
Dibujo Gráfico	Dibujo Real	Dimension
①		1200x2000 Espesor total: 55 mm Espesor aislamiento: 30 mm Peso: 20 kg
②		1200x1000 Espesor total: 55 mm Espesor aislamiento: 30 mm Peso: 12 kg
③		1200x500 Espesor total: 55 mm Espesor aislamiento: 30 mm Peso: 7 kg

© MANIFOLD NR.

① NUMBER OF ROOMS



### Modular manifold components



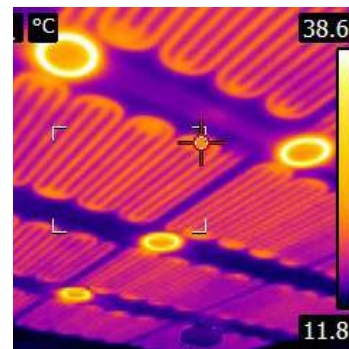
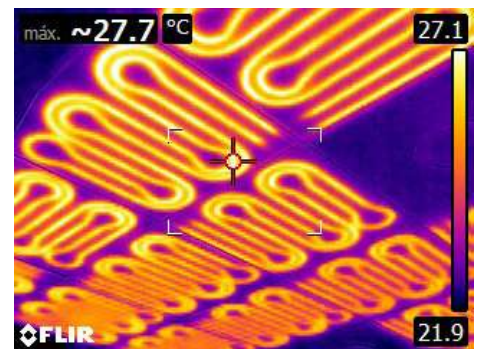
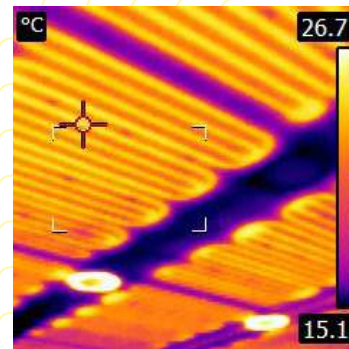
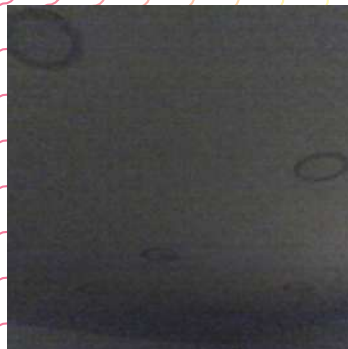
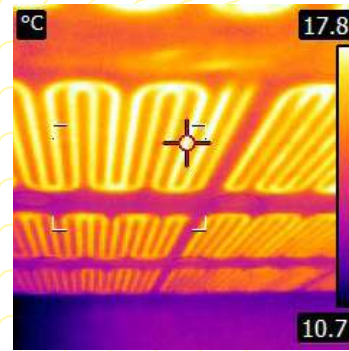
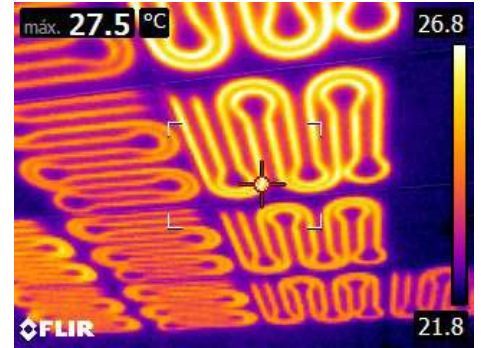
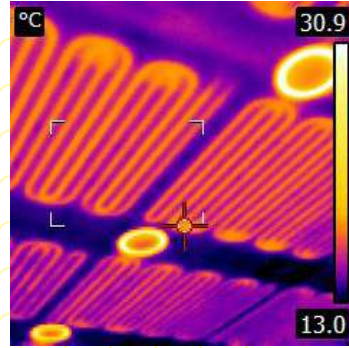
The present circuit has the essential components for the modular manifold. Through this manifold it is possible to regulate the installation flow and open and close manually each individual circuit.

In order to turn the heating on or off in the selected zone, it is necessary to install an electrothermic actuator, regulated through a thermostat or a chrono-thermostat installed in the main room.



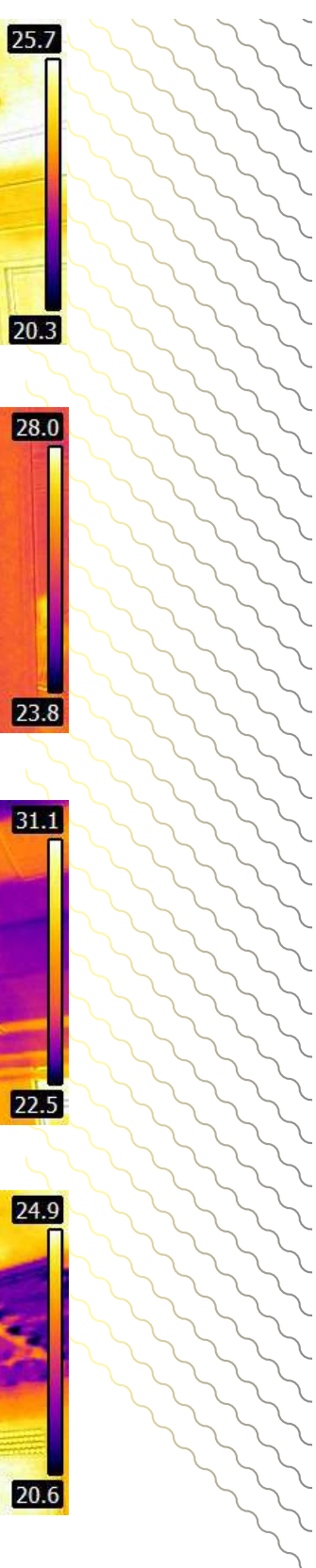
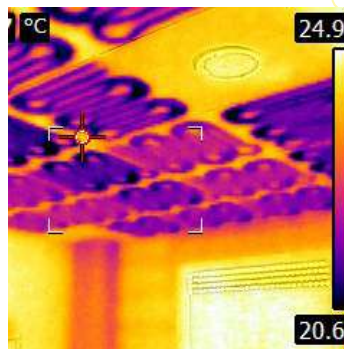
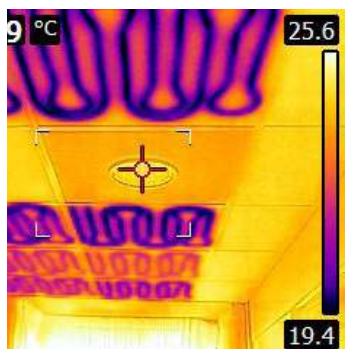
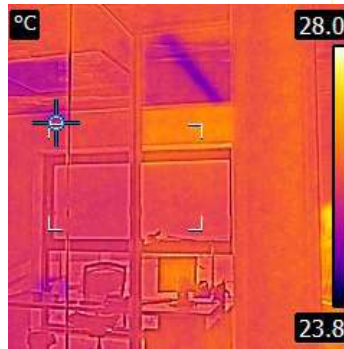
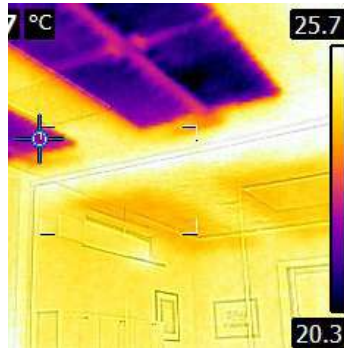
# THERMOGRAPH CAMERA FUNCTION EXAMPLES

Thermograph examples in heat mode





Function example in heating and cooling mode







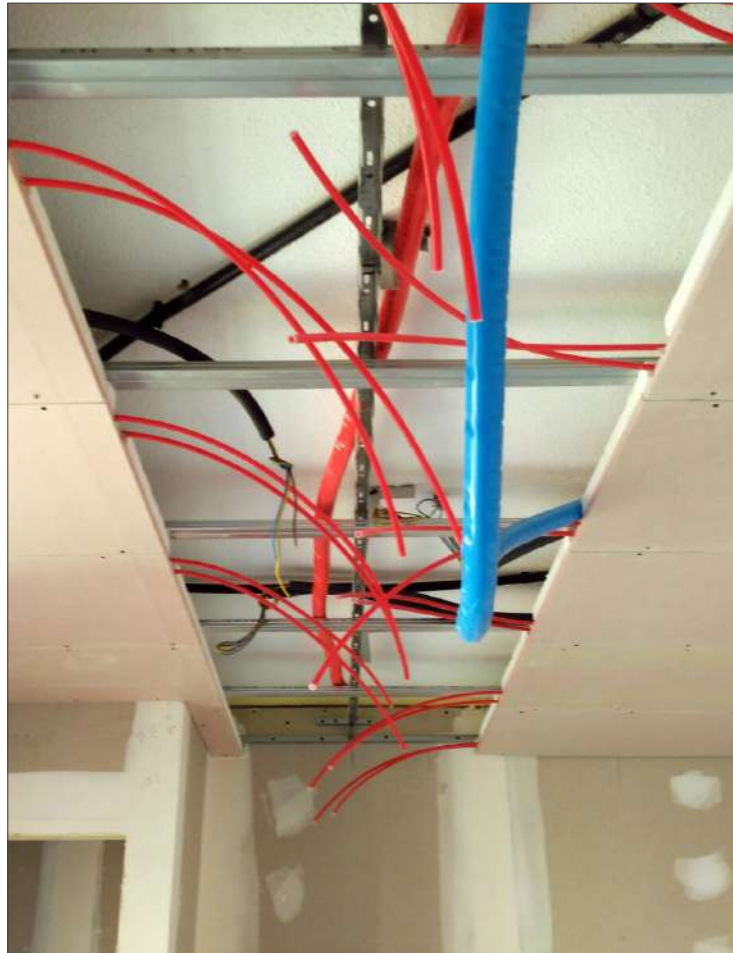
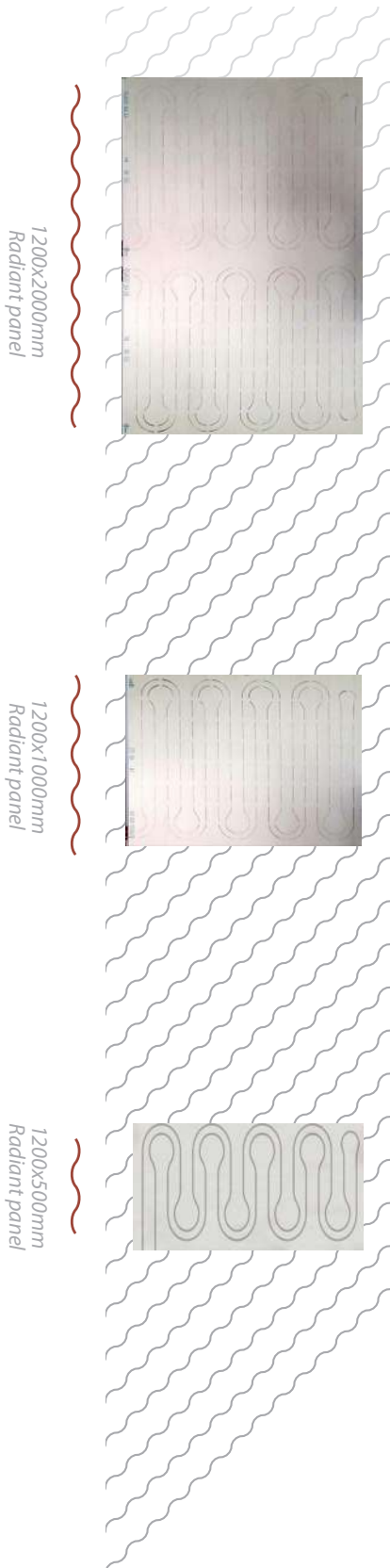
# INSTALLATION RADIANT PANELS

BELOW, WE PRESENT MODELS, SIZES AND FURTHER TECHNICAL SPECIFICATIONS OF RADIANT PANELS SHOWN IN PREVIOUS SYSTEMS.

THE DIFFERENT REFERENCES MAKE A COMPLETE RANGE OF SOLUTIONS THAT OPTIMIZE MATERIAL USE. THIS MODULARITY MAKES INSTALLATION ADJUSTMENT TO ROOM GEOMETRY EASY AND ALLOWS OBTAINING THE REQUIRED ACTIVE SURFACE WITH THE SMALLEST POSSIBLE NUMBER OF PARTS. THIS CAN BE TRANSLATED INTO IMPORTANT COST REDUCTIONS AND LESS TIME NEEDED TO FINISH THE INSTALLATION.



# INSTALLATION RADIANT PANELS



RKS offers different heating and cooling solutions through walls and ceilings. The main advantages from this kind of installation are:

- Reduced thermal inertia: once the system is working, radiant walls and ceilings, almost immediately, emit heat to solid items that surround them, so the room will increase its temperature quickly. The small distance between the pipes and the external part of the radiant surface allows a faster energy interchange in this kind of climate. Also, when compared with radiant floor systems, at the same circuit fluid temperature, interchange surface at walls or ceilings will present a higher temperature variation, obtaining a greater yield in less time.
- More comfortable environments: the human body grows vertically, so the best received radiation is the one that reaches it perpendicularly, such as from a wall.



600 x 600 mm  
Radiant modular  
panel



A wall can emit or absorb heat, because it becomes part of the radiant system, or by interchanging with other bodies that surround it like the floor or the ceiling. Logically, they are also influenced by the thermal gains and losses that can be received from outside

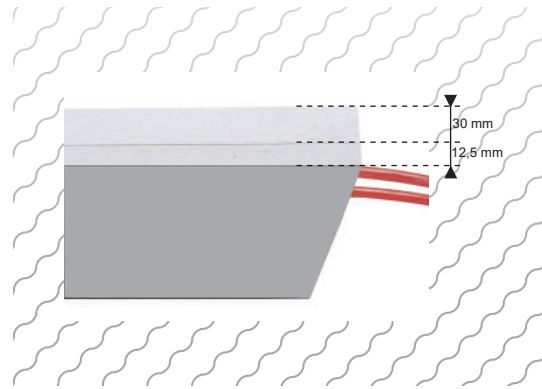
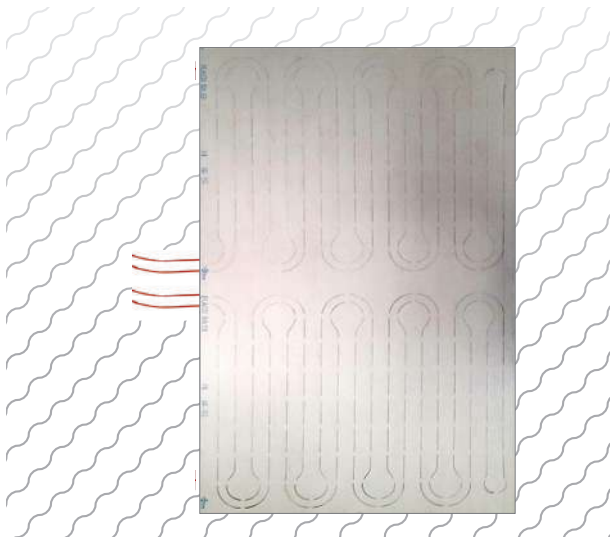
- Cooling ability: ceiling and wall panels and the necessary system adaptations allow cool temperatures in summer by circulating cold water through the piping (important: to avoid condensation, there is a need to control room humidity)
- Heat transfer with less obstacles: the ceiling panel will now interfere with room decoration. It does not impose object placing or machines in the space for the system to work.
- Ideal for rehabilitation: this kind of use presents a great advantage so there is no need to intervene on the floor of the building. Masonry work almost disappears.







## 1200X2000MM RADIANT PANEL



42,5mm total thickness

### 01 DESCRIPTION

Wall or ceiling radiant panels, made with a 1200 x 2000 x 12,5 mm thick laminated plasterboard (standard sizes), where two spiral shape Ø8x1 mm PERT pipe circuits. Expanded polystyrene EPS 200 30mm insulation is placed in the rear surface.

Radiant system consists of two spiral shape circuits which was designed to grant the most uniform possible heat distribution. The panel can be used either for heating or cooling.



### 02 TECHNICAL DATA

#### TECHNICAL SPECIFICATIONS

Insulation thickness	30 mm
Total Thickness	42,5 mm
Pipe diameter	8x1mm
Thermal resistance	0,90 m <sup>2</sup> K/W
Weight	22,34Kg

#### SIZES

Panel format	1200x2000 mm
Useful panel size	1200x2000 mm
Useful panel surface	2,4 m <sup>2</sup>

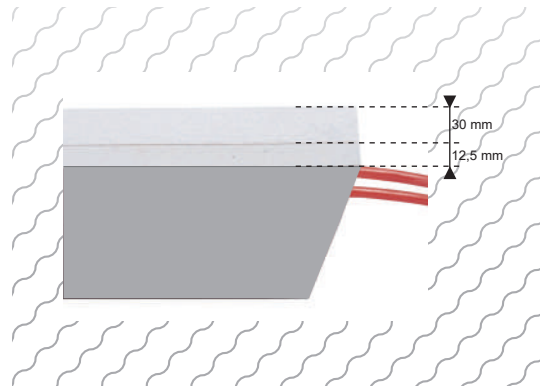
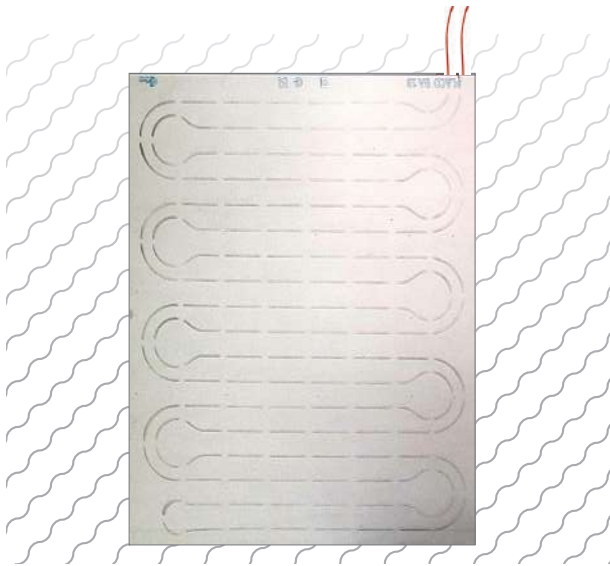
### 03 1200X2000mm RADIANT PANEL

P/N	DESCRIPTION	PACKING
01PYLA20001200	1200x2000 radiant panel of laminated insulated plasterboard with pipes	1 pc 2,40 m <sup>2</sup>





## 1200X1000MM RADIANT PANEL



42,5mm total thickness

### 01 DESCRIPTION

Radiant ceiling panel made with a 1200 x 1000 x 12,5 mm thick laminated plasterboard (standard sizes), where one spiral shape Ø8x1 mm PERT pipe circuits. Expanded polystyrene EPS 200 30mm insulation is placed in the rear surface.

Radiant system consists of one spiral shape which was designed to grant the most uniform possible heat distribution. The panel can be used either for heating or cooling.



### 02 TECHNICAL DATA

#### TECHNICAL SPECIFICATIONS

Insulation thickness	30 mm
Total Thickness	42,5 mm
Pipe diameter	8x1mm
Thermal resistance	0,90 m <sup>2</sup> K/W
Weight	11,17Kg

#### SIZES

Panel format	1200x1000 mm
Useful panel size	1200x1000 mm
Useful panel surface	1,2 m <sup>2</sup>

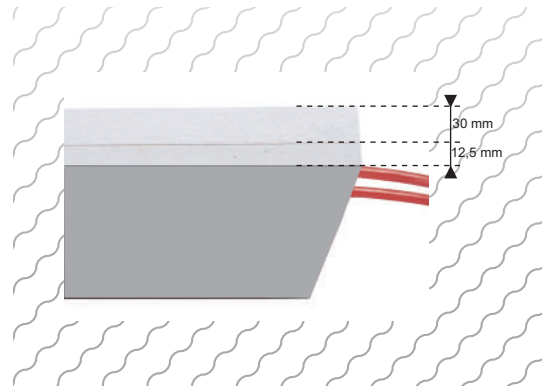
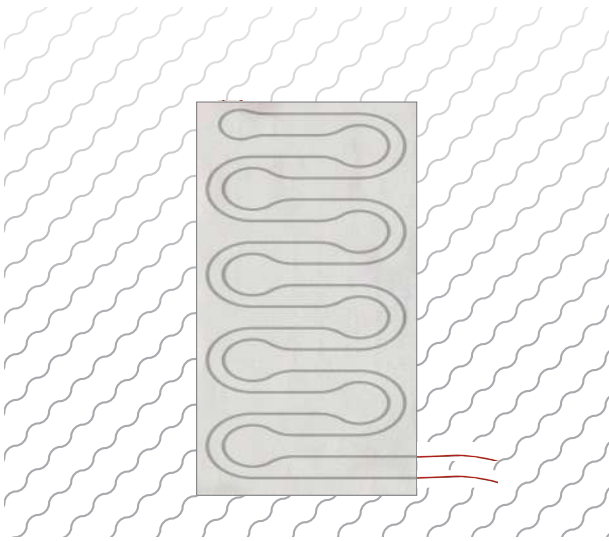
### 03 1200X1000MM RADIANT PANEL

P/N	DESCRIPTION	PACKING
01PYLA10001200	1200x2000 radiant panel of laminated insulated plasterboard with pipes	1 pc 1,20 m <sup>2</sup>





1200X500MM RADIANT PANEL



Total Thickness 42,5mm

01 DESCRIPTION

Wall or ceiling radiant panel, made with a 1200 x 500 x 12,5 mm thick laminated plasterboard (standard sizes), where one spiral shape Ø8x1 mm PERT pipe circuits. Expanded polystyrene EPS 200 30mm insulation is placed in the rear surface.

Radiant system consists of one spiral shape circuits which was designed to grant the most uniform possible heat distribution. The panel can be used either for heating or cooling.



02 TECHNICAL DATA

TECHNICAL SPECIFICATIONS

Insulation thickness	30 mm
Total Thickness	42,5 mm
Pipe diameter	8x1mm
Thermal resistance	0,90 m <sup>2</sup> K/W
Weight	5,58 Kg

SIZES

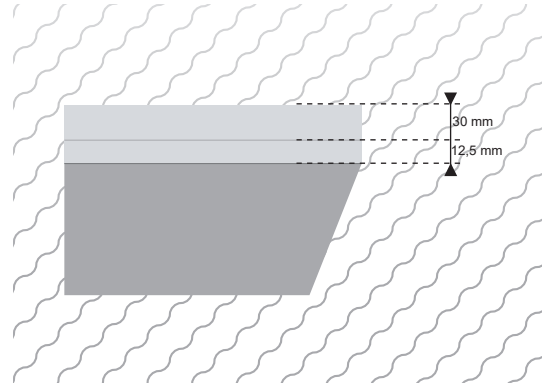
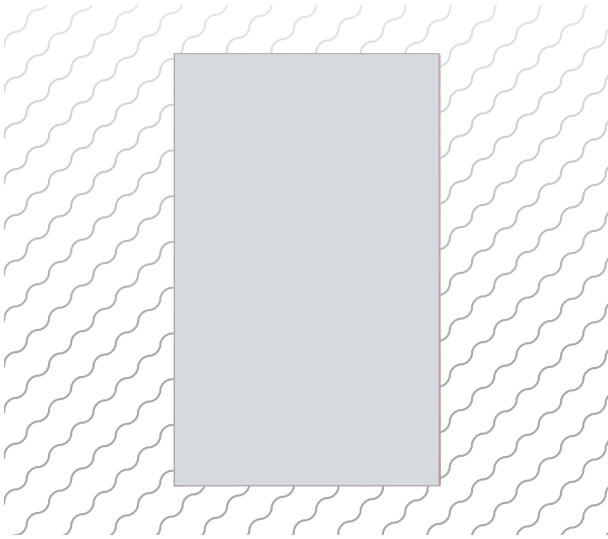
Panel format	1200x500 mm
Useful panel size	1200x500 mm
Useful panel surface	0,6 m <sup>2</sup>

03 1200X500MM RADIANT PANEL

P/N	DESCRIPTION	PACKING
01PYLA05001200	1200x500mm Radiant panel of laminated insulated plasterboard with pipes	1 pc - 0,6 m <sup>2</sup>



## 1200 X 2000 CLOSING PANELS WITH INSULATION



Total Thickness 42,5mm

### 01 DESCRIPTION

A panel made with laminated plasterboard, 1200x2000x12,5mm standard size, with insulation EPS200 30mm expanded polystyrene placed on the rear of the panel.



### 02 TECHNICAL DATA

#### TECHNICAL SPECIFICATIONS

Insulation thickness	30 mm
Total Thickness	42,5 mm
Thermal resistance	0,90 m <sup>2</sup> K/W
Weight	22 Kg

#### SIZES

Panel format	1200x2000 mm
Useful panel size	1200x2000 mm
Useful panel surface	2,4 m <sup>2</sup>

### 03 1200 X 2000 CLOSING PANELS WITH INSULATION

P/N	DESCRIPTION	PACKING
01PYLB20001200	Closing panel of laminated plasterboard with insulation	1 pc - 2,40 m <sup>2</sup>





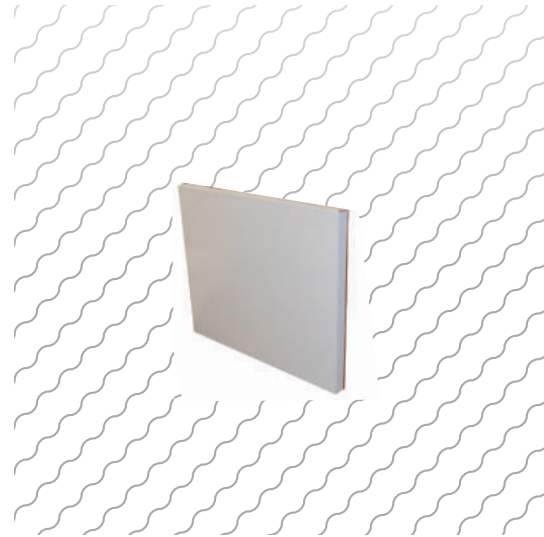
1) RADIANT MODULAR PANEL 600 X 600



COMPOSITION

EPS 200 Expanded polystyrene insulation, Ø8x1 PERT pipes and laminated plasterboard

2) CLOSING RADIANT MODULAR PANEL 600X600



01 DESCRIPTION

Radiant Modular Panel suitable for heating and cooling radiant systems. It is used as a finishing panel in removable ceiling systems. The outer and visible surface has a white vinyl finish over a plasterboard. Inside there is a coiled Ø8 x1 mm pipe integrated into another aluminium sheet that is insulated at the rear with expanded polystyrene EPS 200 30mm.

Closing panel for radiant heating and cooling systems; it is used as a finishing element for ceilings. Visible on the outside there is a flat drywall/plasterboard with white vinyl. The panel itself has a 30mm EPS 200 cover.

02 TECHNICAL DATA

AL-EPS TECHNICAL SPECIFICATIONS

Insulation thickness 30 mm  
 Total Thickness 32 mm  
 Thermal resistance 0,78m<sup>2</sup> k/w  
 Weight 60x60 2,8kg

TECHNICAL SPECIFICATIONS PLY-EPS

Insulation thickness 30 mm  
 Total Thickness 45 mm  
 Thermal resistance 0,90 m<sup>2</sup> K/W  
 Weight 60x60 3,3kg

03 PRODUCT CODE

P/N	DESCRIPTION	PACKING
01PCAA600600BL	Radiant Modular Panel ALU-LR 600 x 600 mm - white (aluminium) with pipes	1 pc
01PCYA600600BL	Radiant Modular panel PLY-EPS 600 x 600 mm (Drywall/plasterboard) with pipes	1 pc
01PCAB600600BL	Closing Radiant Modular Panel 600 x 600 mm Aluminio ALU-LR	1 pc
01PCYB600600BL	Closing Radiant Modular Panel 600 x 600 mm drywall/plasterboard (PLY-EPS)	1 pc





## INSULATION PIPE



P/N	DESCRIPTION	PACKING
11AISLFLEX0008	Insulation pipe	Ø 8 - 48m



## INSULATION SHEET



P/N	DESCRIPTION	PACKING
11AISFLEXPL06	Self-adhesive insulation sheet 6mm thick	Spool with 45m x 1m wide







# ADAPTERS AND PUSH-IN CONNECTORS

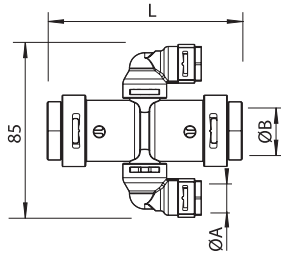
RKS IS CHARACTERIZED BY THE USE OF CUTTING EDGE HIGH PERFORMANCE PRODUCTS. FOR EXAMPLE, THE PIPE CONNECTION USED IN CIRCUITS (SUPPLY AND RETURN), AS WELL AS THE PANELS THEMSELVES, IS MADE WITH PRES BLOCK COMPONENTS. WORKING WITH THESE COMPONENTS ALLOWS US TO ADD TO DIFFERENT SYSTEMS CONNECTIONS WHICH ARE BEING PIONEERED IN EUROPE. THEY HAVE DIFFERENTIATING CHARACTERISTICS WHICH ARE QUICK CONNECTORS, ALMOST WITHOUT THE USE OF TOOLS AND CHARACTERISED BY MINIMUM CHARGE LOSS AND GREAT RELIABILITY. THE ABSENCE OF OXIDIZIBLE METALS IN ITS COMPOSITION AVOIDS SEDIMENTS THAT GENERATE PROBLEMS BY OBSTRUCTING CIRCUITS AND THAT CAUSE GREATER ENERGY CONSUMPTION AND A DROP IN THE HEAT CARRIER FLUID'S THERMAL CONDUCTIVITY.





# ADAPTERS AND PUSH-IN CONNECTORS

## SIMPLE CROSS REDUCER IN LINE 2 EXITS

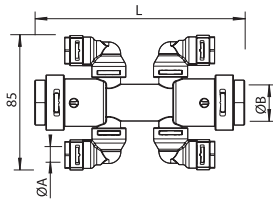


To seal on inner diameter (multilayer)

P / N	ØA	ØB	L	BAYONET COLOUR 8-10	BAYONET COLOUR 20
02RDR0208820AZ	8	20	95	Blue	Blue
02RDR0208820RJ	8	20	95	Red	Red
02RDR0208820NG	8	20	95	Black	Black



## DOUBLE CROSS REDUCER 4 EXITS



To seal on inner diameter (multilayer)

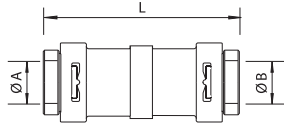
P / N	ØA	ØB	L	BAYONET COLOUR 8	BAYONET COLOUR 20
02RDR0208888AZ	8	20	133	Blue	Blue
02RDR0208888RJ	8	20	133	Red	Red
02RDR0208888NG	8	20	133	Black	Black





## PUSH-IN CONNECTORS

### STRAIGHT CONNECTOR



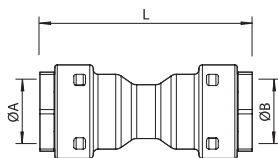
To seal on outer diameter (pe-x or multilayer)

P / N	ØA	ØB	L	BAYONET COLOUR
02RSR0000088NG	8x1	8x1	45	Black

\*Other dimensions consulting with us.

To seal on inner diameter (multilayer)

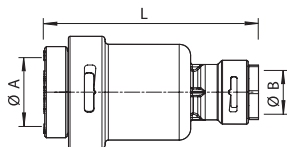
P / N	ØA	ØB	L	BAYONET COLOUR
02RSR0002020GR	20x2	20x2	88	Grey



To seal on outer diameter (transparent body)

P / N	ØA	ØB	L	BAYONET COLOUR
02RSR1000088TR	8x1 <sup>NOGT</sup>	8x1 <sup>NOGT</sup>	45	White

Straight reducer from Multilayer to PERT Ø8x1mm pipe  $\varnothing_{ext} / \varnothing_{int}$



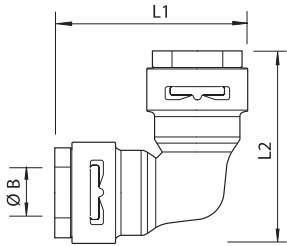
P / N	ØA (multilayer)	ØB (PE-X)	L	BAYONET COLOUR
02RDR0000208NG	20x2	8x1	67	Grey - Black





ADAPTERS AND PUSH-IN CONNECTORS

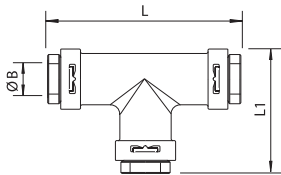
ELBOW CONNECTOR



To seal on inner diameter (multilayer)

P/N	ØB	L1	L2	Bayonet colour
2RSR0902020GR	20x2	74	74	Gray

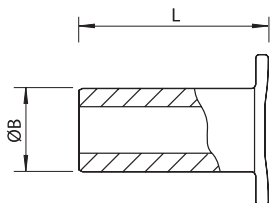
T CONNECTOR



To seal on inner diameter (multilayer)

P/N	ØB	L	L1	Bayonet colour
02RSR0202020GR	20x2	113	72.5	Gray

PLUGS



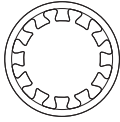
To seal on inner diameter (multilayer)

CODE	ØB
02TAPO00000008	8x1
02TAPO00000020	20x2





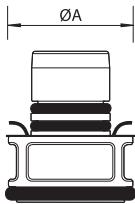
MAINTENANCE KIT OF PUSH-IN CONNECTOR FOR PERT PIPE



P/N	Ø EXT. PIPE	ØB	L
02RCMB000KIT08	8 mm	-	-

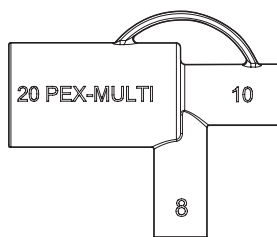
Kit= nr.1 twin o'ring, nr. 1 grab-ring, nr.1 washer

MAINTENANCE KIT OF PUSH-IN CONNECTOR FOR MULTILAYER PIPE



P/N	ØA	ØB	L
02RCMB000KIT20	20x2 mm	-	-

TEMPLATE FOR PUSH-IN CONNECTORS AND ADAPTERS



P/N	ØA	ØB	L
02RCMB000DIMA01	-	-	-





SIMPLE CROSS REDUCER IN LINE 1 EXITS



P/N	ØA	ØB
02RSR1020820TR	8 X 1	20 MULTILAYER

SIMPLE CROSS REDUCER IN LINE 2 EXITS



P/N	ØA	ØB
02RDR1208820TR	8 X 1	20 MULTILAYER

DOUBLE CROSS REDUCER 4 EXITS



P/N	ØA	ØB
2RDR1208888TR	8x1	20 MULTILAYER



### UNION CONNECTOR 20-20 MULTILAYER

NEW



P/N	ØA	ØB
02RSR100002020		20 MULTILAYER

### ELBOW CONNECTOR

NEW



P/N	ØA	ØB
02RSR190002020		20 MULTILAYER

### T CONNECTOR

NEW



P/N	ØA	ØB
02RSR100202020	8 X 1	20 MULTILAYER





# PIPES

RKS WALL AND CEILING COOLING AND HEATING SYSTEMS USE MULTILAYER PIPES. THEY FEATURE ON THE INSIDE, BETWEEN THE POLYETHYLENE LAYER AND THE COAT, AN ALUMINIUM BLADE WHICH SERVES AS AN OXYGEN BARRIER. THE WHOLE RANGE HAS BEEN DESIGNED AND MANUFACTURED ACCORDING TO THE UNE-EN ISO 21003 STANDARD. IN TERMS OF MEASUREMENTS, IT MEETS ISO-161 STANDARD AND ALSO HAS AENOR QUALITY CERTIFICATES: CLASS 1, 2, 4 AND 5 WHICH MAKE THEM SUITABLE FOR USE IN HYDRO SANITARY AND HEATING FACILITIES (THEY CAN WORK IN A TEMPERATURE RANGE THAT WOULD BE BETWEEN 5° AND 95°). GUARANTEED FOR 10 YEARS BY THE MANUFACTURER.





## 01 PERT PIPE Ø8 WITH THREE-LAYERS OXYGEN BARRIER



### PERT PIPE Ø 8X1MM WITH THREE-LAYERS OXYGEN BARRIER

P / N

PACKING

03PERT00000 8x1

NO INFORMATION

## 02 INSULATED MULTILAYER PIPE WITH OXYGEN BARRIER



P/N

DESCRIPTION

PACKING

Multilayer 20X2 R

Multilayer pipe 20x2 insulated Red

Roll 50m

Multilayer 20X2 A

Multilayer pipe 20x2 insulated Blue

Roll 50m

Today, technological research has definitively solved the uncertainty over the use of metallic or plastic pipes for hydro-sanitary or heating installations by creating a pipe capable of combining the advantages of both materials. The result was the creation of multilayer pipes.

### Curvature:

To curve the pipes, the following will be used:

- Pipe-curling dock
- Manual bend

Be aware of curve radius in order to avoid pipe constriction.

The multilayer pipe was the result of a modern manufacturing technique that allowed the perfect union between an aluminium pipe with two polyethylene temperature resistant (PEX) or reticulated polyethylene (PERT) pipes. This solution reduces the problems of exclusively metallic pipes (hardness, oxidation, corrosion, incrustation, weight, noise transmission, charge loss, galvanic current, etc.) or exclusively plastic pipes (winter fragility, high thermal dilation, oxygen permeability, ultra-violet radiation permeability, thermal memory, some malleability, etc.). **Our multilayer pipes have the advantages of the two materials combined.**

DN Diameter	Curve radius (mm)	
	With dock	Manual bend
16	64	80
20	80	100
25	150	200
32	300	380

Our pipes are manufactured in conformance with the UNE EN ISO-21003 standard for 16, 20, 25, 32 and 40 diameters, and 53961-EX for 18,50 and 63 diameters. The sizes conform to the ISO-161 standard and comply to AENOR quality certification.



### SISTEMA RKS MULTILAYER

Our RKS MULTILAYER PERT/AL/PERT pipes are manufactured with type II PERT and conform to the UNE-EN-ISO 22391 standard, and are suitable for use in interior hydro-sanitary and heating system installations.

**Type II PERT:** External and internal pipe parts are composed of a polymer resin (ethylene copolymer and octane) of recent creation, which increases the pipes hydrostatic resistance for much longer. PERT, being an essential pipe component, also presents other advantages:

**Corrosion resistance:** The PERT pipe has great resistance to corrosion. This protection is valid for external agents like environmental conditions, construction materials, etc., and for possible circulation of corrosive waters inside.

**Surface roughness:** A minimum surface roughness coefficient: 0.0004 mm will favour installations that are more efficient. A low surface roughness coefficient implies a lower charge loss, where by the necessary energy to move the liquid in its interior is also lower. Also, sediment or incrustation deposits are more difficult.

**Very low conductivity** coefficient: (0.35 W/m K) Reduces considerably heat increments or unwanted losses in installations. Again, there is another advantage focused on energetic saving. Considering economic savings, a pipe with a very low thermal conductivity allows the use of a lower thermal insulation thickness. Attending to the indicated in CTE (DB HS 4) and in RITE (appendix 03.1), this plastic pipe type will need less insulation than other metallic materials used.

RKS MULTILAYER PERT/AL/PERT can be used in sanitary water distribution (ACS included) and in heating and cooling installations (radiators, radiant floor, walls and ceilings). In addition, it was certified by AENOR in conformance with the UNE-EN-ISO 22391 standard, being valid for use in:

CLASS 1: Hot water 60°

CLASS 2: Hot water 70°

CLASS 3: Radiant floor heating and radiators at low temperature

CLASS 4: Heating radiators at high temperature









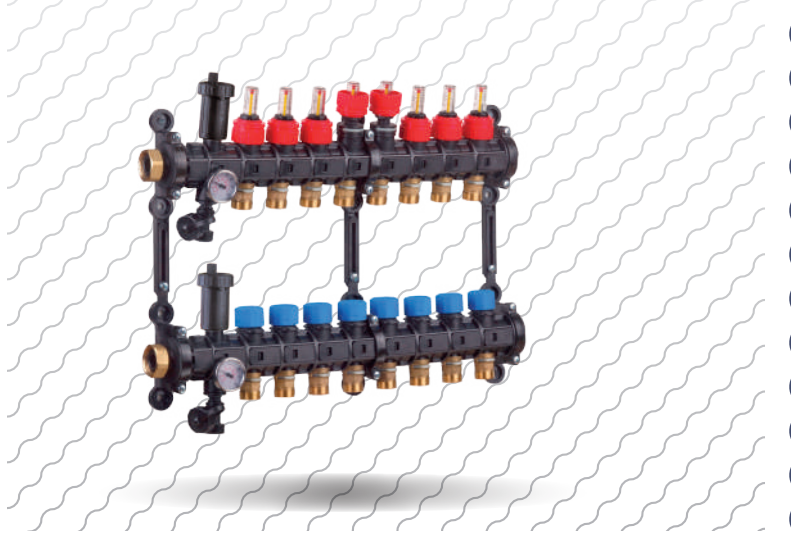
## MANIFOLDS

RKS ADVISES, FOR RADIANT WALL AND CEILING HEATING AND COOLING SYSTEMS, THE USE OF THE PRES BLOCK POLYMER MODULAR MANIFOLD. OUR INVESTMENT IN THIS MATERIAL AND DESIGN IS MOTIVATED, AMONGST OTHER THINGS, BY THE SIMPLICITY OF ASSEMBLY AND SYSTEM MAINTENANCE, WHICH CAN BE PERFORMED WITH ALMOST NO TOOLS. ALSO, ALLOWING PIPE CONNECTION WITH QUICK COUPLERS, IT REDUCES TO A MINIMUM THE METALLIC ELEMENTS IN INSTALLATIONS WITH THE KNOWN COMPLICATIONS: SEDIMENT DEPOSIT, CORROSION, ETC.



# MANIFOLDS

## PRE-ASSEMBLED MODULAR MANIFOLD



Complete pre-assembled manifold with 1" connection  
Automatic air bleed valve (manual upon request)  
Brass Eurocono adapter  
From 7 ports, manifold includes additional bracket

### PERFORMANCE

Fluids accepted	water, glycol solutions
% glycol max	50%
Recommended Working temperature	5-55°C
Max temperature	90 °C a 3 bar
Working pressure	0-6 bar
Max pressure	10 bar
Burst pressure	> 22 bar at room temperature > 15 bar a 50°C

### SUPPLY PORT C/W FLOW METER

Flow-rate range	0÷5 l/min
Deviation percentage	+ 15%
Max torque to adjust the flow-rate	1 N•m
KV flow coefficient when fully open	2,04
KV flow coefficient at 5 l/min	0,31
KV flow coefficient at 4 l/min	0,26
KV flow coefficient at 3 l/min	0,20
KV flow coefficient at 2 l/min	0,13
KV flow coefficient at 1 l/min	0,07

- please use the proper adjusting key

### RETURN PORT TO ELECTRIC ACTUATOR

Kv flow coefficient	2,80
Stroke of inox pin	2mm

### MATERIALS

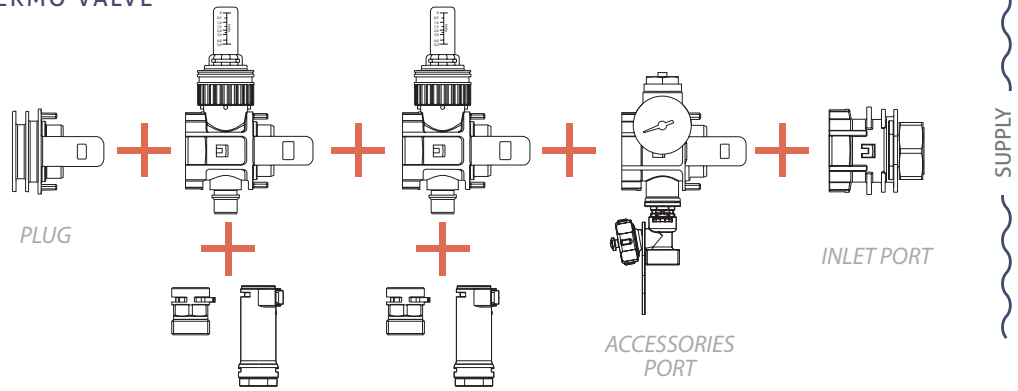
PA12	PPD	AISI
PA6,6	PP	Peroxidic APDM
POM	Grivory	Brass



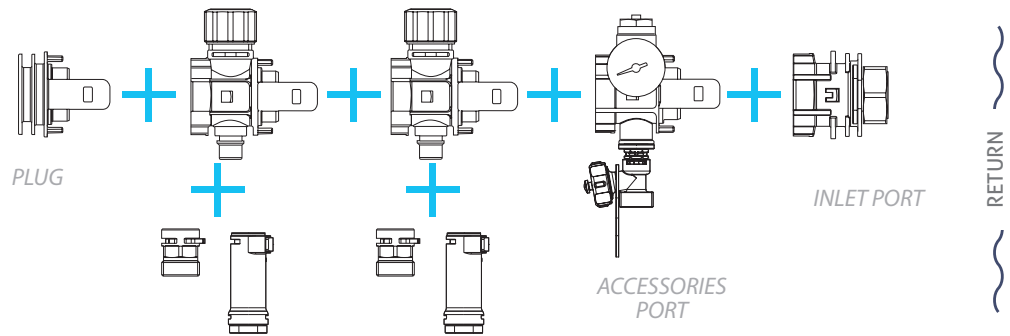


01 MODULAR MANIFOLD EXAMPLE OF ASSEMBLING MODE

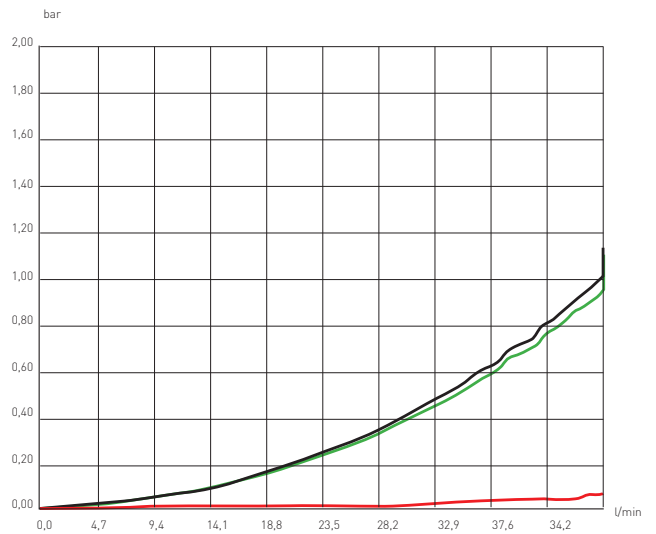
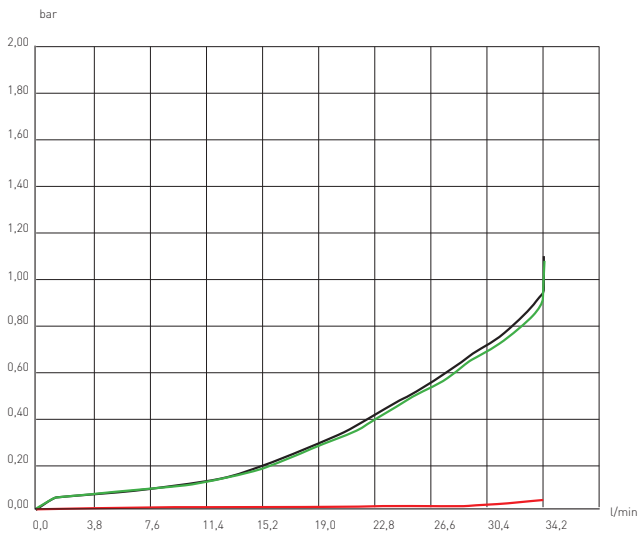
SUPPLY MANIFOLD WITH MANUAL REGULATION OR THERMO VALVE



RETURN MANIFOLD WITH MANUAL REGULATION OR THERMO VALVE



02 MODULAR MANIFOLD CHARGE LOSS GRAPH



SUPPLY PORT WITH FLOW METER

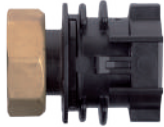
RETURN PORT WITH ELECTRIC ACTUATOR





03

PRE-ASSEMBLED MODULAR MANIFOLD



04MCOL0CON11/4

1"1/4 Inlet port c/w gasket



04MCOL0000CON1

1" Inlet port c/w gasket



P/N

DESCRIPTION

04MCOL0000RET1

Return manifold port to electric actuator



P/N

DESCRIPTION

04MCOL0000IDA1

Supply manifold port with flow-meter 0-5l/min



P/N

DESCRIPTION

04MCOL0000TAP1

Plug



P/N

DESCRIPTION

04MCOL0000ACC1

Accessories Port with manual air bleed valve





P/N	DESCRIPTION
04MCOL0000ACC2	Accessories Port with automatic air bleed valve

Automatic air bleed valve, temperature gauge and fill/drain system



P/N	DESCRIPTION
04MCOL0000ABRX2	Pair of adjustable brackets



P/N	DESCRIPTION
04MCOL0000ABRX1	Adjustable bracket



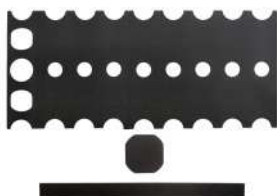
P/N	DESCRIPTION
04MCOLVALVESFR	Supply Ball valve filter, connection H1 1/4 , gasket

Red handle on supply



P/N	DESCRIPTION
04MCOLVALVESFA	Return Ball valve filter, connection H1 1/4 , gasket

Blue handle on return



P/N	DESCRIPTION
04MCOL00AISL16V	Insulation for manifold from 9 to 16 ports
04MCOL00AISL8V	Insulation for manifold until 8 ports





P/N	DESCRIPTION
04MCOLRRD20x2	Sliding button operated quick coupler, Multilayer 20x2

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P/N	DESCRIPTION
04MCOL0000TAP2	Plug to return manifold not used



P/N	DESCRIPTION
04MCOLADAPTEUK	M3/4" Eurocono brass adapter



P/N	DESCRIPTION
04RMEC0000016x2	Brass H3/4" Eurocono KIT for PEX – multilayer pipe 16x2
04RMEC0000017x2	Brass H3/4" Eurocono KIT for PEX – multilayer pipe 17x2
04RMEC0000018x2	Brass H3/4" Eurocono KIT for PEX – multilayer pipe 18x2
04RMEC0000020x2	Brass H3/4" Eurocono KIT for PEX – multilayer pipe 20x2







# THERMOREGULATION KIT

RKS OFFERS SEVERAL THERMOREGULATION KITS THAT WORK IN BOTH FUNCTIONING MODES: HEATING AND COOLING. THE "FIXED POINT" IS ALSO AVAILABLE FOR TECHNO POLYMER MANIFOLDS. THE 3 WAY MIXER VALVE CONTROL EASES THERMOREGULATION MANAGEMENT. WE ALSO HAVE MANY HYDRAULIC ACCESSORIES THAT ALLOW ONE SYSTEM WITH DIFFERENT SOLUTIONS. THE USE OF THE MOST ADEQUATE ONE DEPENDS ON THE SPECIFIC HYDRAULIC PROJECT'S NEEDS.





01 FIXED POINT POLYAMIDE KIT FOR POLYAMIDE MANIFOLD



P/N	DESCRIPTION
05MCOL00000PF	Fixed point valve port



P/N	DESCRIPTION
05MCOL00000VE	Balancing valve port



P/N	DESCRIPTION
05MCOL00000MIB	Lower pump connection port

*Includes: temperature gauge and manual air bleed valve. For Automatic air bleed valve, indicate when ordering. Possible variations must be indicated when ordering.*



P/N	DESCRIPTION
05MCOL00000MSB	Upper pump connection port

*Includes: Fill/drain system and manual air bleed valve. For Automatic air bleed valve, indicate when ordering. Possible variations must be indicated when ordering.*



P/N	DESCRIPTION
05MCOL00000KBP	Bypass kit





02

MIXING KIT WITH 3 PORT VALVE FOR POLYAMIDE, BRASS AND STAINLESS STEEL MANIFOLDS



P/N	DESCRIPTION
05GRMBVAL3VSB	1" Regulation group

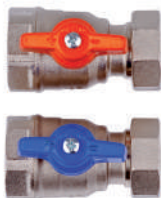
Kit includes: DV20 mixer valve with M30x1,5 thread  
Safety thermostat with cables  
Openings for thermometers to supply and return circuits  
1"1/4 manifold accessories



P/N	DESCRIPTION
5GRMBYPASS01	1" primary circuit by-pass



P/N	DESCRIPTION
05GRMBYPASS02	1" primary circuit by-pass with 3/4" high temperature connection



P/N	DESCRIPTION
05GRMBVALV01X2	Pair of ball valves with 1" DN20 swivel nut



03

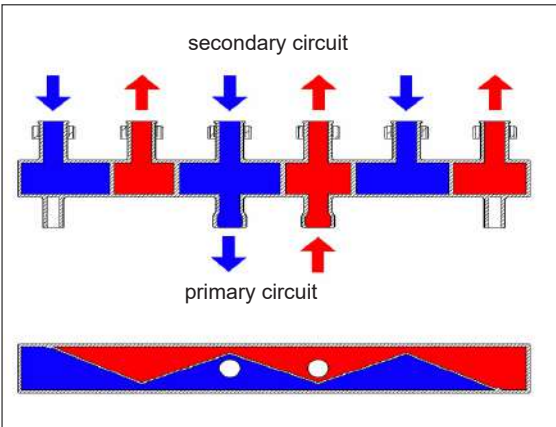
HYDRAULIC COLECTORES

Technical Specifications:

Maximum working temperature: 110°C  
Maximum working pressure: 4 bar  
Female thread connection: UNI EN 10226-1  
Male thread connection: UNI ISO 228-1  
Endless screw thread connection: UNI ISO 228-1  
Compatible fluids: water, water/glycol(max30%)

Materials:

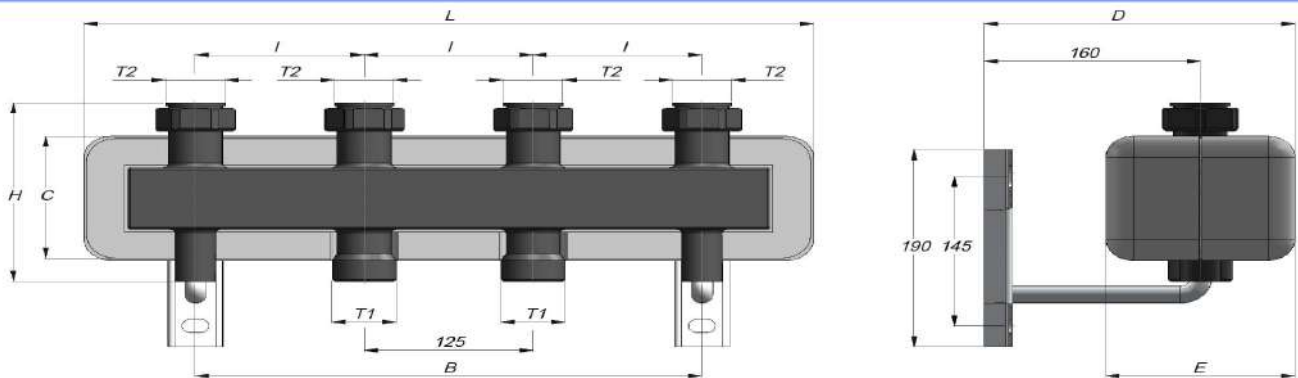
Manifold's Body  
· Body:Steel S235  
· Connection:Steel S235  
Insulate case  
· Body: EPP  
o Density 38 kg/m3  
o Thermal conduction 0,022W/mK(10°C)  
· Body: PUR (Thick grain polyurethane foam with embossed surface aluminum coating)  
o Density 40 kg/m3  
o Thermal conduction 0.025W/mk



SYSTEM OPERATION

The P72 coplanar manifold allows thermal fluid distribution coming from a generator (primary circuit). The return and return circuits of the user (respectively zone in red and blue zone of the secondary circuit) are separated from each other by a sinusoidal vertical wall. This form allows the obtaining of large suction and re-entering spaces avoiding malfunctions between the secondary circuit pumps. In addition, the vertical wall allows large surfaces of passage between the various areas reducing the influence on losses of load. This manifold is usually installed downstream of a hydraulic compensator to avoid the influence of the primary pump on the secondary pumps and the influence of the secondary pumps on the primary pumps.

DIMENSIONS



CODE	T 1	T 2	L	H	D	I	C	B	E	ZONE	POTENCY ( $\Delta T 20^{\circ}K$ ) (KW)	FLOW (m <sup>3</sup> /h)	WEIGHT	N.P/C
P72040002	G 1" 1/2 M	G 1" 1/2 M	540	172	238	125	135	375	156	2	70	3		1
P72040003	G 1" 1/2 M	G 1" 1/2 M	790	172	238	125	135	625	156	3	70	3		1
P72040004	G 1" 1/2 M	G 1" 1/2 M	1040	172	238	125	135	875	156	4	70	3		1
P72040005	G 1" 1/2 M	G 1" 1/2 M	1291	172	238	125	135	1125	156	5	70	3		1
P72040006	G 1" 1/2 M	G 1" 1/2 M	1541	172	238	125	135	1375	156	6	70	3		1
P72M25002	G 1" 1/2 M	R 1 *	540	172	238	125	135	375	156	2	70	3		1
P72M25003	G 1" 1/2 M	R 1 *	790	172	238	125	135	625	156	3	70	3		1
P72M25004	G 1" 1/2 M	R 1 *	1040	172	238	125	135	875	156	4	70	3		1
P72M25005	G 1" 1/2 M	R 1 *	1291	172	238	125	135	1125	156	5	70	3		1
P72M25006	G 1" 1/2 M	R 1 *	1541	172	238	125	135	1375	156	6	70	3		1



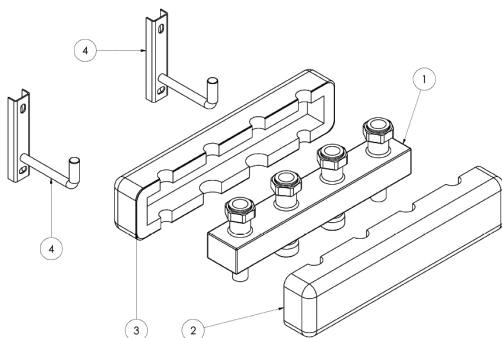
INSTALLATION

The installation of each hydraulic component must be carried out by qualified staff as these devices are used for the transport of fluid at temperatures and pressures that could constitute a danger for people and things.

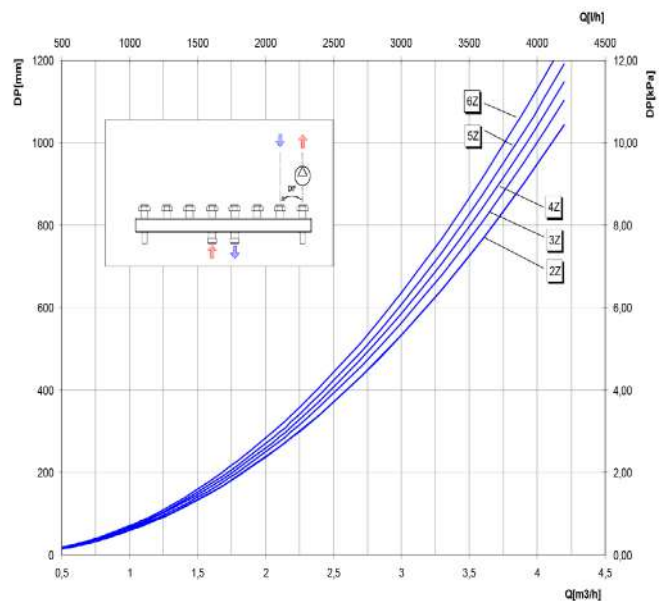
Initial Description

The distribution manifold is made up of the parts shown in the figure:

- Manifold(1)
- Front insulation (2)
- Rear insulation (3)
- Brackets(4)



DIAGRAM

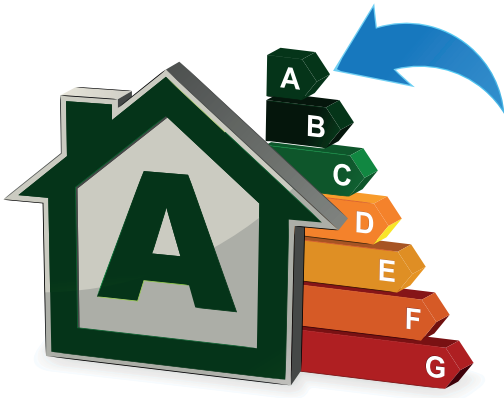






# HIGH EFFICIENCY ELECTRONIC CIRCULATORS

SEVERAL GOALS WERE DEFINED FROM THE FIRST DESIGN STEPS OF ALL THESE RADIANT SYSTEMS. ONE OF THEM WAS ENERGY EFFICIENCY IMPROVEMENT. PROGRESS IN THIS AREA, CONCERNING OTHER HEATING SYSTEMS THAT HAVE BEEN USED FOR MANY YEARS (RADIANT FLOOR) CANNOT MOVE FORWARD WITHOUT THE USE OF "HIGH EFFICIENCY" ELECTRONIC PUMPS OR CIRCULATORS. THEY MUST MOVE HEAT CARRIER FLUID DURING MANY HOURS THROUGHOUT THEIR LIFE, MAINLY BECAUSE IT WILL FUNCTION DURING A HIGHER NUMBER OF DAYS PER YEAR (WINTER AND SUMMER). THEREFORE, THIS "HEART" REQUIRES SPECIAL ATTENTION FOR ITS DURABILITY AND CONSUMPTION.

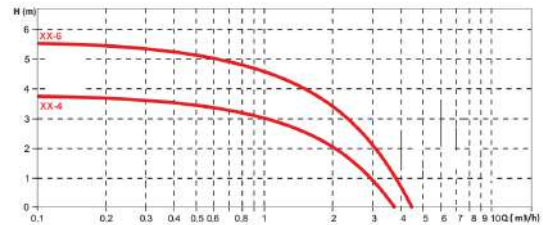
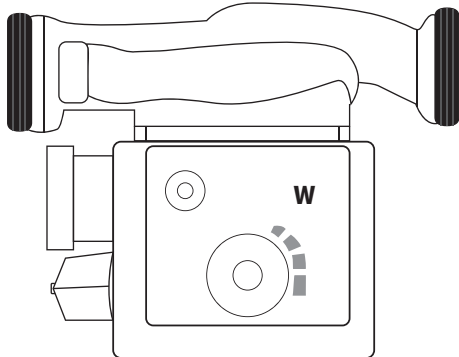


01 SHINHOO PUMP 25 - 60



P/N	DESCRIPTION	CONSUMPTION (WATTS)	CONNECTION
06BOMB00Q3.2H6	1"1/2 130mm regulation group	40÷90	1 x 1 1/2" connection

POWER	MAX FLOW. M3/H	MAX HEAD. M	CURRENT (A)	VOLTAGE (FREQUENCY) 230 V / 50 HZ	MATERIAL		DIMENSIONS							WL (KG) (FREQUENCY) G.W / N.W		
					PLASTIC	INOX STEEL	L1	L2	B1	B2	H1	H2	G			
5.45	3.2	6	0.05 / 0.038	●	●	●	●	90	180	82	130	103	130	-	3.2	2.4



02 SHINHOO PUMP 32 - 80



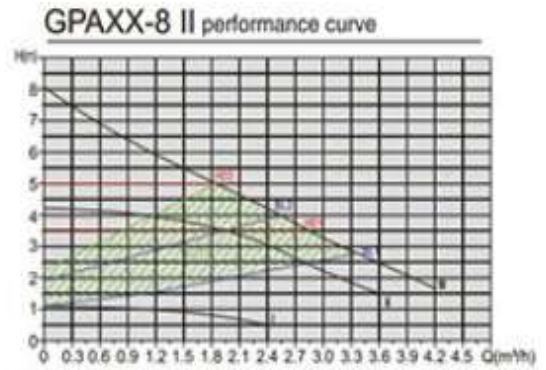
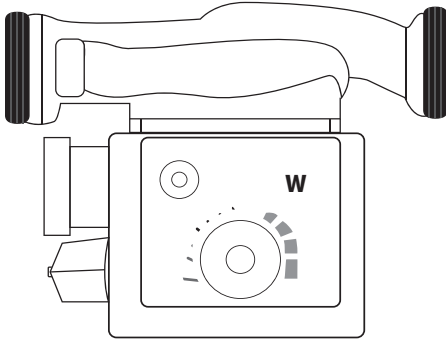
P/N	DESCRIPTION
06BOMB00Q4.3H8	2"1/2 130mm regulation group

CONSUMPTION (WATTS)	CONNECTION
40÷90	1 x 2" connection



POWER	MAX FLOW. M3/H	MAX HEAD. M	CURRENT (A)	VOLTAGE (FREQUENCY) 230 V / 50 HZ	MATERIAL PLASTIC INOX STEEL	DIMENSIONS						WL (KG) (FREQUENCY) G.W / N.W	
						L1	L2	B1	B2	H1	H2	G	

8      5      8      0.08 / 0.03      ●      ●      90   180   88   136   102   132   2"      5   5.5



**03 SHINHOO PUMP 32-10**



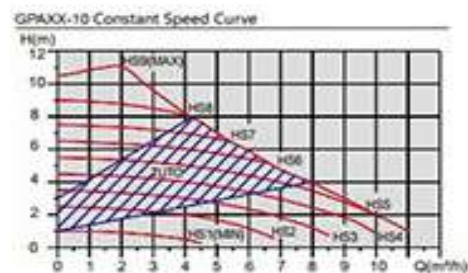
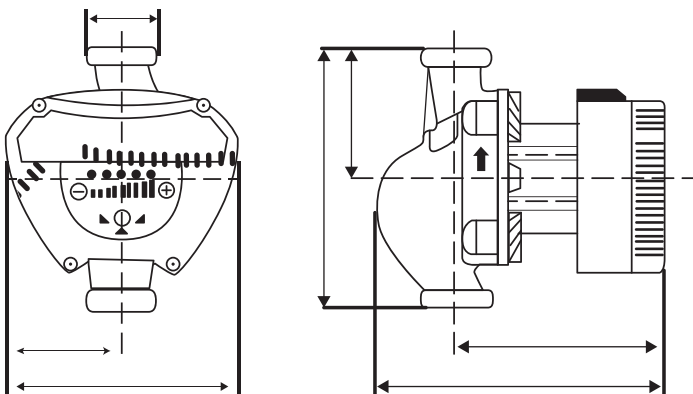
P/N	DESCRIPTION
06BOMB00Q11H11	2" 130mm regulation group

CONSUMPTION (WATTS)	CONNECTION
40÷90	1 x 2" connection

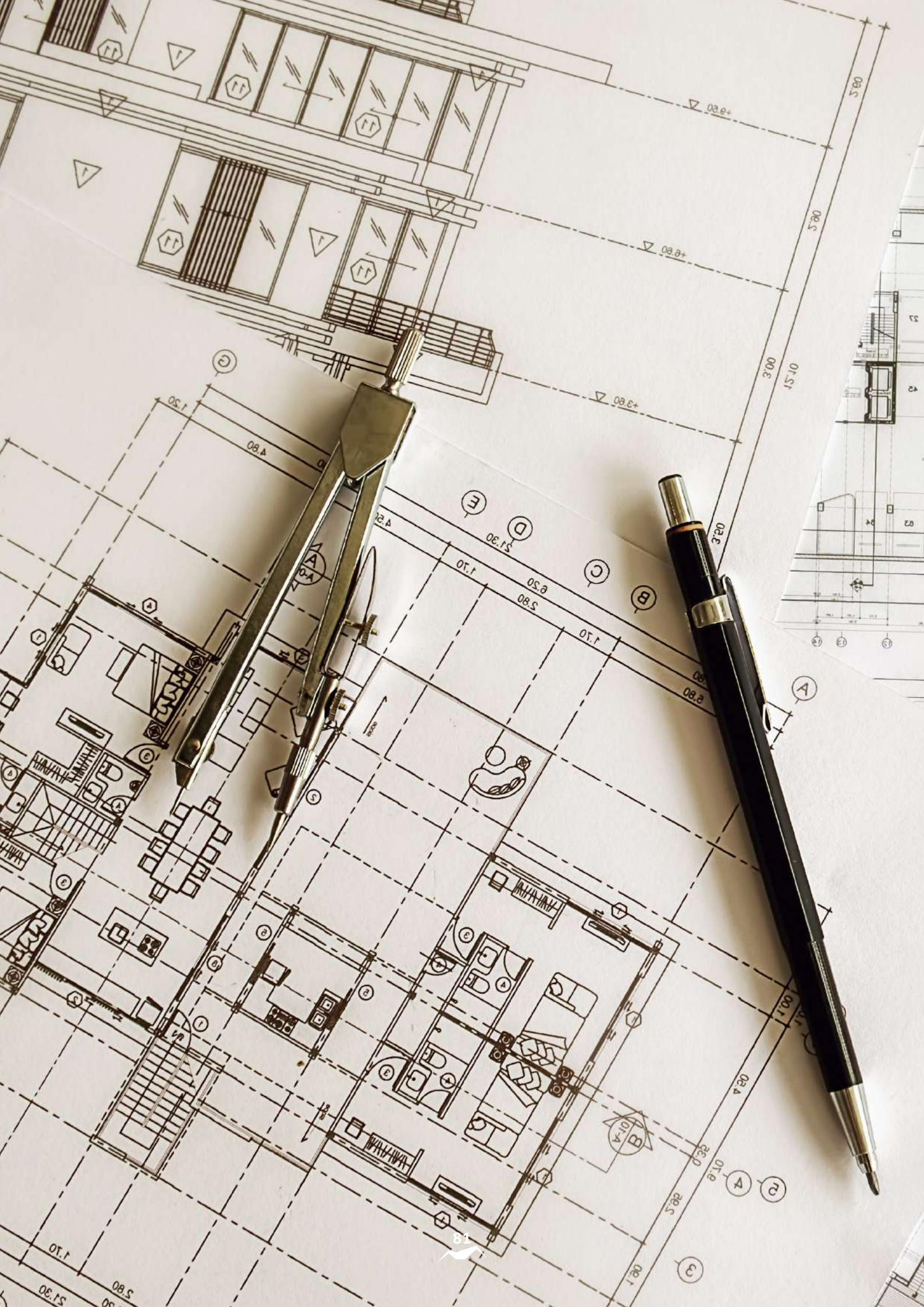


POWER	MAX FLOW. M3/H	MAX HEAD. M	CURRENT (A)	VOLTAGE (FREQUENCY) 230 V / 50 HZ	MATERIAL PLASTIC INOX STEEL	DIMENSIONS						WL (KG) (FREQUENCY) G.W / N.W	
						L1	L2	B1	B2	H1	H2	G	

10      10      10      0.05 / 0.038      90   180   80   160   144   199   2"      5   5.5









# MANIFOLD CABINETS

OUR INSTALLATIONS ARE DESIGNED FOR MOST COMPONENTS TO FIT IN THE SAME PLACE (MANIFOLD, PUMP, THERMOREGULATION AND ELECTRONIC CONTROL UNITS), MAKING REGULATION AND MAINTENANCE JOBS EASY. AS SUCH, DIFFERENT KINDS OF CABINETS ARE OFFERED WITH SEVERAL SIZES THAT ENABLE ADAPTATION TO DIFFERENT SIZES AND COMPOSITIONS. AS EACH PROJECT HAS ITS OWN SPECIFICATIONS AND MARKS CERTAIN PREMISES, WHETHER TECHNICAL OR AESTHETIC, SO SHOULD BE OFFERED A SOLUTION THAT, FOR INSTANCE, PUT THE CABINET IN QUESTION IN A HOUSE AREA THAT, DUE TO ITS USE, WOULD NORMALLY BE UNSEEN, PRACTICALLY HIDDEN, ALTHOUGH WITH EASY ACCESS.



# MANIFOLD CABINETS

## RECESSED CABINETS

- ~ DESCRIPTION
- ~ TECHNICAL DATA
- ~ INSTALLATION



### 01 DESCRIPTION

#### RECESSED CABINET H. 750MM

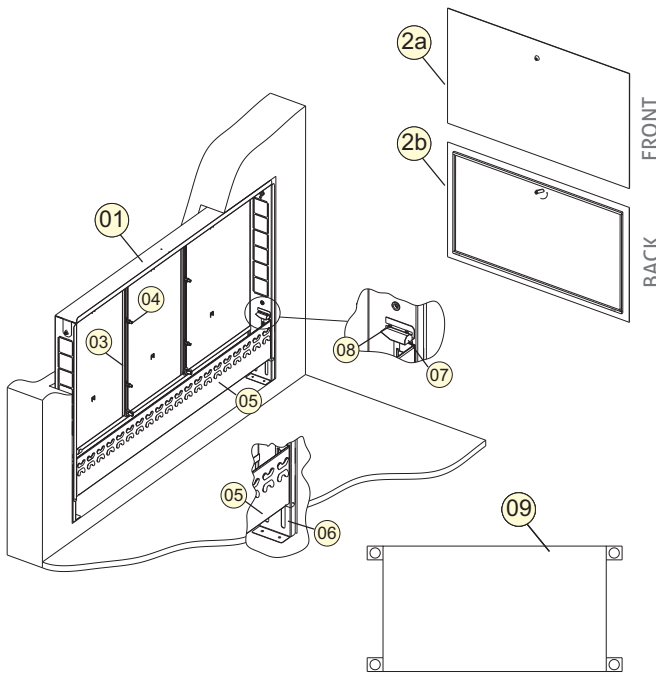
Body in 0,8mm thick galvanized plate. With grids, claws and gaps to be held with gypsum or cement in the wall. Height adaptable by use of adjustable feet. Includes a lid that will protect the cabinet and its content until the construction work is finished. Door also included, to be lowered in the wall.

#### RECESSED CABINET H. 930MM

Body in 0,8mm thick galvanized plate. With grids, claws and gaps to be held with gypsum or cement in the wall. Height adaptable by the use of adjustable feet. Includes a lid that will protect the cabinet and its content until the construction work is finished. Door also included, to be lowered in the wall.

### 02 TECHNICAL DATA

CKD



#### CABINET ELEMENTS

- 1 Frame
- 2a Front door
- 2b Back door
- 3 manifold fastening guide
- 4 manifold fastening screw
- 5 Reinforcement grid for plaster support
- 6 Adjustable foot
- 7 Door hinge support/base
- 8 Lid socket screw
- 9 Protector Lid

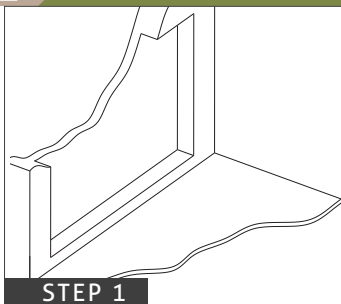
#### AVAILABLE SIZES

**CABINET DEPTH 80mm**  
 400 X 700 X 80/150  
 700 X 700 X 80/150  
 900 X 700 X 80/150  
 1000 X 700 X 80/150  
 1250 X 700 X 80/150

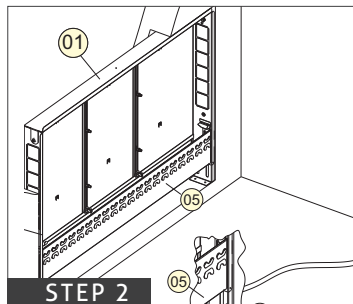
**CABINET DEPTH 110 mm**  
 400 x 930 x 110  
 600 x 930 x 110  
 800 x 930 x 110  
 1000 x 930 x 110



**03** INSTALLATION

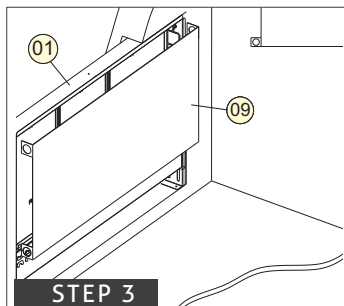


Create a gap on the wall according to the size of the cabinet to recess.

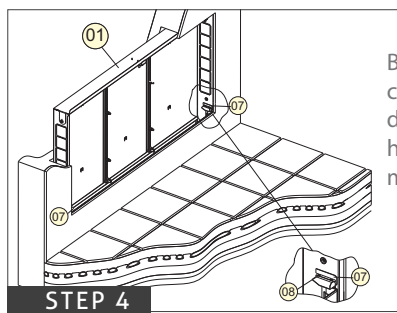


After creating the gap, insert the cabinet body 01, until the back is reached. Afterwards, with gypsum or cement, fix it to the wall 05.

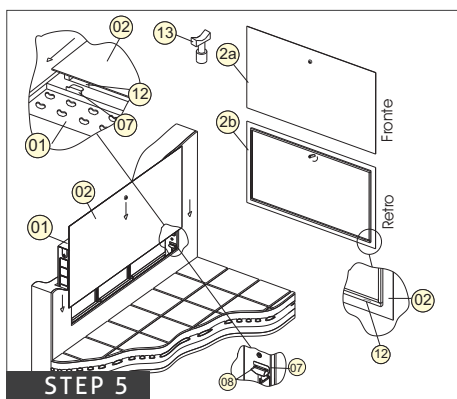
*NOTE: The adjustable feet 06 allow regulation of placement in the gap, making levelling and achieving the desired height easier.*



Before applying plaster, place mortar protector 09 in the cabinet to keep the interior clean while brickwork and any painting is done. 09 protector is fixed to cabinet body 01 by paddles presented in the far end and butterfly screws.



Before placing the door, and because the cabinet has an 80mm depth, regulate the support and hinge base 07 of the same door, moving it to wall level.



After completing step 4, hold the door and slide it until below (see arrows) so the hinge support 07 enters the 12 slot. Once the door is placed, close it with the key 13 that you will find in the packing.

**01** METALLIC CABINET FOR MANIFOLDS WITH WHITE LACQUERED DOOR (ADJUSTABLE DEPTH)



P/N	DESCRIPTION
RKS-68640ZN	400x700x80/150 Cabinet
RKS-68670ZN	700x700x80/150 Cabinet
RKS-68690ZN	900x700x100/150 Cabinet
RKS-816100ZN	1000x700x80/150 Cabinet
RKS-686125ZN	1250x700x100/150 Cabinet

**02** METALLIC CABINET FOR MANIFOLDS WITH TELESCOPIC DEPTH REGULATION AND WHITE PLASTIC PAINTABLE DOOR



P/N	DESCRIPTION
RKS-400-110-160	400 x 600 x 110/160 Cabinet
RKS-600-110-160	600 x 600 x 110/160 Cabinet
RKS-800-110-160	800 x 600 x 110/160 Cabinet
RKS-1000-110-160	1000 x 600x 110/160 Cabinet







## CLIMATE REGULATION

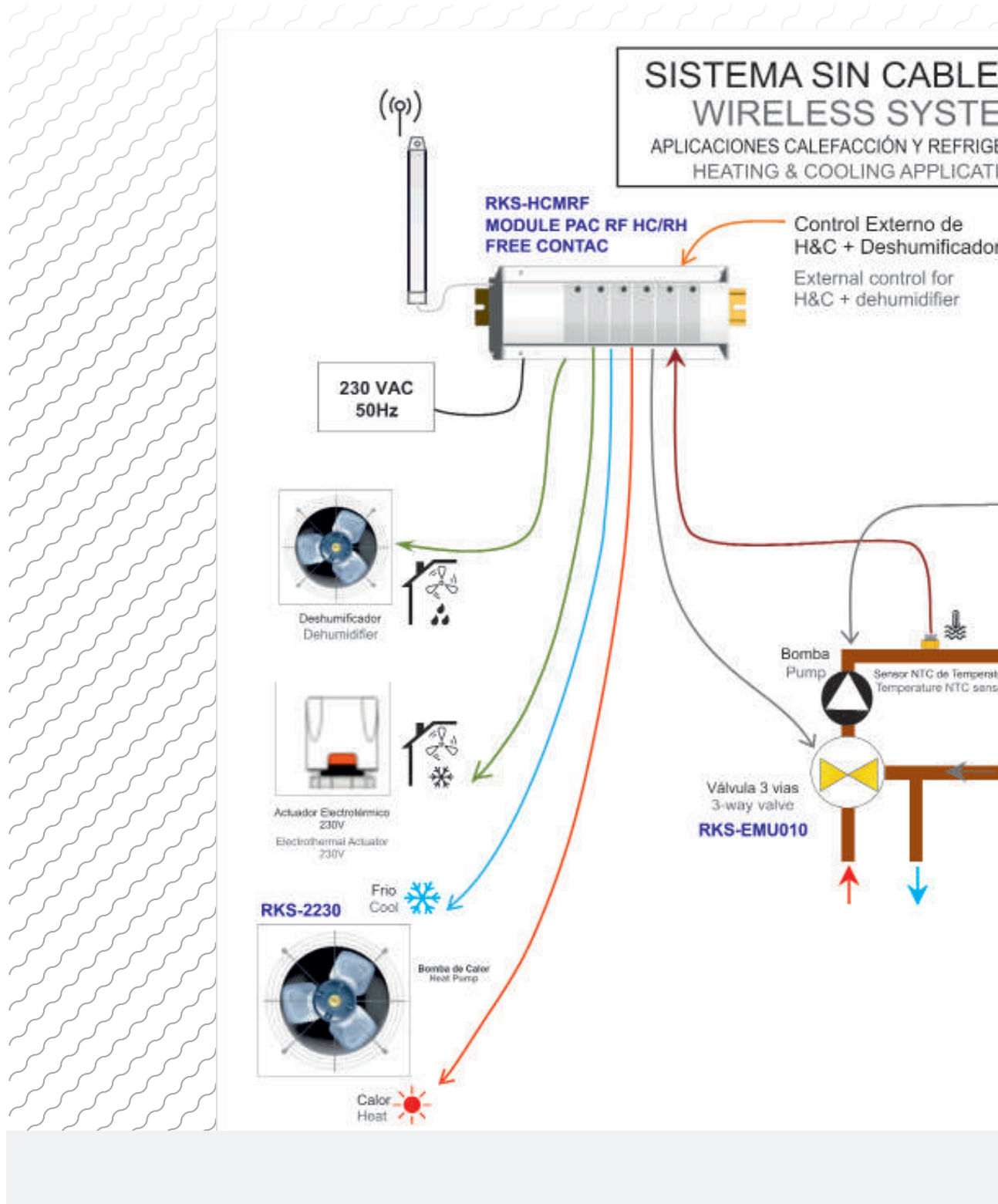
RKS CLIMATE CONTROL IS ONE OF THE MOST IMPORTANT INNOVATIONS THAT CONTRIBUTES TO RADIANT CLIMATE SYSTEMS OFFERING USER SATISFACTION. CLIMATE REGULATION WORKS LIKE A SMALL BRAIN, SAYING WHEN AND WHERE IT SHOULD HEAT OR COOL, AS WELL AS OPERATING THE HUMIDITY CONTROL MACHINE WHEN NECESSARY. RADIANT INSTALLATIONS THAT WORK AT HEATING AND COOLING MODES, AND THAT INTEND TO DELIVER MAXIMUM COMFORT, MUST WORK SAFELY AND CONTROL PARAMETERS LIKE RELATIVE HUMIDITY AND THE CONDENSATION POINT IN EACH ROOM.

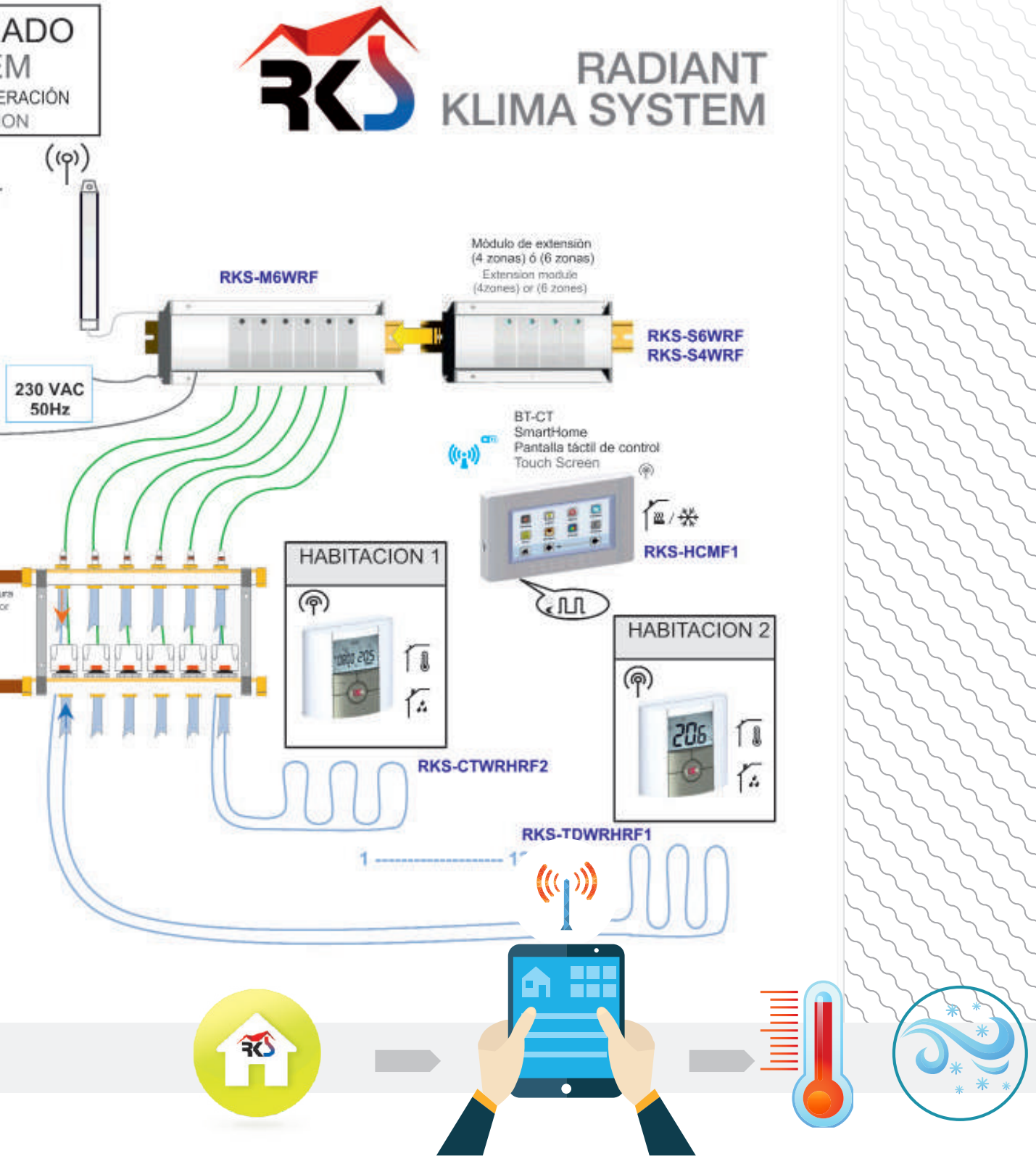


01

ELECTRONIC WIRELESS CLIMATE CONTROL FOR HEATING AND

COOLING APPLICATIONS









02

## DESCRIPTION

RKS uses its own climate control and regulation. This products that allow you to communicate with the entire system intuitively and quickly. Our switchboards satisfy each and every one of the necessary combinations to solve any installation of radiant ceiling. Our electric actuators, mounted on the collectors, ensure a total precision in the control of the different zones in heat or cold mode.



P/N	DESCRIPTION
08CRTM00000001	Programmable digital wireless thermostat with temperature and humidity sensor



P/N	DESCRIPTION
08CRTM00000002	Digital wireless thermostat with temperature and humidity sensor



P/N	DESCRIPTION
08DEGC00000001	Wireless main control unit for pumps and dehumidifier



P/N	DESCRIPTION
08DEGC00000002	Wireless primary control unit to monitor temperature and humidity in 6 areas



CODE	DESCRIPTION
08DEGC00000003	Wireless secondary control unit to monitor temperature and humidity in 6 areas
08DEGC00000004	Wireless secondary control unit to monitor temperature and humidity in 4 areas





P/N	DESCRIPTION
08CRTM0000003	Touch screen to control the Smart Home Wifi system. Allows installation control and its different areas through mobile devices via web (supply 230v)

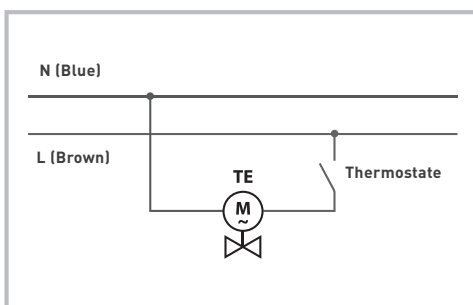


P/N	DESCRIPTION
08ACEL0000001	adaptor 3 points to valve three ways



CODE	DESCRIPTION
08ACEL000000PF	Fixed point thermostat (System)

03 ELECTROTHERMIC ACTUATOR



**TECHNICAL SPECIFICATIONS**

TE series thermal actuators, used for automatic opening/closing of radiator valves, manifolds and fan-coil valves. The actuator control is performed by the thermostat placed in each room which, following the system needs, opens or closes heating and cooling circuits.

**Conforming to standards**

CEI 60529:1997 + A1:2000 - CEI EN 60204-1:2006

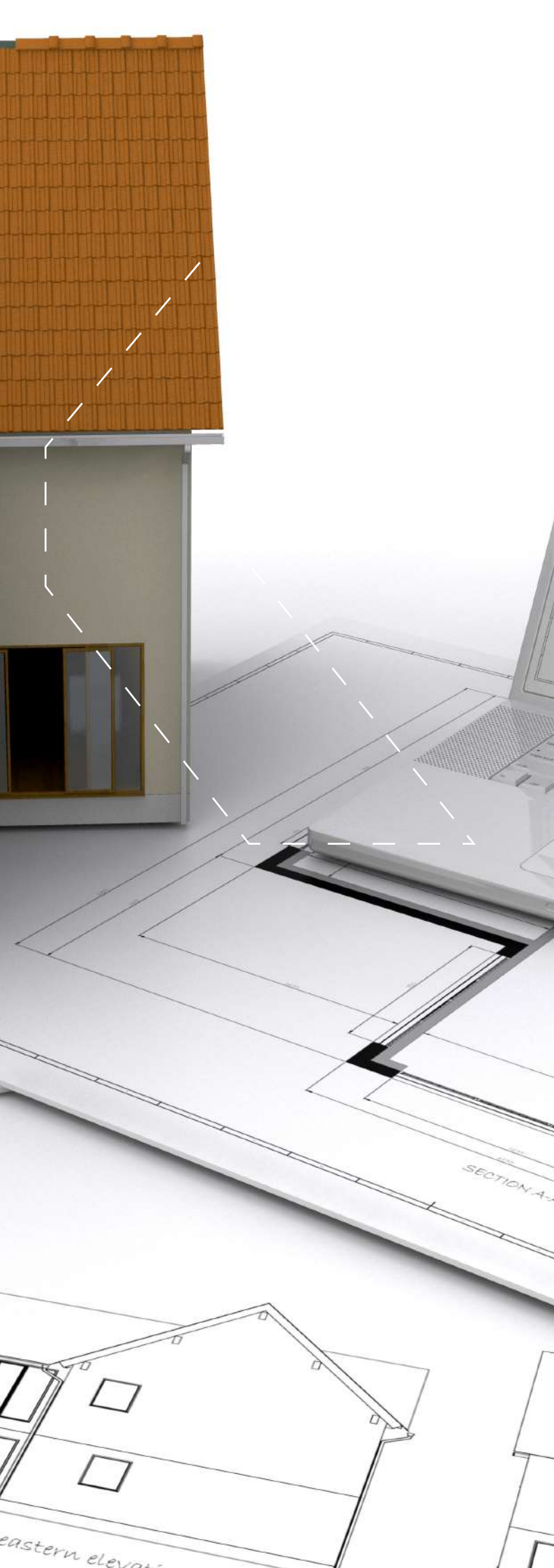
**Protection degree IP54**



P/N	DESCRIPTION
08ACEL000230V2H	230V electromechanical actuator 2 threads







# HEAT PUMP AND DEHUMIDIFIER

THE RKS HEAT PUMP WAS DEVELOPED ACCORDING TO HIGHLY DEVELOPED CRITERIA IN ORDER TO OBTAIN ENERGY SAVINGS, AND IS PARTICULARLY SUITABLE FOR RADIANT FLOOR HEATING/COOLING SYSTEMS.

PREDISPOSES SUMMER/WINTER CONTROL AND ON/OFF FUNCTIONS, BEING PARTICULARLY SIMPLE TO USE AND MAINTAIN. AVAILABLE IN SEVERAL MODELS IN FUNCTION OF THE POWER NEEDED AND THE SHARED ACCUMULATION DEPOSIT CAPACITY.



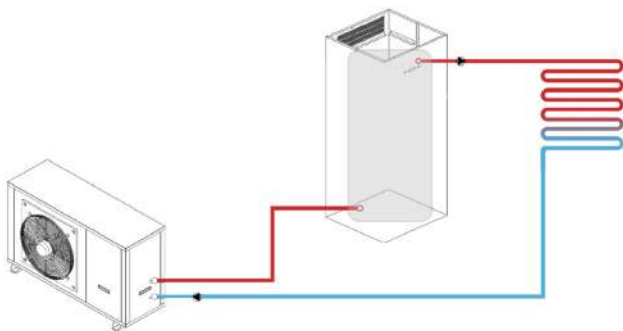
# HEAT PUMP, DEHUMIDIFIER AND ACCESSORIES

01

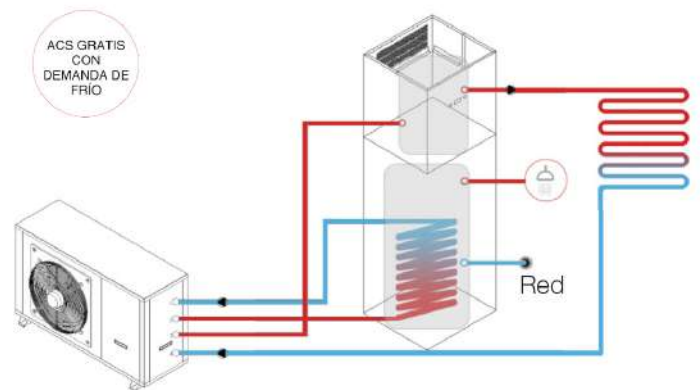
DESCRIPTION



## HEAT PUMP EVO



## HEAT PUMP EVO BIBLOCK



02

CODES

### AERO-THERMAL WITH ACS AND DEPOSIT OF INERTIA

- 09BCSA06100000
- 09BCSA08100000
- 09BCSA10100000
- 09BCSA13100000
- 09BCSA16100000
- 09BCSA20100000

### AERO-THERMAL AND DEPOSIT OF INERTIA

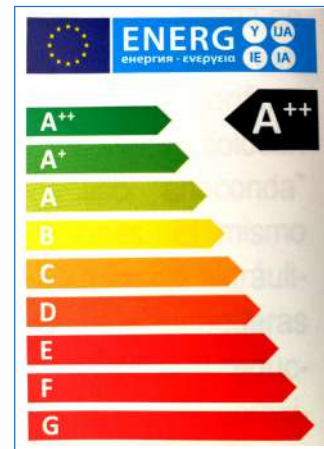
- 09BCCA06100150
- 09BCCA06100200
- 09BCCA08100150
- 09BCCA08100200
- 09BCCA10100150
- 09BCCA10100200
- 09BCCA10100300
- 09BCCA13100150
- 09BCCA13100200
- 09BCCA13100300
- 09BCCA16100200
- 09BCCA16100300
- 09BCCA20100200
- 09BCCA20100300

\*ADVISE WITH THE TECHNICAL CATALOGUE.





**HidROS**  
YOUR AIR, OUR PASSION



## 01 DESCRIPTION



LZTi VERSION 2 PIPES

LZTi VERSION 4 PIPES

## 02 CODES

### ■ AERO-THERMAL 4 PIPES WITH ACS

- 09BCCBLZISW608
- 09BCCBLZISW610
- 09BCCBLZISW615
- 09BCCBLZISW620

### ■ AERO-THERMAL 2 PIPES

- 09BCCBLZISTD08
- 09BCCBLZISTD10
- 09BCCBLZISTD15
- 09BCCBLZISTD20

### ■ HYDRAULIC KIT (CIRCULATION PUMP)

- 09BCACKITHID08
- 09BCACKITHID10
- 09BCACKITHID15
- 09BCACKITHID20

### ■ DEPOSIT OF INERTIA INOX 304

- 9DEPI00000050
- 9DEPI00000080

### ■ DEPOSIT OF INERTIA WITH ACS INOX 304

- 9DEPIACS00159
- 9DEPIACS00208
- 9DEPIACS00259
- 9DEPIACS00325

\*ADVISE WITH THE TECHNICAL CATALOGUE



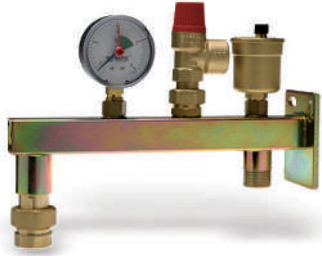
DEHUMIDIFIER



P/N	DIMENSION [mm]				PESO [kg]	M <sup>3</sup> H
09DHRF00000220	695	250	623	1/2" F	35	220
09DHRF00000360	795	270	623	1/2" F	40	360



WITHOUT REFRIGERATION		M <sup>3</sup> H	WITH REFRIGERATION		M <sup>3</sup> H
09DHNF00000258		258	09DHRF00000258		258
09DHNF00000600		600	09DHRF00000600		600
09DHNF00001031		1031	09DHRF00001031		1031
09DHNF00001350		1850	09DHRF00001350		1850



P/N	DESCRIPTION
12VAES01KITSOP	Connection kit - expansion tank without uniont



P/N	DESCRIPTION
12VAES00000012	12l Expansion tank

P/N	DESCRIPTION
12VAES00000018	18l Expansion tank

P/N	DESCRIPTION
12VAES00000024	24l Expansion tank

P/N	DESCRIPTION
12VAES00000035	35l Expansion tank







# DEHUMIDIFIERS INSTALLATION AND ACCESSORIES



CÓDIGO	DESCRIPTION
13RESR00000001	150 x150 White Ventilation grill



CÓDIGO	DESCRIPTION
13PL0100000001	100mm 4 Exits plenum pipe impulse dehumidifier



CÓDIGO	DESCRIPTION
13PL0100000003	100mm plenum pipe ceiling impulse 150x150 diameter with grill



CÓDIGO	DESCRIPCION	
13PL0100000004	150mm diameter plenum aspiration pipe dehumidifier	DH220C
13PL0100000005	150mm diameter plenum aspiration pipe dehumidifier	DH360C

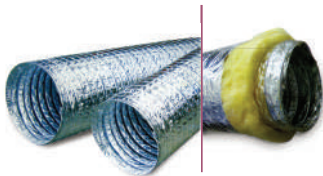




P/N	DESCRIPTION
13PL010000006	400x200 Ceiling plenum aspiration pipe with 2 exits Ø150mm filter



P/N	DESCRIPTION
13RESR00000002	400x200mm plenum ceiling dehumidifier grill



P/N	DESCRIPTION
13TUSA00000100	Ø100 aluminium air pipe without insulation (10m/box)
13TUCA00000100	Ø100 aluminium air pipe with insulation (10m/box)
13TUSA00000150	Ø150 aluminium air pipe without insulation (10m/box)
13TUCA00000150	Ø150 aluminium air pipe with insulation (10m/box)



P/N	DESCRIPTION
13VR0100000001	Y plenum Ø 100



P/N	DESCRIPTION
13VR0100000007	Supply Plenum 6 exits with pipe 100 m to dehumidifier 09DHN00001031 - 09DHRF00001031



P/N	DESCRIPTION
13VR0100000008	Entry Supply Plenum pipe 150 m to dehumidifier 09DHN00001031 - 09DHRF00001031





# SIBER PURE AIR

The Pure Air distribution system is designed for air distribution ducts for central dehumidification systems for small buildings, such as shops, houses, etc.





## CIRCULAR DUCT - ROLL 50 MTS



Ø 75

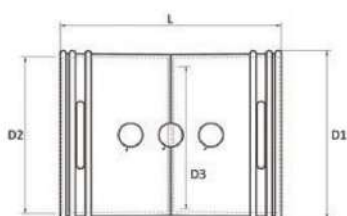
REFERENCE 13TUSASZ004191

D 1(MM) 63

D 2(MM) 75

A (MP) 0,00312

## CONNECTION



Ø 75

REFERENCE 13ADAPSZ188350

L (MM) 110

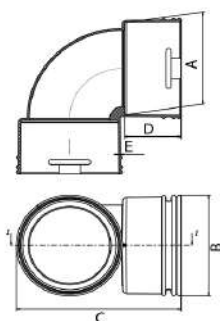
D 1(MM) 83

D 2(MM) 79

D 3 (MM) 65



## ELBOW 90°



Ø 75

REFERENCE 13ADAPSZ188173

A (MM) 79

B (MM) 85

C (MM) 133

D (MM) 45.5

E (MM) 1.8





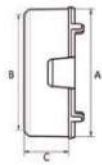
GASKET (IN BAG OF 10 UNITS)



Ø 75

REFERENCE	13ADAPSZ188348
A (MM)	63
B (MM)	79

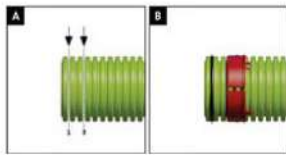
FIXING NECKLACE (IN 10 UNIT BAG)



Ø 75

Ø 90

REFERENCE	13ADAPSZ188391	13ADAPSZ188392
A (MM)	77	90
B (MM)	25	96.5
C (MM)	2.5	2.5

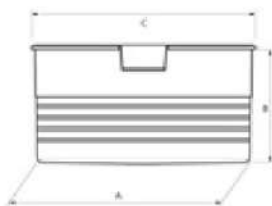


PLUG



Ø 75

REFERENCE	13ADAP000TAPON
A (MM)	78
B (MM)	45
C (MM)	83





T CONNECTION - 90°



Ø 75

REFERENCE

13ADAPSZ188342

A (MM)

411

B (MM)

215

C (MM)

DN125

D (MM)

173

E (MM)

325



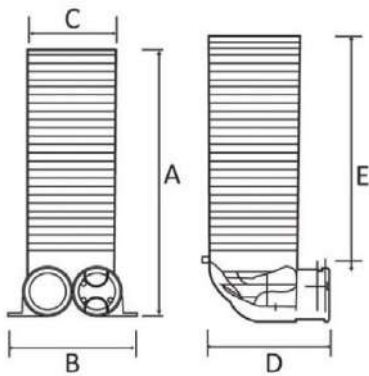
Zeta (-)

1,15

0,77

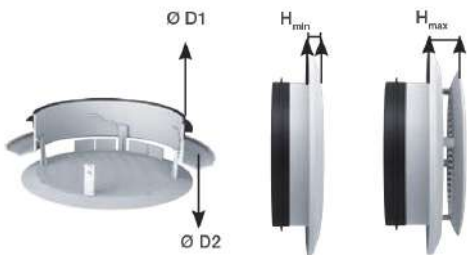
0,97

1,34



Qv [m³/h]	ΔP [Pa]			
	1,0	2,0	3,0	4,0
1 x 10	1,0	1,0		
2 x 5		1,0		1,0
1 x 20	2,1		2,0	
2 x 10		1,0		1,0
1 x 30	4,7		4,1	
2 x 15		1,0		1,6
1 x 40	8,4		7,1	
2 x 20		1,5		2,6
1 x 50	12,4		10,8	
2 x 25		2,4		4,0
1 x 60	18,6		15,4	
2 x 30		3,4		5,6

GRILL BOREA 125



Ø D1  
mm

Ø D2  
mm

H  
mínimo

H  
máximo

MODEL

13ADAPBOREA125

119

165

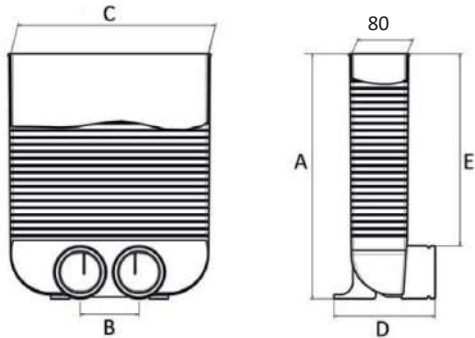
12

24





T RECTANGULAR CONNECTION



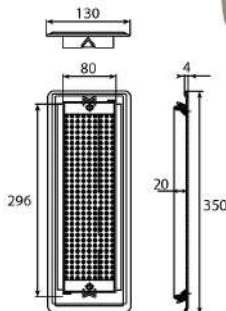
Ø 75

REFERENCE	13ADAPSZ188397	
A (MM)	389	
B (MM)	92	
C (MM)	317	
D (MM)	159	
E (MM)	300	
Zeta (-)	1,13	2,47
Conexión	1	2



Qv [m³/h]	ΔP [Pa]	
10	1,0	1,0
20	2,1	1,1
30	4,6	2,5
40	8,2	4,5
50	12,7	7,0
60	18,3	10,0

GRILL TO T RECTANGULAR CONNECTION



REFERENCE	13ADAPSZ188316	13ADAPSZ188317
Material	inox	inox
Color	White Ral 9010	inox
Maximum flow (m³/h) (v=4m/s)	93	93

INSULATING FLEXIBLE COVER

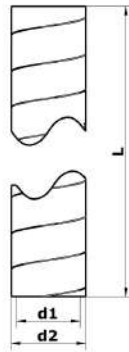
REFERENCE 11TUCAISOSLE82

Flexible cover of 25 mm and diameter 82 mm L = 10 MTS





DUCT

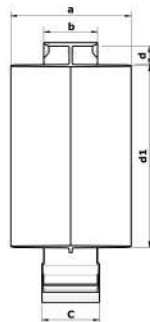


Ø 125

REFERENCE	13TUCASZ188204
D1 (MM)	125
D2 (MM)	157
L (MM)	2.000
M (kg)	0.48

Qv [m³/h]	ΔP [Pa]		
100 m³/h	0,7	0,2	0,1
200 m³/h	2,7	0,7	0,4
300 m³/h	6,1	1,7	0,9
400 m³/h	10,8	3,1	1,6
500 m³/h	16,9	4,9	2,5

CONNECTION

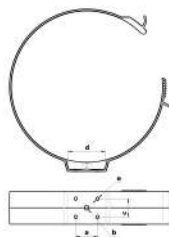


Ø 125

REFERENCE	13ADAPSZ188265
D1 (MM)	125
A (MM)	100
B (MM)	45
C (MM)	48
D (MM)	15



FIXING NECKLACE



Ø 125

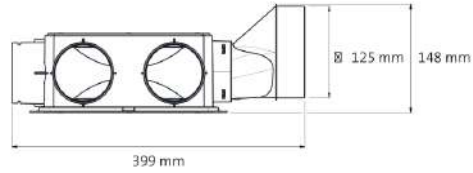
REFERENCE	13ADAPSZ169141
a (MM)	30
b (MM)	M8
c (MM)	25
d (MM)	50
e (MM)	Ø 4.5







DISTRIBUTION CASE 206 IN LINE / 6 CONNECTIONS Ø 75



CODE

13PLO2206INLIN

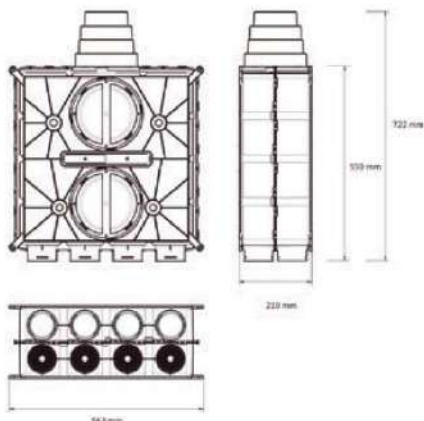
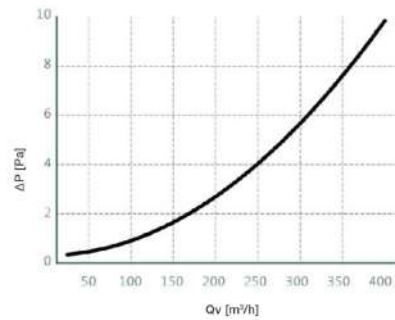
INCLUDED:

6 Flow Reducers  
3 Plastic Covers

UNIVERSAL DISTRIBUTION CASE



Qv [m³/h]	ΔP [Pa]
100	1,0
150	1,7
200	2,7
250	4,0
300	5,7
350	7,6
400	9,9



Ø 75

REFERENCE 13PLO2SZ188591





## LIQUID ADDITIVES FOR THE CIRCUIT

## 01 ANTIALGAE ADDITIVE



CODE	DESCRIPTION
10ADJT00000001	Anti-algae de 1kg para 100l/water

## 02 ANTI CORROSIVE ADDITIVE



CODE	DESCRIPTION
10ADJT00000002	Anti corrosive additive 1kg 100l/water







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**T: + 34 961 573 759**

