

“ALL IN ONE: THE TRUE COMFORT EXPERIENCE”



2023 OVERVIEW OF GIACOMINI'S PRODUCTS AND SYSTEMS





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the finest Giacomini technology for homes,
with all the convenience and reliability of bringing
everything together in a single solution.*

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SUSTAINABILITY



SAVINGS



SERVICE



Unbeatable comfort and convenience.

Unique Home by Giacomini is an “all-in-one” solution that offers unparalleled efficiency and comfort by linking together heating, cooling, ventilation and domestic hot water systems. You know that you can count on the consummate comforts of the Unique Home system thanks to a single quality mark that applies to the entire production chain. Designers, installers and end users can all benefit from the technical performance that only Giacomini products can provide through the use of renewable energy. Unique Home gives tangible economic savings, makes it easier to design and produce systems, and means you can conveniently contact the same sales and technical support service for all of your needs.



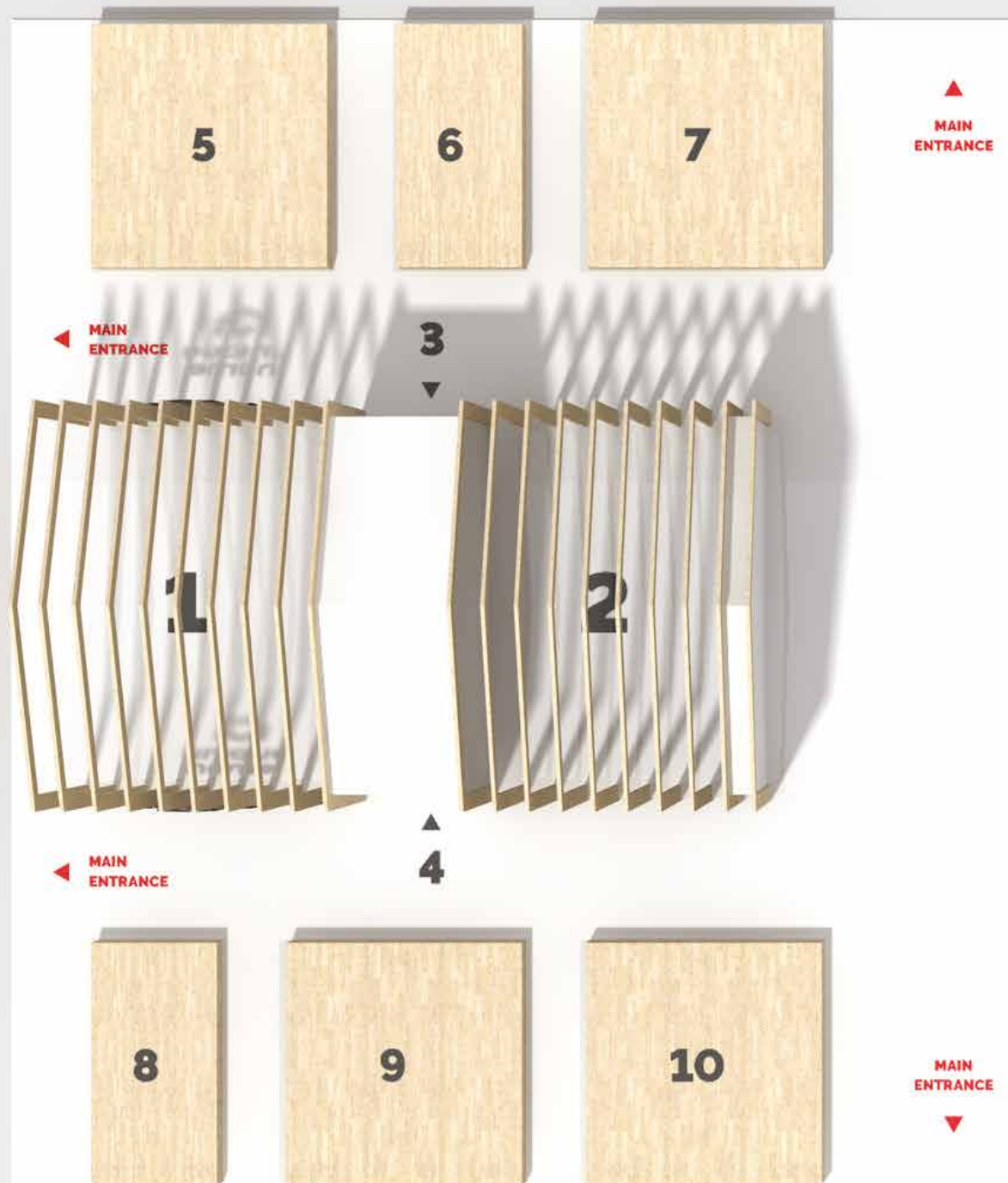
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ALL IN ONE: THE TRUE COMFORT EXPERIENCE

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1. Unique Home
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4. Components for HVAC System Efficiency
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- 11. Reception
- 12. Wardrobe

- 13. Bar
- 14. Meeting Room 1
- 15. Meeting Room 2
- 16. Meeting Room 3
- 17. Restaurant





UNIQUE HOME: COMFORT-ORIENTED SYSTEMS FOR ALL-ELECTRIC BUILDINGS

Energy and buildings: setting challenges and opportunities

As clearly stated by the European Union (EU) when outlining the climate actions and strategic policies required to become a zero-emission society by 2050, the building sector is key to boost

and lead the decarbonization process through an efficient use of energy based on sustainable solutions enhancing the energy performance in buildings.

STATE-OF-THE-ART

Within the scope of the European Clean Energy Package, both the Energy Performance of Buildings Directive (EPBD) 2010/31/UE and the Energy Efficiency Directive 2012/27/UE were amended in 2018 and 2019. More precisely, the Amendment directive of the EPBD (2018/844/UE) outlined the EU Commission's goal of **giving priority to the building sector in terms of technological improvements and increasing the number of renovations**, thus reflecting the EU's strong political will to modernize the entire sector¹. In October 2020, within the scope of the European Green Deal, the European Commission presented

the Renovation Wave as a new strategy and plan which considers (i) the fight against energy poverty and buildings featuring the worst performance, (ii) the renovation of public buildings, (iii) the decarbonization related to building heating and cooling systems as essential pillars. In December 2021 the European Commission proposed a revision of the EPBD (COM(2021) 802 final), suggesting significant actions for the long-term renovation strategies as a key instrument to upgrade buildings on a national level and in a cost-effective fashion, and to promote efficient and smart measures to achieve carbon-neutral

1 - European Commission. Energy performance of buildings directive (europa.eu)

2 - European Commission. Renovation wave (europa.eu)

3 - European Commission. Long-term renovation strategies (europa.eu)





solutions³.

To prepare the buildings for the great ambitions set by the climate goals, as stated in the 2030 Climate Target Plan and reflected in July 2021 by the Delivering the European Green Deal, **the EU Commission aims at cutting down - within 2030 - building emissions by at least 60% compared to 2015, and hence achieve the zero-climate-impact goal by 2050**⁴. Such an ambitious goal adds on to the other pillars of the European Green Deal package, especially to the revision of the new emission trading system proposed for fuels used in buildings, the Energy Efficiency Directive, the Renewable Energy Directive, and the Alternative

Fuels Infrastructure Regulation¹.

The EU Building Stock Observatory (BSO)⁵ – a web tool that helps monitoring the energy output of buildings across Europe, from the characteristics of the building stock to the energy market – reported that at the end of 2021 the buildings in the EU:

- were accountable for 40% of the consumed energy;
- produced 36% of energy-related greenhouse gas emissions;
- 75% of the EU entire building stock was energy inefficient;
- 85-95% of these buildings will probably still exist in 2050⁶.

OUTLOOK ON THE EUROPEAN BUILDING STOCK

In acknowledging that the European building stock is quite heterogeneous, we see that most buildings are residential and that most of them was built before the advent of thermal insulation standards (Pic. 1). In addition, their construction type has a strong impact on the related energy consumptions, and the classification structures of residential buildings may change from one country to the other. Based on the data processed by the BSO, the share of renovated buildings will experience a strong growth compared to new ones, that is from 1.6 million new constructions in 2020 to 0.9 million units in 2050, in line with the expected decrease of the population and families⁵. This picture **calls for greater attention and interest in the renovation of the existing building stock, which will be key in leading the sector in years to come**. As for the current rate of renovations across Europe (Pic. 2), which represents just 1% yearly, with only 0.2% of important renovations of the building stock every year⁷, the expected scenarios show **that a 3%**

annual renovation rate is required to achieve climatic neutrality by 2050, where important renovations represent 70% of the total⁸.

When analyzing current consumptions, we see that 71% of the energy consumed in residential buildings is used for heating, which in turn strongly depends on the characteristics of the building envelope and the technical systems installed (Pic. 3)⁸. More specifically, most houses are heated by gas-fueled boilers; since 2013 eco-design criteria have been adopted for the heating systems thus increasing the number of condensation boilers and heat pumps, where Italy is at the European top position for heat pump installations (Pic. 4, Pic. 5)¹¹. Most heat pumps are used in reversible mode; in other words, they are used more in summer, although, on an average, cooling represents less than 1% of the total energy consumptions in European residential buildings. In countries such as Bulgaria, Cyprus, and Italy, it represents

4 - European Commission. Delivering the European Green Deal. (europa.eu)

5 - European Commission. Building Stock Observatory (BSO). EU Building Stock Observatory (europa.eu)

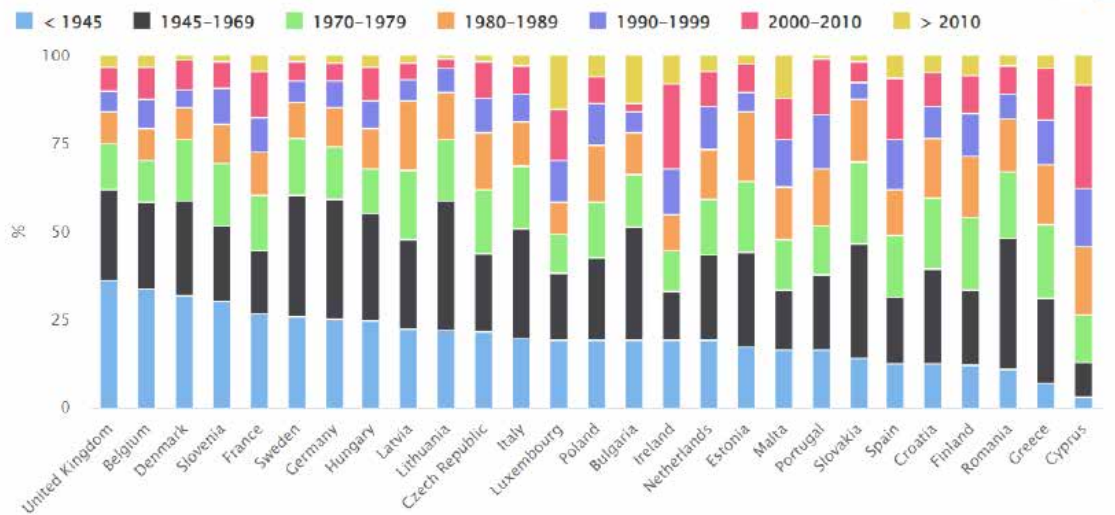
6 - BSO. EU Buildings Factsheet: Building Stock Characteristics. EU Buildings Factsheets | Energy (europa.eu).

7 - European Commission. Navigant, Comprehensive study of building energy renovation activities and the uptake of nearly zero- energy buildings in the EU: annex to final report. 2019

8 - Building Performance Institute Europe (BPIE). On the way to a Climate-Neutral Europe. 2020.

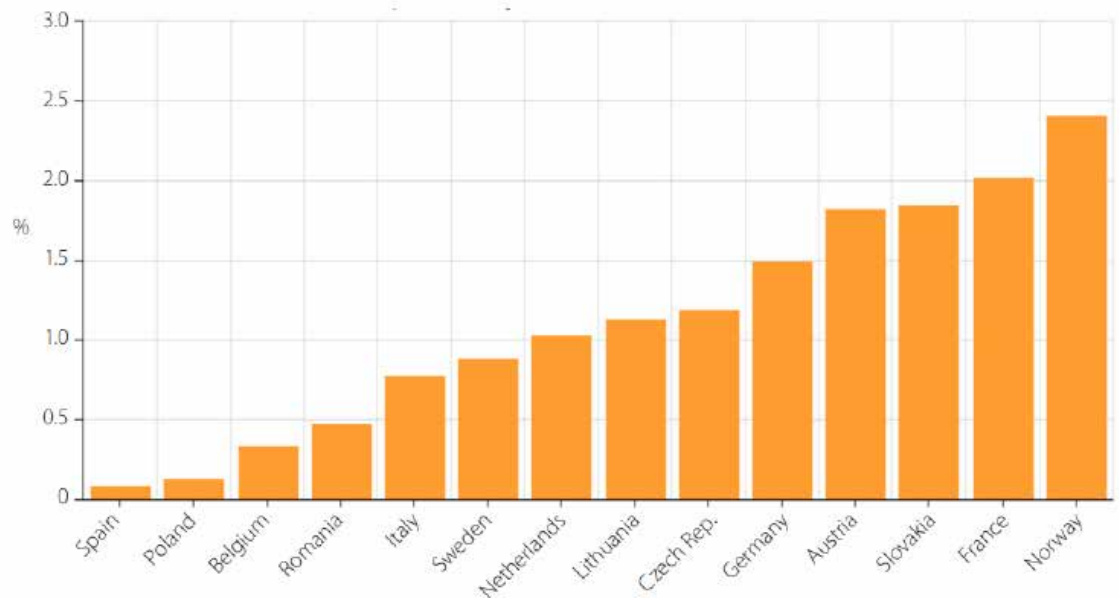
1

Residential building
per year of
construction,
source: BSO⁶.



2

Significant
-renovation rate.
Source: Zebra⁷.



more than 5% of the total energy consumptions in residential buildings, while Malta reaches 12%¹¹. With regards to **renewable energy sources (RES)**, the revision of the renewable energy directive (COM/2021/557 final) **aims at increasing their exploitation in buildings helping integration of the RESs in the grid, while boosting electrification,**

efficiency and circularity⁶. As for solar energy, solar panel installations are exploited to produce hot domestic water and to help heating buildings; besides, Spain, Greece, Italy, and Bulgaria score the highest photovoltaic production when it comes to the total energy consumptions in buildings⁹. The adjustment, development and enhancement

9 - Zebra2020, October 2016. Zebra 2020 - Nearly zero-energy building strategy 2020. Strategies for a nearly Zero-Energy Building market transition in the European Union. ZEBRA2020 publications and tools by category - Zebra2020

10 - BSO. EU Buildings Factsheet: Technical building systems: Technical systems. EU Buildings Factsheets | Energy (europa.eu)

11 - BSO. EU Buildings Factsheet: Technical building systems: On-Site renewable energy. EU Buildings Factsheets | Energy (europa.eu)

12 - BSO. EU Buildings Factsheet: Energy consumption: Energy use in buildings. EU Buildings Factsheets | Energy (europa.eu)

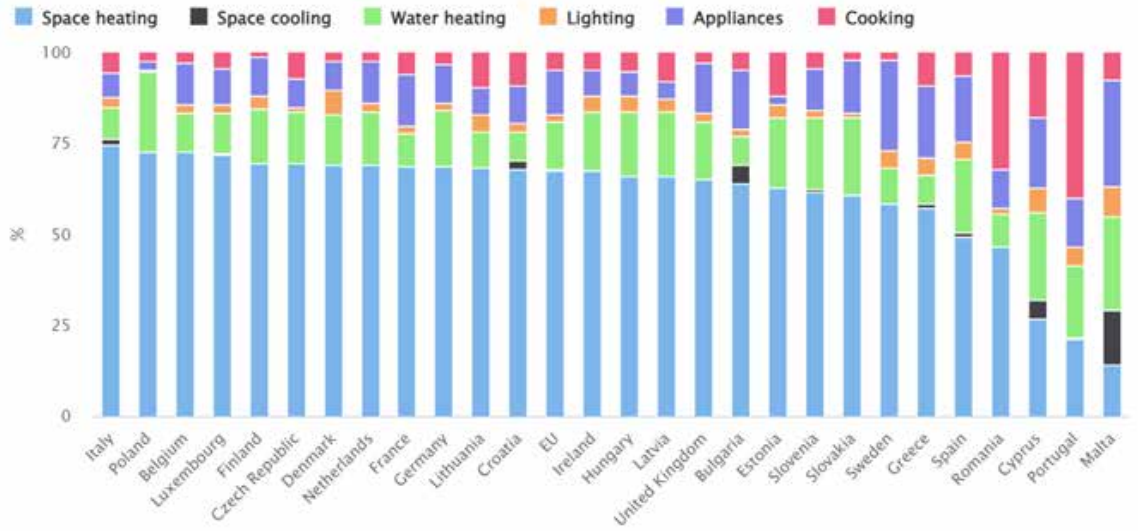


of the District Heating and Cooling (DHC) may represent a great opportunity for integration of the RESs; although there are countries across Europe

where large-scale district heating represents the main heating system, most buildings feature autonomous systems¹¹.

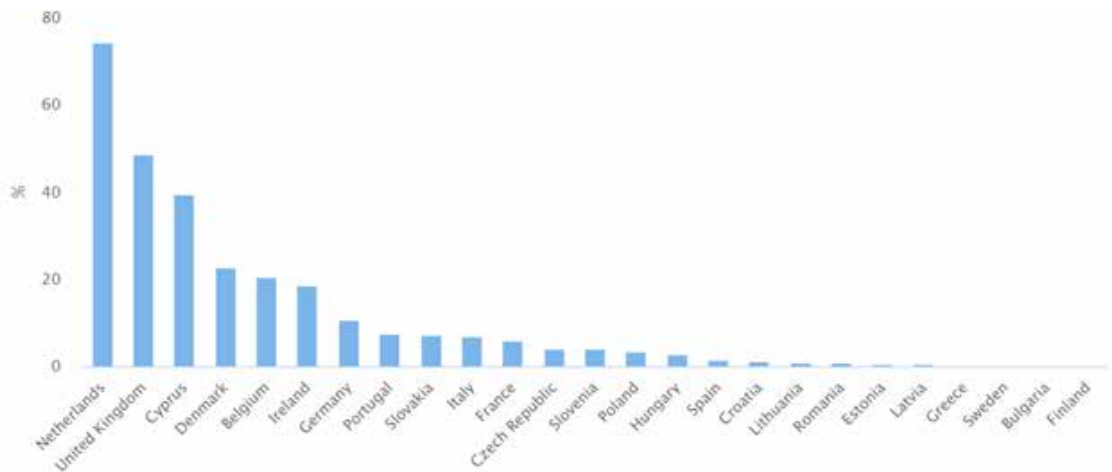
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Distribution of energy consumptions in residential buildings, source: BSO¹⁰.



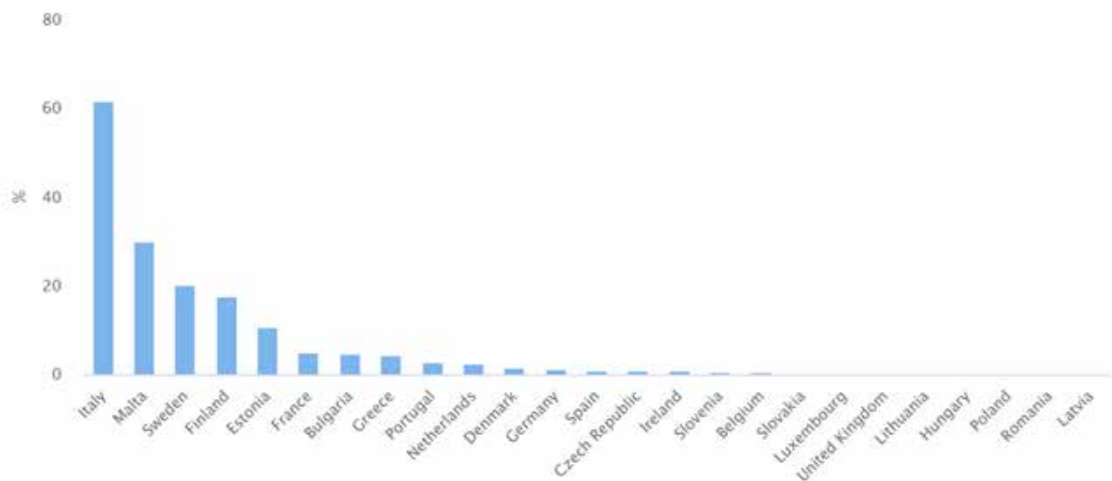
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Share of houses with condensation boilers, source: BSO¹¹.



5

Share of houses with heat pumps, source: BSO¹¹.



FOCUS ON ZERO-EMISSION TECHNOLOGIES

According to the technologies and solutions available to date that are ready to be marketed and already used in Europe, both the heating and cooling sectors can be fully decarbonized. Based on the current electrification trend, the heating and cooling decarbonization of buildings goes hand in hand with the growing importance and presence on the market of **electric heat pumps**. District heating/cooling (DHC) may also be an appealing and cost-effective solution supporting integrated, resilient and efficient energy systems that use multiple local and renewable sources. The improvement of the building envelope, which hence offers an appropriate level of thermal insulation, and the installation of radiant floor and ceiling systems as low-temperature heating¹⁵ / high-temperature cooling units, drive us in the

right direction to combine effective retrofitting actions to cutting-edge carbon-neutral solutions that support the decarbonization of the residential sector through an "all-electric" approach.

Today, planning of energy efficient buildings also provides for HRV (Heat Recovery Ventilation) installations with heat recovery and building automation and control systems, as well as other smart solutions¹⁵, to achieve top levels of comfort and reduced energy consumptions. When considering nearly-zero energy buildings (NZEB) and the performance levels provided for by the EPBD (2018/844/EU) directive, we see why this sector is particularly indicated to cover the needs of renewable source energy.

FOCUS ON HEAT PUMPS

Defined as the key technology of the global transition for safe and sustainable heating¹⁴, **heat pumps - powered by carbon-neutral electricity - represent one of the recommended technologies to decarbonize the building sector**. More specifically, the International Energy Agency (IEA) believes that heat pumps could cut down CO₂ global emissions by at least 500 million tons in 2030, that is the annual amount of CO₂ emissions produced by all cars in Europe today¹⁶. Based on the goals set for 2050, heat pumps will play a crucial role in buildings, where electrification will represent approximately 50%

of the reduction of CO₂ direct emissions for the entire sector within such term¹⁵. According to the European Heat Pump Association (EHPA) data, since 2015 the European heat pump market has experienced a 2-digit growth, where air-water models are leading most markets thanks to their lower cost compared to geothermal heat pumps (Pic. 6, Pic. 7). The market growth goes hand in hand with (1) the improvement of efficiency levels, (2) the introduction of solutions to reduce sound emissions, (3) the implementation of connectivity technologies and (iv) the creation of specific design characteristics¹⁸.

13 - Heat Roadmap Europe: Building the knowledge, skills, and capacity required to enable new policies and encourage new investments in the heating and cooling sector. www.heatroadmap.eu

14 - International Energy Agency. IEA(2022), The Future of Heat Pumps, IEA, Paris <https://www.iea.org/reports/the-future-of-heat-pumps>, License: CC BY 4.0

15 - IRENA (2022), Renewable solutions in end-uses: Heat pump costs and markets, International Renewable Energy Agency, Abu Dhabi.

16 - EHPA. European Heat Pump Association. 2021. European Heat Pump Association - Renewable energy (ehpa.org)

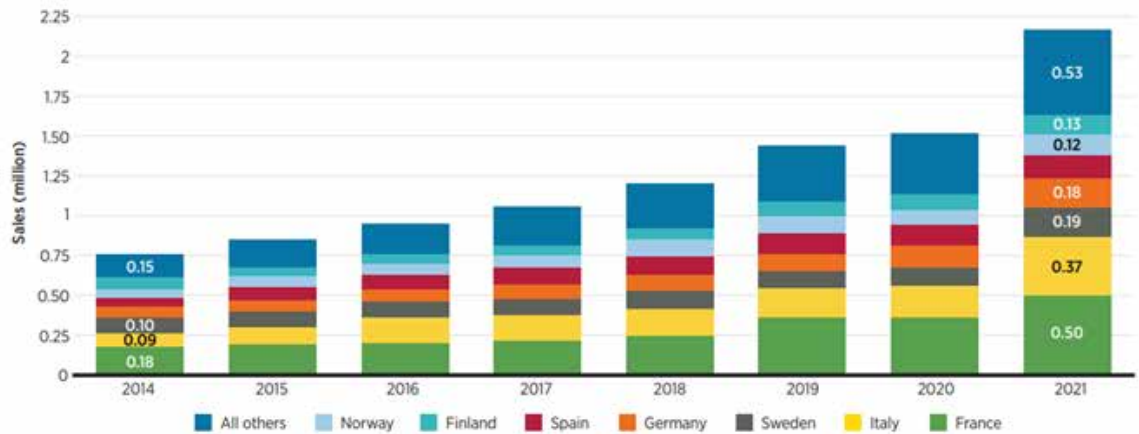
17 - EHPA. European Heat Pump Association. 2022. European Heat Pump Market and Statistics Report 2022, EHPA, Brussels.

18 - Hervé Pierret. Heat pumps are key to decarbonizing residential heating. REHVA Journal 06/2020, pp. 21-24.



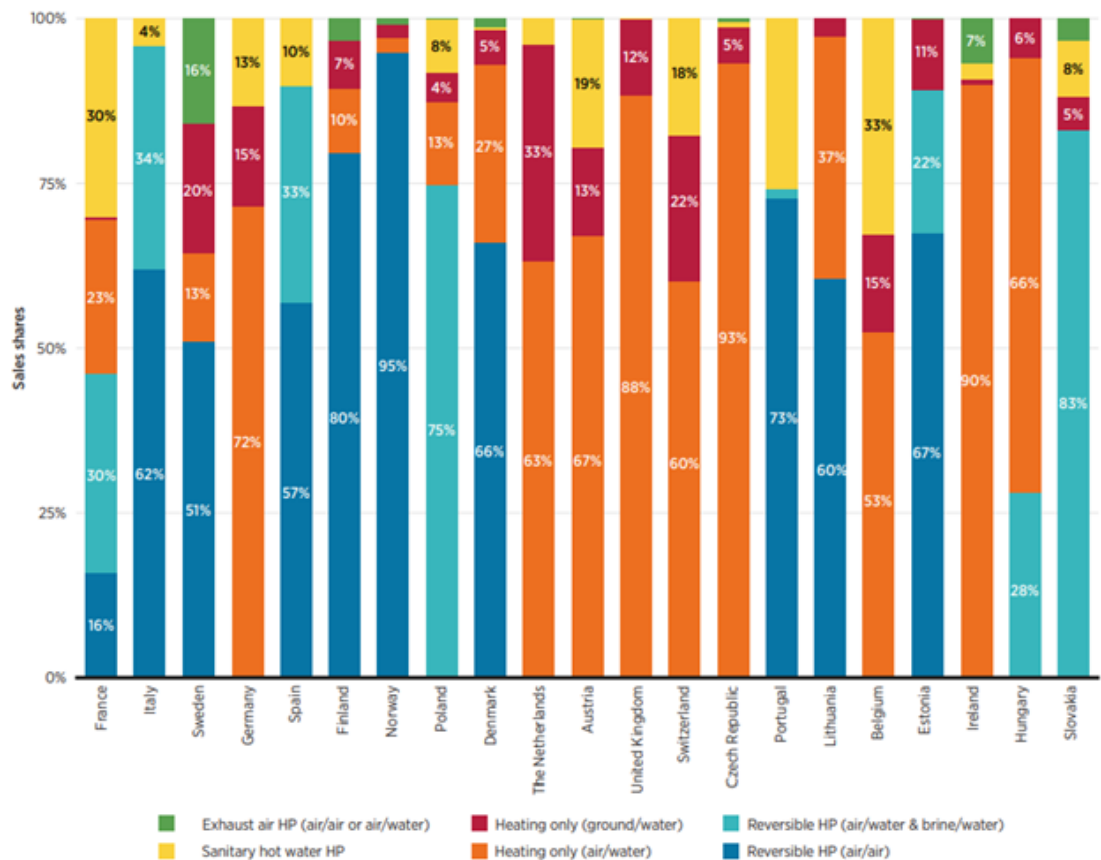
6

Heat pump sales in 21 EU countries, 2014-2021; from IRENA 17, source: EHPA19.



7

Heat pump sale shares per technology and heat source in 21 countries(2021); from IRENA17, source: EHPA19.



Focusing on the European Union and looking at 2030, while considering the current geopolitical scenario, the REPowerEU published in May 2022 (COM(2022) 230 final) aims at diversifying gas providers to boost the implementation of energy efficiency actions and to adopt sustainable energy sources; more specifically,

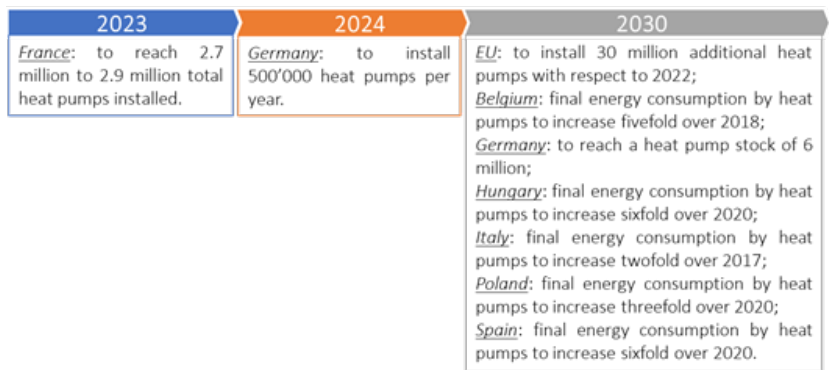
the replacement of gas-fueled boilers with heat pumps will be key in reducing natural gas consumptions in buildings. Recently, various EU member states have defined political support plans for installation of heat pumps, in line with the EU's effort to accelerate the transition towards their diffusion (Pic. 8). As for the scenario

of the commitments announced by the IEA (APS), Pic. 9 shows how strongly heat pumps support the reduction of heating gas consumptions up to 2030¹⁶. Based on such scenario, **about 2.5-3% of the existing building stock is expected to be renovated yearly, with the installation of heat pumps in most cases**¹⁶.

When focusing on Italy, we see that it represents the second European market for heat pumps,

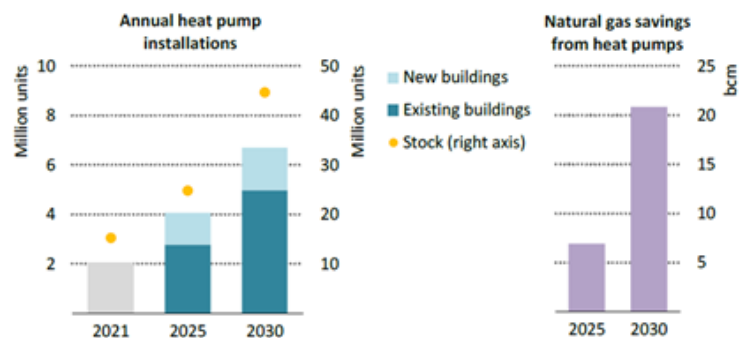
with 233,000 new installations in 2020 – of which 159,000 air-air systems, 58,000 air-water systems, 7,000 systems for hot domestic water production. This data shows how heat pumps are now the favorite generators used for heating and cooling systems¹⁸. Pic. 10 shows the cost trend of heat pumps in Italy, both in the residential and the service sector, for air-air systems and air-water systems of different sizes.

8



European political objectives selected to spread heat pumps; based on IEA data¹⁶, source: EU Commission; France-Ministry of Ecological Transition; Clean Energy Wire; Government of Italy; Government of Spain; Toilekyte and Carlsson.

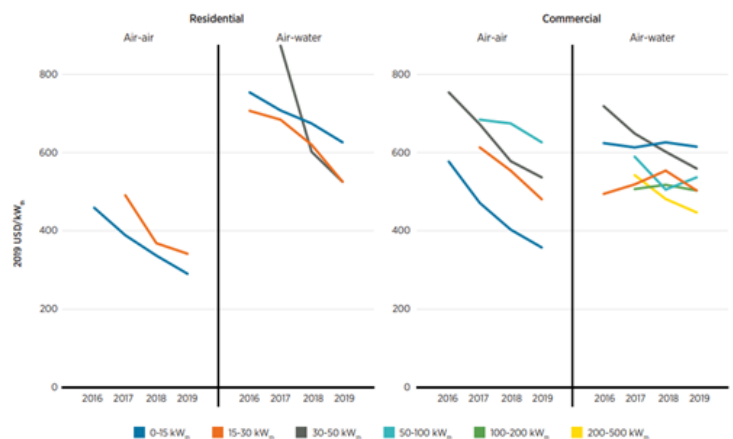
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Heat pump installation and stocks in the EU and related cumulative savings of natural gas in the Announced Pledges Scenario (APS) of IEA, 2021-2030; source: IEA¹⁶.

New heat pump installations cut the consumption of gas by 7 bcm in 2025 and 21 bcm by 2030 in the APS, roughly equal to 15% of Russian imports today

10



Cost trend of air-air and air-water heat pumps in Italy (2016-2019); from IRENA¹⁷, source: GSE¹⁹.



UE'S PATH TOWARDS "ALL-ELECTRIC" BUILDINGS

The EU's plan to address the planning of high energy-performance buildings (EPBD Directives on energy performance of buildings), defines sequentially the actuation phases below:

1. actions to reduce the thermal and cooling energy demand through proper solutions in terms of envelope and ventilation;
2. actions aiming at enhancing the efficiency of the installations-energy systems serving the building;
3. as last step, actions to cover, in full or for most part, the remaining energy demand through the use of renewable energy sources.

In general, all energy efficiency strategies must be outlined to reduce the energy needs of the building as well as their impact on the environment, acting on both the construction phase and the operational one. As pointed out above, the first step to maintain proper levels of indoor comfort is to cut down the heating and cooling energy need by improving the energy performance of the building envelope while reducing the energy need for ventilation. This aspect is key: a limited energy demand for ventilation is essential to achieve high energy performances.

Appropriate ventilation rates are as important, both for the users' wellbeing and for the preservation of the building, even more so today as air seepages through the building envelope are reduced to the minimum: air exchange does affect the building energy balance, yet it must be guaranteed for hygienical-sanitary reasons.

The current EU market for HRV systems is growing, in Mediterranean-area countries as well, and it includes residential applications. These systems have become essential to reduce the energy demand for ventilation: heat recuperators can be "sensible heat" or "full heat" units, with efficiencies exceeding 75% that drastically cut down the energy need for ventilation.

The radiant floor and ceiling panels embody the technology that perfectly meets the energy performance requirements set for HVAC systems: with their large heat-transferring surfaces, these systems work at a temperature range close to the building internal one and are therefore **able to increase the overall efficiency of the energy system**. In addition, they play a very important role also for regulation and control of the systems to achieve better results, especially when it comes to the users' expectations.

At the same time, the European Union's clear trend to boost "electrification" is producing a major impact on the market, which is now experiencing a growth in the installation of heat pumps to replace old gas-fueled boilers.

This is also promoted by the steady reduction of heating needs and an increasing number of requests for buildings provided with cooling systems in all construction sectors, but especially for residential applications.

As highlighted by the data available from the sector, the cooling demand will keep growing in the future, also by effect of climate change and the related increase of average temperatures in summer, as well as for the higher levels of expected comfort. We will experience massive installations of cooling systems, especially in new and retrofit residential buildings.

Another factor that contributes to boosting the spreading of heat pumps is the development of systems based on new refrigerants (propane and new green refrigerants) able to reach higher temperatures for hot domestic water production but also for traditional heating units, without penalizing the system efficiency.

In general, **the EU tends to promote an all-electric energy system where the electric energy carrier is able to cover all the building services and power all the devices with higher**



outputs. When combined to the production of renewable-source electric energy and high efficiency regulation and control systems, the electrification for building ventilation, heating and

cooling provides great overall efficiency in single buildings or building communities.

EU energy transition towards all-electric



CONSTRUCTION INDUSTRY

ALL-ELECTRIC BUILDING

Building Automation, Connected Building
& Smart Occupants

MOBILITY INDUSTRY

ELECTRIC VEHICLE

Automation driving, Connected Vehicle
& Smart Drivers

11

Similarities of Eu's trajectories towards electrification: mobility and building

In this scenario, an energy system integrating radiant panels (floor or ceiling) with HRV and dehumidification, along with a reversible heat pump and regulation/control systems, represents the best solution to achieve a high level of indoor comfort with top-notch energy performance

together with reduced energy requirements and environmental impact. Moreover, a reduced environmental impact may be furtherly amplified when electric energy is produced from renewable sources, such as on-site solar power systems.



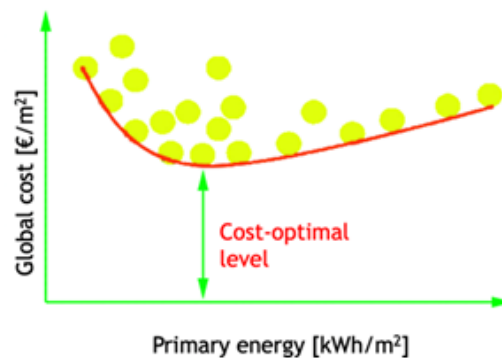
HIGH EFFICIENCY SOLUTIONS WITH A COST-EFFECTIVE APPROACH

Definition of the minimum specifications for high efficiency buildings is required not only for the individual components but also for the entire building, which leads to outlining the concept of NZEB (Nearly Zero Energy Building). As explained in the paragraph above, the planning process aims at identifying the best energy-efficiency solution: the planner takes various optimization steps in finding the ideal balance between different options, taking into account the technological aspect as well as the energy/environmental effects and the economic/financial implications. The selected solutions must meet the "cost-

optimal" requirements introduced by the Energy Performance of Building Directive Recast 2010. In fact, the ideal efficiency solution for an investor corresponds to the lowest point of the "cost-optimal" curve and represents a combination of envelope, ventilation, energy system and renewable source technologies that work in synergy to enhance the building performance in terms of technical and economic sustainability, where "nearly" in the NZEB definition stands for the energy performance representing the optimal cost.

12

Sketch of a
"cost-optimal"
curve



The "cost-optimal" methodology was developed to identify the energy planning configurations to achieve the "cost-optimal" NZEB.

In general, it may be used as a tool to support decision-making, able to drive the planning team and/or client's choices along the entire planning phase. The cost-optimal analysis enables to compare the energy (primary energy expressed in kWh/m²) and economic (overall cost in €/m²) performance of various planning configurations and identify one or multiple solutions within the so-called cost-optimality point.

This point, the lowest of the curve, represents the planning configuration featuring an "energy performance level which leads to the lowest cost during the estimated economic lifecycle of the

building", according to the European Commission's definition, using the global-cost method defined by the EN 15459/2007 standard.

The global cost is hence obtained by summing all the discounted-back costs, according to a discount rate that is adjusted based on the date of occurrence of the cost, including the initial investment costs, the periodical replacement costs, the annual maintenance costs, and the annual energy costs, and then deducting the final value, as shown by the operation below (1):

$$C_g(\tau) = C_I + \sum_j \left[\sum_{i=1}^{\tau} (C_{a,i}(j) \times R_d(i)) - V_{f,\tau}(j) \right]$$

where $C_g(t)$ represents the global cost referred to the year of commencement t , CI is the initial investment, $Ca,i(j)$ is the annual cost of component j at year i (including management costs, both periodical and for replacements), $Rd(i)$ is the discounted-back rate of year i , $Vf(j)$ is the final

value of component j at the end of the calculation period (referred to the year of commencement t). Worth noting is that **the "all-electric" solution based on "radiant panels and HRVs, with reversible heat pumps" is a "cost-optimal solution"**.

Results of a research study on single-family houses

Object of the study is a single-family house (Turin, Piedmont, Northern Italy) with a useful surface of about 140 sq.mt., in climate zone E (according to the classification of the Italian climate zones). 3 different thermal insulations were analyzed with regards to the building envelope:

- Level 1 or baseline, corresponding to the max thermal transmittance values set by the standard for this specific climate zone;
- Level 2, corresponding to the thermal transmittance values recommended by the energy regulation of the Commune of Turin;
- Level 3, corresponding to the thermal transmittance values of the PassiveHouse protocol.

As for the energy system configuration, 3 alternatives were defined and broken down into:

- Type A system (baseline): gas-fueled condensation boiler with radiators for heating, cooling multi-split system, 3 kWp photovoltaic

system;

- Type B system, reversible water-water heat pump with fan coils for heating and cooling, HRV, 3 kWp photovoltaic system;
- Type C system, reversible water-water heat pump with radiant floor for heating and cooling, HRV and dehumidification, 6 kWp photovoltaic system.

For all the above, 60% of the hot domestic water required is produced by a thermal solar system, according to the provisions set forth by the regional law.

The table below represents the matrix of the insulation levels and the energy system architectures, with the codes for the nine planning configuration alternatives analyzed. Case 1A represents the baseline (also known as reference building, RB).

Codes for the 9 planning configuration alternatives analyzed

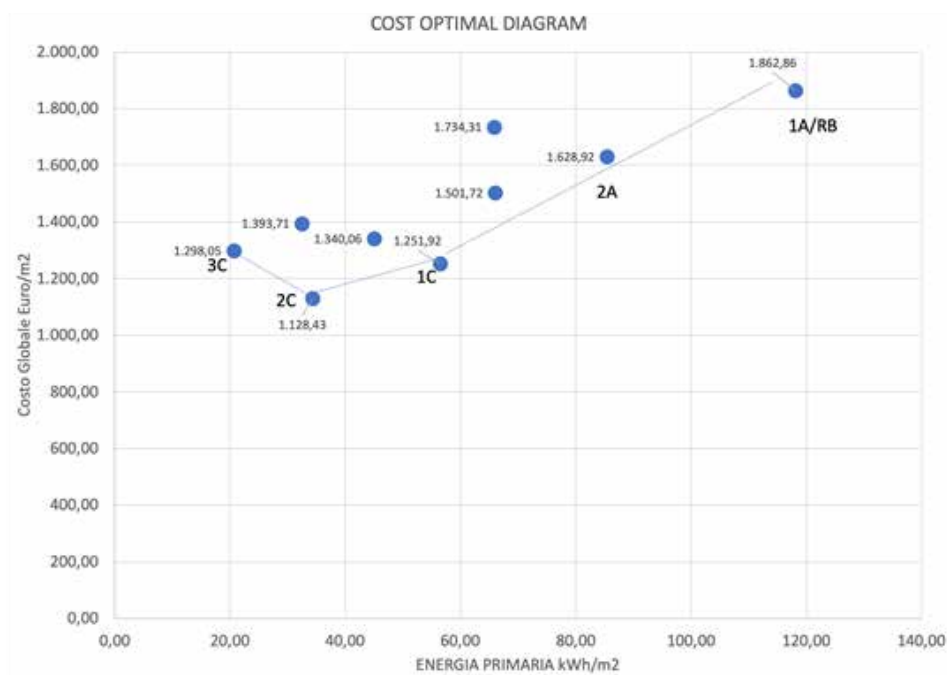
	System A	System B	System C
Insulation level 1	1A	1B	1C
Insulation level 2	2A	2B	2C
Insulation level 3	3A	3B	3C

The picture below shows the so-called "cost-optimal" diagram for the solutions analyzed. Every point in the diagram represents one of the project configuration alternatives defined

above. The line connecting solutions from 1A to 3C is the so-called "global-cost curve", where the minimum point is known as cost-optimal point corresponding to alternative 2C.



The analyzed planning configuration alternatives represented in the cost-optimal diagram - Residential Building Case



According to the picture, configurations using the Type C system (reversible heat pump with radiant floor) are the ones with the highest energy performance values on the cost-optimal curve. Moreover, the optimal point 2C features an intermediate level of thermal insulation, and it has been proven that a further increase of the insulation level (see case 3C) leads outside the cost-optimality area, with a higher global cost that even exceeds case 1C (basic insulation level). The trends highlighted in terms of "cost-optimal" curve can also be deduced by analyzing various radiant panel solutions, including radiant

ceilings: the market is showing a growing interest in this kind of alternative, not only from the service sector but also from the residential. Of course, the value pair (energy performance; global cost) characterizing each specific solution depends on the climate zone of the building, with the related heating and cooling needs that should match the users' expectations: the alternative can range from "fully radiant" solutions for heating/cooling with dehumidification to "hybrid" configurations with a heating radiant floor and cooling fan coils, in very hot summers.

Results of a research study on office buildings

The study was carried out in the same climate zone of the previous one (E, northern Italy) using as reference buildings already mentioned in the literature and in past studies: the building of reference is the small office model, part of the DOE commercial building benchmarks for new constructions. This is a single-storey rectangular building with a total surface of 511 sq.mt. The

choice fell on the heating and cooling radiant ceiling for its greater cooling capacity: this is an important feature for office building solutions where the cooling demand may be greater compared to those of residential buildings. As for the residential case, 3 different thermal insulation alternatives are taken into consideration with regards to the building envelope:

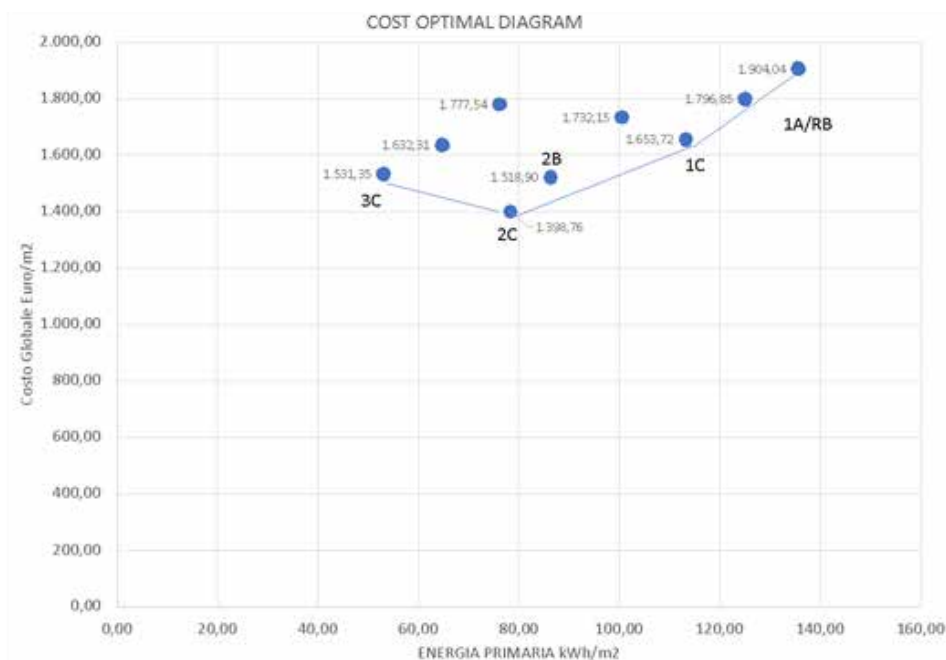
- Level 1, or baseline, corresponding to the max values of thermal transmittance set forth by the standard of the climate zone analyzed
- Level 2, corresponding to the thermal transmittance values recommended by the energy regulation of the Commune of Turin
- Level 3, corresponding to the thermal transmittance values of the PassiveHouse protocol.

As for the energy system configurations, 3 alternatives have been identified and broken down as follows:

- Type A system (baseline): gas-fueled condensation boiler with radiators for heating, multi-split system for cooling
- Type B system, reversible water-water heat pump with heating and cooling fan coils, HRV system
- Type C, reversible water-water heat pump with heating and cooling radiant ceiling, HRV system with dehumidification.

The picture below shows the optimal-cost curve for the construction of the office building analyzed: the parameters are the same of Table 1.

14



The analyzed planning configuration alternatives represented in the cost-optimal diagram - Office Building Case

As shown in the diagram, the optimal-cost curve for the office building case features a trend similar to the residential building case, highlighting

the optimal-cost point for the application of heating/cooling radiant ceilings, HRV and dehumidification.



RESIDENTIAL SINGLE-HOUSE APPLICATIONS UNIQUE HOME

Comfort systems

Modern life is spent more and more indoor, be it at home or at work. Today, everyone wants the environment where we live, work or rest to be as comfortable and healthy as possible, and at the lowest cost, yet enjoying high quality and adaptability. The recent pandemic and the current geopolitical crisis, based essentially on the supply of energy sources, have significantly boosted the revision of the existing building stock and future planning.

Comfort systems are key in such context and, together with the best thermo-hydraulic technologies, proper home automation control is essential for smart management of these systems.

Organic system solutions should not be DIY projects managed by installers, and it is easy to understand why: complexity of the technological solutions available; achievement of the performance where multiple devices are involved and must be properly integrated according to the system logics; cost-control, both during

installation and, most of all, along the entire life cycle of the building; guarantees for the end user. Unique Home is Giacomini's solution to achieve this goal and help planners, constructors, installers, distributors, and end users: the engineering, or better, "the comfort system" with a sole top-quality brand for the various thermal energy generation, distribution, and emission sub-systems to support and protect the entire sector.

In the next years the residential building will mandatorily become highly efficient to achieve climatic neutrality (Roadmap 2050 for Europe) through the electrification of the building sector: the Heat Pump technology will spread widely, thanks to its connection with direct photovoltaic systems and energy storage. The combination to radiant systems with a reduced temperature difference will boost its winning role for climate control along the entire annual cycle of the buildings.



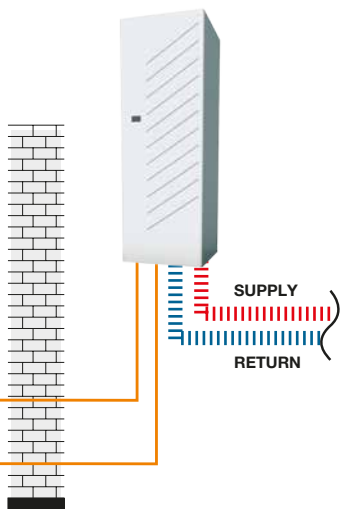


All-electric system diagram

unique home
all comfort in one



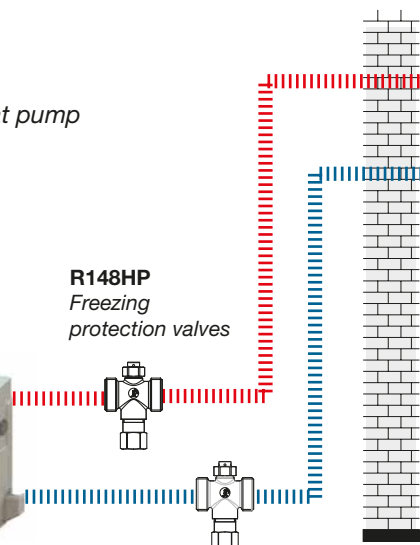
HPC
Split heat pump



HPM
Monobloc heat pump

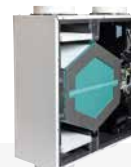


R148HP
Freezing protection valves



Heat recovery, ventilation, dehumidification units - Fan coil

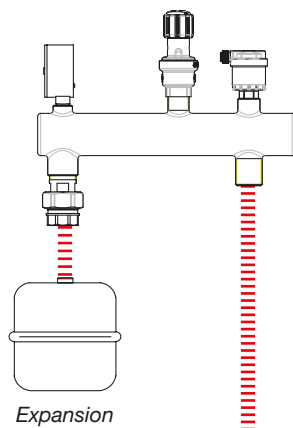
KHR-Z2



KDS



R555-2
Manifold equipped with automatic air vent, pressure gauge, safety valve

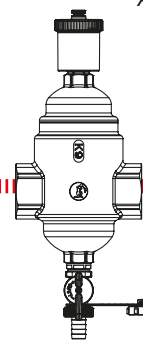


Expansion vessel

KPM22
Electronic controller for heating/cooling systems



R146V
Air separator

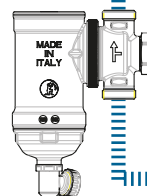


SUPPLY

RETURN

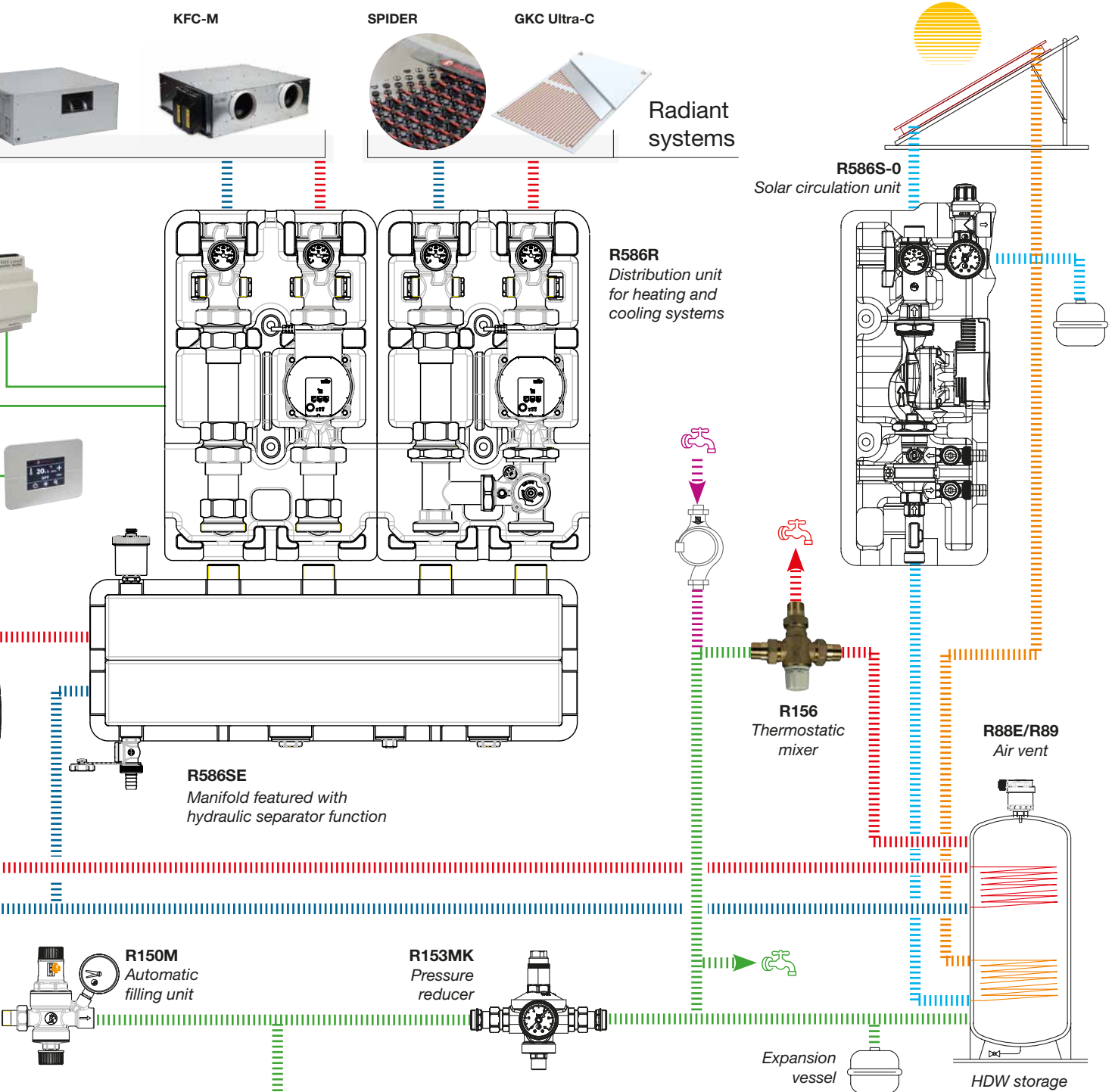
R279D + K270
Diverting 3-way valve + actuator

R146C
Magnetic dirt separator



Thermal storage tank







HPM

Monobloc heat pump

Monobloc air-water heat pump for residential heating and cooling. Extremely compact, it includes all the essential hydraulic devices, such as the electronic pump and the expansion vessel. Hydronic solution with no specific knowledge required to connect the cooling lines. Appealing design for optimal integration in various architectonic contexts.

👍 WHY CHOOSE IT?

- Hermetic monobloc cooling circuit with R290 low-GWP refrigerant

- Wide range of powers available in 4 different unit sizes: from 6 to 16 kW
- Max energy performance class: A+++
- Top-notch noiseless



HPM-Q

4-in-1 heat pump

High-efficiency air/water monobloc heat pump, specifically designed for convenient integration of heat pumps in domestic environments thanks to its compact dimensions and available configurations. The module, which also integrates its external unit in the machine body, is designed for convenient installation inside the residential dwelling with no specific limits: it only requires an ejection outlet for the "air source" on the edge wall (300x380 mm rectangular holes or DN200 round holes) and can be connected on the back or on the left or right side of the machine thanks to the telescopic ducts. Available with two different powers (5 kW and 7 kW) and in three versions: with no HDW storage tank; with HDW storage tank (HPMQ-H horizontal version); with stacked HDW storage tank (HPMQ-V vertical version).

The HDW storage tank (180 l capacity) is made with insulated stainless steel with a larger exchange coil; it includes the heating/HDW expansion vessels and it can be easily connected to the main module.

👍 WHY CHOOSE IT?

- Powers 5 kW and 7 kW, energy performance class A++, performance of reference under standard conditions (EN 14511-2:2012): heating COP 4,42 (A7/W35); cooling EER 4,23 (A35/W18)
- High-efficiency Twin rotary inverter compressors, EC radial fan for external air vacuum and ejection,



- electronic variable-flow circulator class A, backup electric resistance, heating/cooling 3-way valve and connection to HDW tank
- Cutting-edge electronic components to control all the unit functions. Sliding-temperature climate management based of the external temperature and indoor conditions

R586HPI

Hydronic module for heat pumps

Interface hydronic unit for heat pumps, designed for optimal control of heating/cooling services and hot domestic water (HDW).

👍 WHY CHOOSE IT?

- Metal frame for wall fixing
- Preassembled solution to cut down the time required for installation and prevent execution errors
- Connection to HDW storage
- Control of thermal storage tank to decouple the heating/cooling system from the heat pump status HDW production during cooling or execution of defrosting cycle during heating
- Diverting valve to change-over the control modes of both the HDW storage and the heating/cooling services
- Magnetic dirt separator with high filtering capacity
- The unit can be completed with relaunching circulator, insulation shell and diverting valve actuator



- Hydraulic connections conveniently placed on the front
- 600x600 mm (with stacked HDW storage tank, height 200 mm) for convenient domestic installation
- Reduced masonry works to create the external air intake and air ejection outlet

R148HP

Freezing protection valves

Compact freezing protection valve for monobloc heat pumps. It enables to carry out the hydronic circuit safety drain in case of ice formation. For vertical installation in the lowest part of the delivery and return pipes that connect the monobloc heat pump to the internal system of the building.

👍 WHY CHOOSE THEM?

- Protection drain working range:
 - opens at a ≤ 1 °C water temperature;
 - closes at a ≥ 4 °C water temperature
- For heating and cooling systems
- ISO 228 1", 1-1/4" and 1-1/2" male connections
- Compact dimensions: 6x10 cm (LxH) 1-1/2"
- Fluid: water
- External temperature working range:
 - -30/+60 °C
- Material: CW617N brass





R586R

Preassembled distribution/regulation (relaunching) units

Preassembled distribution and regulation units of secondary zone in heating and/or cooling systems.

👍 WHY CHOOSE THEM?

- DN25 and DN32 units available in multiple versions: direct connection, with mixing valve, with fixed-point setting through thermostatic control (DN25 only)
- DN40 units: completion in progress (coming soon)
- Delivery/return outputs reversibility
- All units include shut-off ball valves with delivery-return thermometers integrated in the knob, check valve in return outlet, polypropylene foam insulation shell, bracket for wall mounting
- Available in two versions: with no circulator or with preassembled circulator
- Installable on the boiler room modular manifold, with integrated hydraulic separator for on-site activation, R586SE (version for 2 and 3 secondary zones) for control of multiple units





R553FK (BRASS), R553FP (TECHNOPOLYMER), R553FS (STAINLESS STEEL)

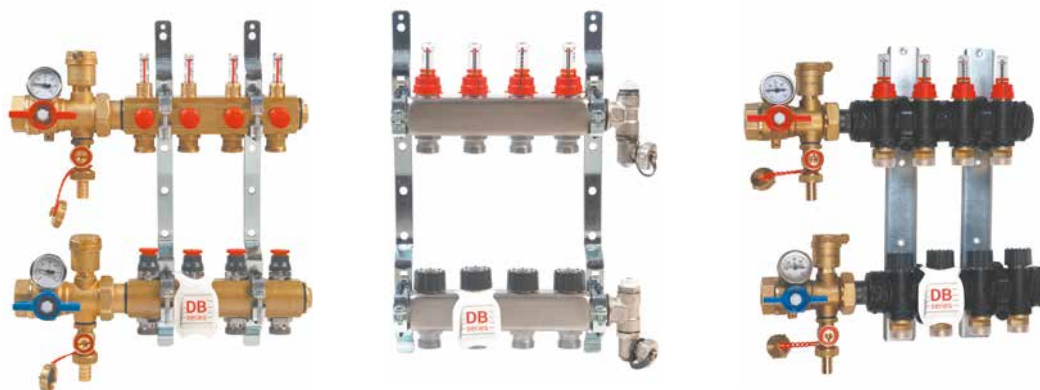
Preassembled manifolds for HVAC systems

👍 WHY CHOOSE THEM?

- For DB versions with dynamic balancing on individual circuits
- Available up to 12 loops
- Delivery with flow meters featuring fluid

regulation/shutting off

- Return with manual shut-off valves fit for installation of thermo-electric actuators
- With R26gT multi-function valves or shut-off ball valves



SERIE R583

Modular manifolds

Brass modular manifolds for complete distribution units.

👍 WHY CHOOSE THEM?

- Available with 2, 3 or 4 circuits for top-notch modularity when creating the distribution unit.
- Self-sealing and optimal module alignment
- Available in multiple versions with regulation

lockshields, no flow meter; with flow meters featuring fluid regulation/shutting off; with shut-off valves fit for installation of thermo-electric actuators

- 1" main connections, 3/4"E adaptor connection
- Available accessories: insulation shells, units with automatic or manual air venting and drain cocks





R979S

Preformed panel for radiant floors with low-thickness screeds and low thermal inertia

Preformed panel for low-thickness radiant floors and low thermal inertia. Ideal for refitting interventions in building energy upgrades.

👍 WHY CHOOSE IT?

- Patented tridimensional PPR grid that firmly holds the pipe during laying to drown it completely in the screed while achieving low thermal inertia values
- The innovative perforated protrusion makes this panel fit for sand- and concrete-based screeds as well as self-levelling screeds
- Creation of a radiant system with minimum height:
 - 20 mm – SLIM version, 12 mm Ø pipes
 - 25 mm – STANDARD version, 16-17 mm Ø pipes
- The panel provides high resistance to trampling

and enables to install the system without crushing the protrusions

- 3 types of support available
 - self-adhesive: to fix the panel directly on an existing floor
 - combined to a 6 mm insulation sheet ($\lambda=0.032$ W/mK, EN 1264-3): particularly suitable for energy upgrades
 - with connection pins: fit for interventions already featuring an adequate support insulation layer



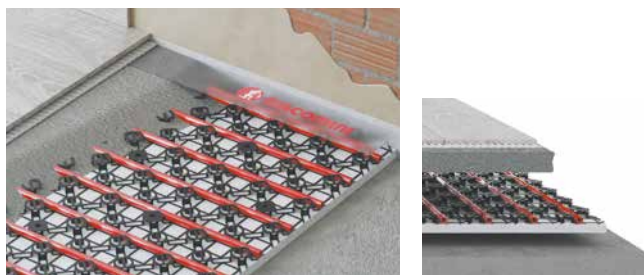
R979SC Preformed panel for CAM-certified radiant panels (Italian market)

Preformed panel with insulation complying to the Minimum Environment Criteria - CAM - for low thermal inertia radiant floors.

Insulation height mm	Panel height mm	Thermal resistance m ² K/W
10	32	0.30
20	42	0.61
30	52	0.91
40	62	1.21
50	72	1.52

👍 WHY CHOOSE IT?

- Panel pitch: multiples of 50 mm
- CAM insulation panel in EPS 150, heat conductivity $\lambda=0.033$ W/mK, EN 1264-3. 5 heights available:





GKC Classic, Super Classic, Ultra-P, Ultra-C

Plasterboard radiant ceiling systems

Concealed behind a regular plasterboard ceiling are active radiant elements forming a cutting-edge hydronic radiant system, the ideal solution for a winter and summer climate control able to

combine comfort and money saving.

Different systems that meet every performance and economic requirement in new or renewed residential buildings.

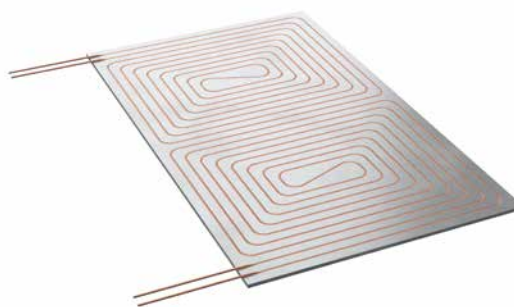
GKC Classic & Super Classic

Classic plasterboard radiant ceiling consisting of active and inactive panels, support structure and connection components.

👍 WHY CHOOSE IT?

- 15 mm plasterboard sheet with EPS 150 top insulation layer
- Activation through PEX 8x1 mm pipe coil with anti-oxygen barrier (panel pitch 50 mm for Classic, 30 mm for Super Classic with a greater specific thermal output)

- Panels with a 45 mm total thickness and available in various sizes (1200x2000, 1200x1000, 600x2000 and 600x1200 mm) to properly cover also complex or irregular surfaces
- Output referring to the active area:
 - Classic
 - 41 W/m² (Cooling $\Delta T=8$ K, according to EN 14240)
 - 68 W/m² (Heating $\Delta T=15$ K, according to EN 14037)
 - Super Classic
 - 48 W/m² (Cooling $\Delta T=8$ K, according to EN 14240)
 - 77 W/m² (Heating $\Delta T=15$ K, according to EN 14037)
- Reaction-to-fire class B-s1, d0 (EN 13501-1)
- Possibility to integrate special active and inactive panels: panels with fireproof plasterboard (class A1), water-resistant panels, acoustic panels (double perforated plasterboard sheet with interposed acoustic layer) with lighting-element holes





GKC Ultra-P

👍 WHY CHOOSE IT?

- 15 mm graphite-enhanced plasterboard sheet with EPS 150 top insulation layer
- Activation through PEX 8x1 mm pipe coil with anti-oxygen barrier and 30 mm pitch
- Panels with a 40 mm total thickness and available in various sizes (1200x2000, 1200x1000, 600x2000 and 600x1200 mm) to properly cover also complex or irregular surfaces

- Output referring to the active area:
 - 55 W/m² (Cooling $\Delta T=8$ K, according to EN 14240)
 - 80 W/m² (Heating $\Delta T=15$ K, according to EN 14037)
- Reaction-to-fire class B-s1, d0 (EN 13501-1)

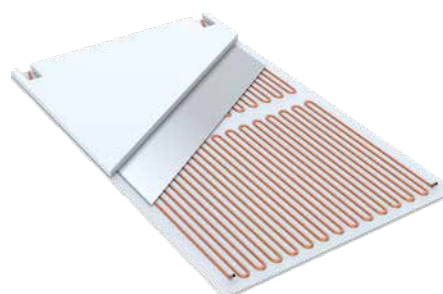


GKC Ultra-C

👍 WHY CHOOSE IT?

- 10 mm graphite-enhanced plasterboard sheet with EPS 150 top insulation layer combined to a 0.6 mm aluminum sheet
- Activation through \varnothing 12 mm copper pipe coil with a 50 mm pitch
- Panels with a 40 mm total thickness and available in various sizes (1200x2000, 1200x1000, 600x2000 and 600x1200 mm) to properly cover also complex or irregular surfaces

- Output referring to the active area:
 - 60 W/m² (Cooling $\Delta T=8$ K, according to EN 14240)
 - 85 W/m² (Heating $\Delta T=15$ K, according to EN 14037)
- Reaction-to-fire class B-s1, d0 (EN 13501-1)





KPM22

Electronic regulation unit

Bus unit with digital display, for regulation of radiant and mixed systems, control of 6 temperature zones and 1 dehumidification and integration zone.

👍 WHY CHOOSE IT?

- Dew-point control, set-point compensation on internal temperature or climatic compensation.
- A complete and easy-to-install solution with output

physical contacts and no expansion modules with relays

- The perfect solution for extremely flexible applications and fit for use with:

- new Giacomini K495C Canbus thermostats
- Giacomini K493TW Modbus thermostats with Wi-fi radio and control through App K-Domo
- electromechanic thermostats with humidity sensor



K492T

Wi-fi weekly chronothermohumidistat with touch-screen

Wi-fi weekly chronothermohumidistat with backlit touch-screen. Minimalist design, white, the ideal match for every architectonic context.

👍 WHY CHOOSE IT?

- Two versions available:
 - for control of thermo-electric actuators and dehumidifiers. Anti-condensation protection for summer cooling
 - for control of thermo-electric actuators and fan coils
- Heating and cooling control
- Weekly and daily program and manual control option

- K-Domo dedicated app for user-friendly remote control. Compatible with Alexa and Google Home
- Integrated relative-humidity sensor (20÷80%, ±5%)
- Dimensions: 2,8" display, 121x94x 60 mm (WxHxD), weight 187 g
- Horizontal installation on 503 3-module civil box
- Power 100-290 Vac, 47-63 Hz



APP K-DOMO
PLAY STORE



APP K-DOMO
APPLE STORE





KFC-M

Duct-type fan coil unit, compact design with multi-fan for HVAC systems

Duct-type fan coil for ceiling installation with integrated multi-zone control. Efficient, flexible, smart. One single fan coil integrates from 2 to 5 fans to guarantee autonomous air flows.

👍 WHY CHOOSE IT?

- Control of single zones with EC activation, 0-10V
- DN 160 delivery connections
- Characteristics of single zone fan:
 - Max air flow 300 m³/h
 - Useful static pressure 100 Pa
 - Total cooling power (7-12 °C): 1,9 kW
 - Sensible cooling power (7-12 °C): 2,7 kW
 - Thermal power (45-40 °C): 1,9 kW
 - Water flow rate 300 l/h
 - Water circuit losses of pressure 29 kPa

- Power supply 230 Vac
- Max electric absorption: 95W, 350 mA, 230 Vac
- Dimensions and weights: height 26 cm, depth 69 cm, width from 80 cm (2 zones) to 150 cm (5 zones), weight from 43 kg (2 zones) to 67 kg (5 zones)



KFC-WD (Wall_{DOWN})

Wall-mount lower fan coil

High-efficiency fan coil unit with extremely thin exposed cabinet. Unique design for residential installation. For heating, cooling and dehumidification combined to heat pumps. It features a tangential fan with asymmetrical blades and an exchanger with a large front surface, and it provides air flows with low losses of pressure and great noiseless.

👍 WHY CHOOSE IT?

- 5 different power options
- Only 129 mm deep
- 2-pipe version with left-side or right-side connections
- Modulated air flow for effective, imperceptible and noiseless movements

- Motor with DC inverter technology for very low energy consumptions and state-of-the-art operational stability
- Interface electronic cards for 0-10 V wall-mount remote controls or with 4 speeds (max, medium, min and supersilent)
- RAL 9003 white





KFC-WU (Wall_{UP})

Upper wall-mount fan coil

Fan coil for upper wall mounting, refined design with a reduced visual impact that perfectly blends in with every residential style. Extremely quiet thanks to the metal structure that minimizes vibrations and the optimized tangential fan.

👍 WHY CHOOSE IT?

- 4 different power options, including the XL version for climate control of large spaces
- Only 128 mm deep (215 mm for XL) for ideal positioning in every ambient
- 2-pipe version with left-side or right-side connections (right-side for XL only)

- Continuous-modulation motor, for modulated, imperceptible and extremely quiet air flows. DC inverter technology for very low energy consumptions and state-of-the-art operational stability
- Interface electronic cards for 0-10 V wall-mount remote controls or with 4 speeds (max, medium, min and supersilent)
- RAL 9003 white



KFC-F

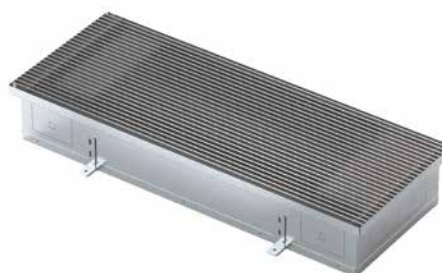
Floor-mount concealed fan coil

Floor-mount concealed fan coil for architectonic contexts with large window walls that need to prevent solar radiation in summer or uncomfortable cold drafts in winter: the floor-mount unit creates a true air barrier which envelopes the exposed windows and neutralizes the effects that compromise thermal comfort.

👍 WHY CHOOSE IT?

- 3 different power options, including the XL version for climate control of large spaces
- Compact dimensions and reduced installation space
- 2-pipe version
- DC inverter technology for very low energy consumptions and state-of-the-art operational stability
- Extreme working noiseless

- Interface electronic cards for 0-10 V wall-mount remote controls or with fix speeds (max, medium, min and supersilent). "Open window" inlet for automatic deactivation and activation
- Completed by:
 - Galvanized metal case for concealed floor installation to carry out water and electric connections first and then install the unit
 - Walkable covering grid: it perfectly matches the case and includes a fix deflector to distribute the air flow. Easy to remove for full maintenance of the unit





KDS-I E KDP-I

Dehumidifiers

Horizontal and vertical dehumidifiers designed for specific dehumidification needs in low energy-consumption spaces. For residential applications with radiant panel systems, they can also work as standalone units with no water supply.

The wall-mount vertical unit presents a refined design that conveniently blends in with any residential style or, as an alternative, specific duct-type accessories.

👍 WHY CHOOSE THEM?

- Nominal air flow rate: 320 m³/h
- EC brushless fan for top-notch noiseless



KHR-Z2

Compact heat recovery ventilation unit for vertical or horizontal installation

Dual flow duct-type ventilation unit with high efficiency heat recuperator. With its compact and lightweight construction, it can be installed in various ways: exposed or concealed horizontal installation; wall-mounting with cover; wall-mounting inside case.

👍 WHY CHOOSE IT?

- Standard or enthalpy static exchanger
- 140 m³/h e 200 m³/h models
- Useful static pressure 100 Pa
- ISO ePM1 flat filters - efficiency 80%
- Touch-screen control panel with Wi-Fi or Modbus communication, external wall-mount installation
- DN 160 connections
- Dimensions (WxHxD) 26x58x58 cm





KHRD-H

Ventilation units with heat recovery and dehumidification/integration

Dual flow duct-type ventilation units with high efficiency heat recovery, additional primary-air treatment section for dehumidification and optional heating/cooling integration based on model.

Dehumidification and summer cooling through partial recirculation of indoor air and activation of the unit cooling circuit.

👍 WHY CHOOSE THEM?

- Horizontal installation with new 3+2 configuration
- Reduced height to minimize the space required inside the ceiling

- Enthalpy exchanger, efficiency over 85%
- 300 m³/h and 500 m³/h models, with up to 50% of ventilation flow rate
- Versions with inverter compressor and additional coils to provide greater dehumidification capacities
- Useful static pressure 100 Pa
- Touch-screen control panel with T/H sensor. Wall mounting, remotable up to 15 meters with no additional power supply
- ISO ePM1 flat filters - efficiency 80% on external air intake and air delivery



MULTI-RESIDENTIAL APPLICATIONS

The centralized thermal system is the ideal solution for new condominium constructions

The centralized thermal system is the ideal solution for new condominium constructions to guarantee greater efficiency of the building/installation system and limit polluting emissions. A cutting-edge range of modular and electronic-control HIUs enables to distribute and meter the

heat transfer fluids in a traditional way.

The new all-electric systems will frequently use "centralized heat pumps" for primary water production and will hence increase locally the delivery temperature required by users ("local booster heat pumps").

GE556-SM

Monolithic modular HIUs

Modular heat interface units for metering of thermal energy consumptions in autonomous heating and hot domestic water production (HDW) systems with centralized heat production (e.g. district heating).

The HIUs can be configured based on different system requirements, with primary circuit connections from top or bottom and a variety of exchangers for hot domestic water production.





👍 WHY CHOOSE THEM?

- Standard version: for low or low/high-temperature heating systems
- Compact version: for high-temperature heating systems
- Hydraulic connections: telescopic system with G 3/4" F swiveling flat-seat nut
- Primary circuit inlet: choice of top or bottom inlet
- 16, 26 or 36-plate exchanger for hot domestic water production
- Priority valve for domestic water production
- Thermostatic valve for domestic water production
- Compact differential pressure control valve (40-70 kPa) preset at 50 kPa
- Water hammer arrestor for domestic water circuit
- Polypropylene foam insulation shell
- Fit for installation of a thermal energy meter and cold and hot domestic water meters by replacing the brass spacers
- Thermostatic by-pass to maintain the temperature of the exchanger hot domestic water
- White-varnished metal cover for HIU



GE556-SE

Electronic HIU

Modular heat interface units for metering of thermal energy consumptions in autonomous heating and hot domestic water production systems used for centralized heat production. Designed based on mechanical modular HIUs, of which they maintain the main characteristics, they enhance their thermoregulation modes and simplify installation and initial setup.

👍 WHY CHOOSE IT?

Main additional characteristics:

- 24 Vdc electronic regulation unit with graphic interface showing the main values read and the working status of the actuators

- Fit for MODBUS RTU Interface for remotization of the regulation data provided by the HIU
- Control of the heating system and the related chronothermostat through smartphone App



"DOUBLE WALL HEAT EXCHANGER" HIU

For heating and cooling control

Metering HIU for 4-pipe systems, heating and cooling control and instantaneous production of hot domestic water. 6-way valve included to control summer/winter change-over.

👍 WHY CHOOSE IT?

- PICV R206A valves included to provide a correct flow rate balancing (heating, cooling and hot domestic water)
- Hot domestic water production with NSF-certified Double Wall exchanger
- 2-way modulating valve to control the hot domestic water production
- HVAC circuit temperature range: 5-85 °C
- Max working pressure (HVAC & domestic water): 16 bar
- HVAC flow rate: 350-3200 L/h
- Cold domestic water flow rate: 110-2500 L/h
- Hot domestic water production: 1800 L/h at 46 °C with primary circuit at 51 °C and cold domestic water at 12 °C (69 kW)
- 24 Vdc electronic regulation unit with graphic interface displaying the main values read and the working status of the actuators
- Exchanger preheat control
- Legionnaire's disease treatment
- LEAD-FREE domestic water circuit
- Copper pipes for heating and cooling circuit
- AISI 304/304L stainless steel pipes for domestic water circuit
- Connections: 1-1/4" heating/cooling, 1" hot/cold domestic water
- Fit for installation of energy meters and cold water meters



HPW

Water/water booster heat pump

The water/water booster heat pump supplies hot domestic water in a very efficient way to residential dwellings connected to a low-temperature primary HVAC system. It combines low energy consumptions to high energy performance with enhanced comfort for hot domestic water. When combined to well-insulated storage tanks, it provides a totally safe production of hot domestic water (Legionnaire's disease prevention). Compact dimensions for convenient installation in the dwelling space.

👍 WHY CHOOSE IT?

- Source temperature 15 – 40 °C
- Hot domestic water production up to 70 °C
- COP = 4,78 (COP = 8 with preheater)
- Max acoustic pressure 35 dB (A)

HPWB

Water/water booster heat pump with integrated HDW water storage tank

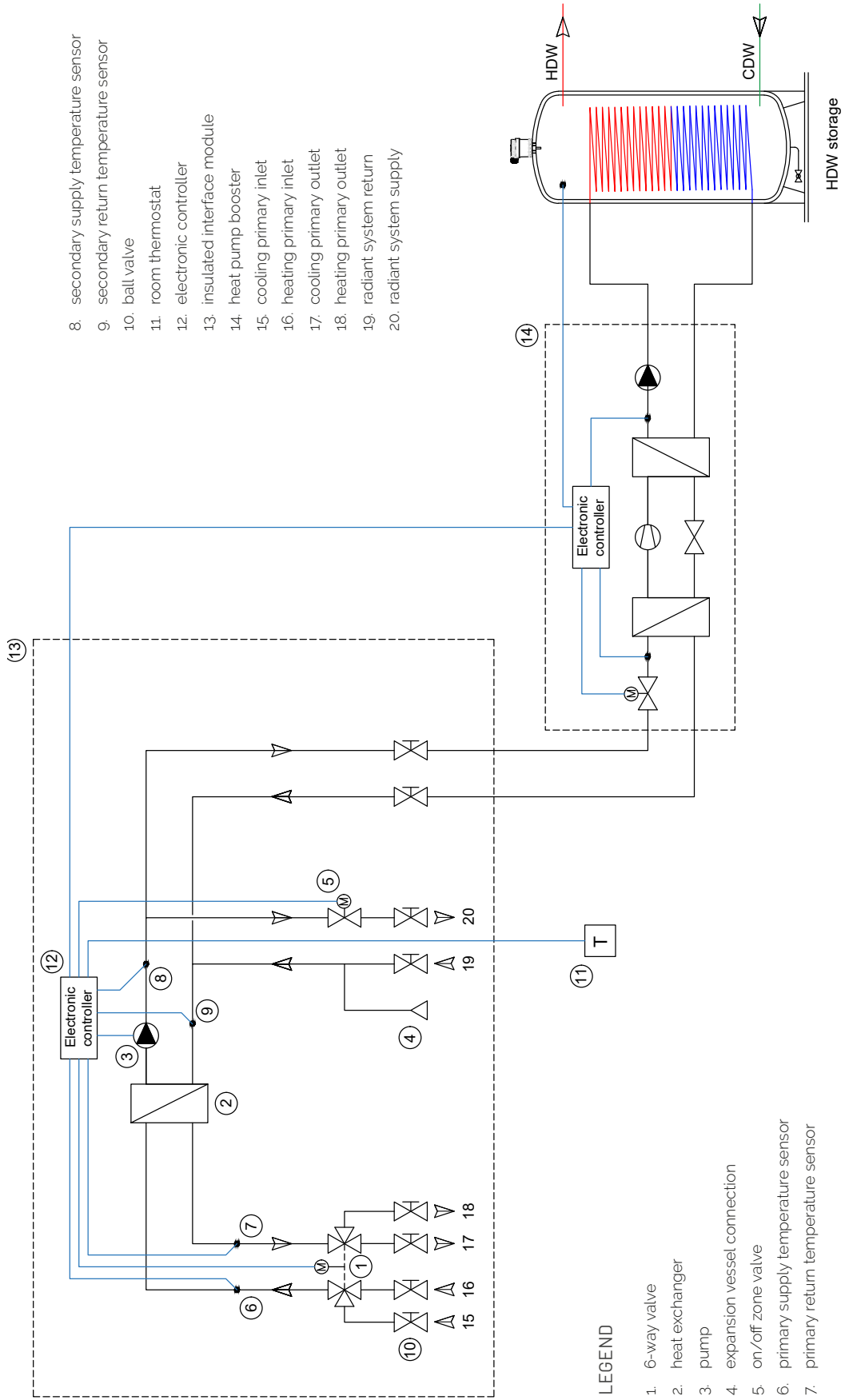
Water/water heat pump integrated in the HDW storage tank of 270 l.

It supplies hot domestic water in a very efficient way in residential dwellings connected to a low-temperature primary HVAC system.

👍 WHY CHOOSE IT?

- Source temperature 15 - 40 °C
- Max water temperature up to 80 °C





NON-RESIDENTIAL APPLICATIONS

Comfortable, healthy,
and extremely efficient
HVAC systems

For service-sector buildings (offices, hospitals, airports, commercial spaces, schools) we provide complete systems and components that enable

to create comfortable, healthy, and extremely efficient HVAC systems.

R280KC

Compact fan coil kit

Compact-design preassembled kit combining all components required to control, flush, and start up the terminal units of HVAC systems (generally fan coils, but also cooling beams or ceiling HVAC systems) with the main distribution network.

It consists of a diverting ball valve for the unit bypass, a full-port ball valve with integrated filter, a pressure independent control valve (PICV), a manual air vent valve and a drain cock. EPP insulation included.

The filter can be cleaned by opening the ball valves, with no need to drain the entire system to activate the unit.

Two versions available, Standard and High Flow.

👍 WHY CHOOSE THEM?

Standard compact kit including:

- H valve center distance 60 mm connections
- Ball valve with DN25 integrated filter

- PICV valve: DN15 and DN20 versions (max flow rate 1500 L/h)
- Connection fittings: ½", ¾" and 1"

High Flow compact kit (coming soon) consisting of:

- H valve center distance 80 mm connections
- Ball valve with DN25 integrated filter
- PICV valve: DN25 version (max flow rate 3800 L/h)
- Connection fittings: ¾" and 1"





R274C**Compact 6-way zone valve**

Compact 6-way zone valve with innovative monobloc hydronic distribution cartridge for top-notch control.

The 6-way zone valve conveniently controls heating and cooling 4-pipe systems.

An individual motorized valve replaces two motorized 3-way valves brilliantly solving the issue of change-over synchronization between the hot and cold fluid distribution lines.

👍 WHY CHOOSE IT?

- Patented
- Extremely compact brass body for installation in small spaces
- 1/2" flat-seat male connections for a wide range of pipe fittings
- Innovative hydronic distribution cartridge for reduced losses of pressure, 1,95 Kv (m³/h, 1 bar)
- Protection mechanism integrated in the cartridge to prevent overpressures

- Optional static balancing through regulation of the Kv with the P21S calibrated washers
- Max static pressure 16 bar, max differential pressure 2 bar
- Cross-linked polyethylene insulation also available
- Possibility to fit the valve on supports using the 4 M4-female thread holes on the lower side
- ISO 5211 F04 connection to install the K274-2 electric actuator

**DX274****Flow rate dynamic regulation for 6-way valve (Dynamx)**

Control device for 4-pipe systems (heating and cooling available simultaneously) with actuator and electronic flow rate control preassembled on a 6-way valve.

👍 WHY CHOOSE IT?

- Multiple integrated functions: pressure independent control valve (PICV), shutting off, change-over, temperature control

- Thermal energy metering (for versions with temperature sensor only: display of kWh consumptions, but this data cannot be used for metering according to the MID directive)
- Remote control option through ModBus and BacNet protocols, and convenient integration in BMSs (Building Management Systems)
- Wide range of flow rates, top-notch accuracy and prompt response times compared to mechanic control systems

- Better working conditions thanks to real-time flow rate reading
- Actuator with manual command option to change the valve position also when there is no power supply
- Works with a wide range of differential pressures (no min Δp required)
- Integrated overpressure-protection system (patented)

- The valve can also be fitted on supports using the female-thread hole on the lower side of the valve (1 M6 hole for 1/2" DX274, 2 M4 holes for 1" DX274)



SERIE GK ULTRA

Ultra Metal radiant ceiling

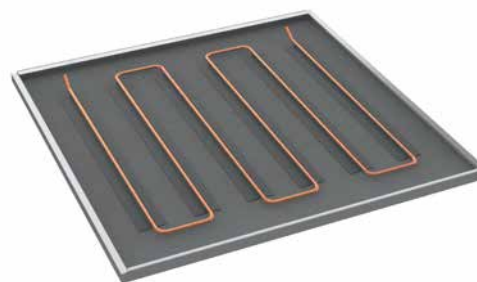
The metal ceiling, which houses service systems and networks, is the core of the HVAC system and as so it provides state-of-the-art comfort and indoor health, great energy saving rates, total architectural freedom and valorization of the building surfaces and volumes. Available in various versions, also customizable.

👍 WHY CHOOSE IT?

- Steel sheet system consisting of active and inactive panels held by a sturdy exposed, parallel or cross-pattern support structure



- Support structure and panels easy to install for quick and convenient laying
- Simplified access to the plenum for inspection or maintenance of other systems also when the system is on
- The panels available in various sizes include TNT for top-notch soundproofing
- Activation with anodized aluminum thermal diffusers and hydraulic circuit with \varnothing 16 mm copper coil
- Thermal outputs (referred to the active surface):
 - 108 W/m² (Cooling $\Delta T=8$ K, according to EN 14240)
 - 134 W/m² (Heating $\Delta T=15$ K, according to EN 14037)



SERIE GK-V ULTRA

Metal cloud or canopy

Radiant cloud including suspension system, containment profile and steel-sheet active panels. Fit to create "discontinuous ceiling clouds" interrupting the ceiling linearity while guaranteeing architectonic freedom to properly cover the climate-control spaces.



👍 WHY CHOOSE IT?

- Activation with anodized aluminum thermal diffusers and hydraulic circuit with \varnothing 16 mm copper coil
- The panels, available on request in various sizes, include TNT for top-notch soundproofing
- Thermal outputs (referred to the active surface):
 - 124 W/m² (Cooling $\Delta T=8$ K, according to EN 14240)
 - 150 W/m² (Heating $\Delta T=15$ K, according to EN 14037)



KHRA2

CLEAN AIR compact ventilation unit with thermodynamic heat recuperator

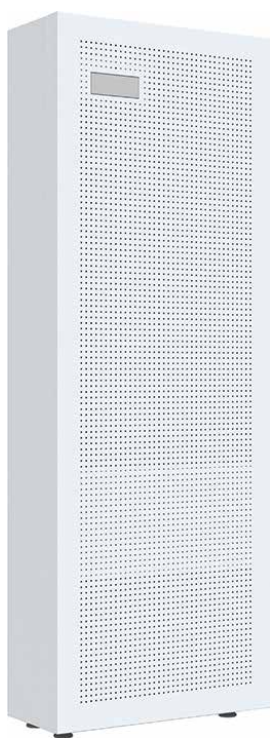
CLEAN AIR compact ventilation units with thermodynamic heat recovery in heat pump. Versions available for exposed or concealed installation, ceiling-mounting or wall-mounting.

Designed to provide convenient air exchange in existing confined spaces conceived mainly for public use: the limited masonry works required (only 2 Ø160 mm holes on the edge wall) and their high exchange air flow rate make them fit for installation in schools, gyms, canteens, outpatient's departments, offices, and any space where air exchange is required (for health and hygiene purposes).

Thanks to the thermodynamic heat recovery, external climate conditions can be integrated while helping the HVAC system achieve indoor comfort; furthermore, the inflow air is always at a temperature close to or better than the indoor temperature, hence guaranteeing higher levels of perceived comfort.

👍 WHY CHOOSE IT?

- Version with germicide UV lamp also available
- Touch-screen control panel with Wi-Fi communication towards App, or Modbus
- ISO ePM1 filters - efficiency 80%
- Max flow rate: vertical model 380 m³/h, horizontal model 460 m³/h
- Thermal power: vertical model 3.1 kW – C.O.P. 4.4, horizontal model 3.6 kW – C.O.P. 4.3
- Cooling power: vertical model 2.4 kW – E.E.R. 3.3, horizontal model 2.7 kW – E.E.R. 3.0
- Side electric switchboard with microprocessor and dedicated regulation
- Fan control, temperature display, heat pump control based on thermal and cooling needs
- Control of air flow rate with integrated air quality sensor



HYDRONIC SYSTEM BALANCING

Our hydronic balancing devices are the ideal solution to create state-of-the-art balanced systems able to provide the usage point the

adequate heating or cooling power while offering noiseless operation and duration in time of its main components.

DB SERIES

Radiator valves and distribution manifolds with dynamic balancing

The balancing cartridge limits the flow rate to the presetting value independently from the differential pressure, hence preventing pressure fluctuations in 2-pipe systems which occur when the regulation elements of other usage points close.

👍 WHY CHOOSE THEM?

- Patented cartridge with EPDM controlled-deformation balancing membrane
- For effective balancing of the hydraulic circuit while providing great energy saving and enhanced comfort
- Multi-function: presetting, continuous precision regulation, shutting off
- Presetting with graduated scale to limit the max flow rate
- 2 versions available: red Low Flow (LF) membrane and black High Flow (HF) membrane
- DB radiator valves with thermostatic option for accurate temperature control and automatic hydraulic balancing
- Max differential pressure at TOP-NOTCH levels
- Designed to work with a max differential pressure of 150 kPa, they are fit for a wide range of applications, from small residential buildings to large constructions

- The 150 kPa max differential pressure enables to use the valve to replace old ones without installing a differential pressure controller upstream of the distribution line
- Wide range: iron pipe connection, adaptor connection, angle, straight and reversed angle versions
- Replacement of command bonnet with no need to turn off the system
- They make circuit calibration easier, especially in systems with complex refitting requirements
- Keymark certification



R206A**Automatic flow rate regulation valve (PICV)**

Pressure-independent flow rate regulation valve fit for use with special actuators.

👍 WHY CHOOSE IT?

- It efficiently balances the hydraulic circuit while providing top-notch energy saving
- Brass body with male-thread tailpieces 1/2", 3/4" and 1", fit for connection to sensor holders
- Regulation cartridge with graduated indicator

for accurate regulation of the max flow rate
- Fit for use with on/off actuator or proportional actuator (0÷10 V) for flow rate automatic regula

**R206B****Static balancing valve**

Static balancing valve for accurate regulation of the flow rate.

👍 WHY CHOOSE IT?

- Also available in compact version
- Standard: fix orifice (Venturi tube), with Venturi Kv printed on the ABS knob; with or without sensor holder for differential pressure gauge; "CR" brass body, 1/2" to 2" female-thread connections and 1/4"F drain with cap
- Compact version (R206B-1): variable orifice; no sensor holder; brass body, 1/2" to 1" female-thread connections and 1/4"F drain with cap
- Optional opening regulation through mechanic-memory mechanism (presetting)

**R206C-1****Compact differential pressure control valve**

Compact differential pressure control valve for constant pressure.

👍 WHY CHOOSE IT?

- Extremely compact dimensions for applications in limited spaces and in preassembled metering modules
- Featuring flow shutting off function
- Setting range: 5÷30 kPa
- Female-female connections (1/2", 3/4" and 1")
- Anti-dezincification "CR" brass body



VALVES AND COMPONENTS FOR FIRE PROTECTION SYSTEMS

Our devices for traditional water-based fire-protection systems are used world round by leading contractors of the sector to provide cutting-edge solutions for state-of-the-art systems featuring reduced installation times.

Our components are used in civil buildings but also in large industrial fire-protection systems:

airports, hotels, hospitals, skyscrapers, malls, production plants and sport facilities.

Compliance to the most prestigious international standards (NFPA) and homologations by the most estimated international bodies (UL and FM) and demanding Fire Departments (NYFD) confirms our technological leadership.

SERIE A220

Pressure Reducing Valve "factory set"

Pressure reducing valves with preset reduction ratio (factory set). For application in sprinkler, standpipe, and combined systems.

👍 WHY CHOOSE THEM?

- UL certificate
- Pressure reduction ratio controlled by a factory-set regulation mechanism
- 8 bonnets available: C, E, G, H, I, L, M, P
- Max pressure of use 400 psi
- Downstream pressure setting range 50-175 psi
- Side pressure outlets 1/4" NPT
- Optional installation of position control sensor

- Dimension 2-1/2":

- Straight valve
 - Groove x Groove
 - Female x Female

Angle version

- Groove x Female
- Female x Female
- Groove x Male
- Female x Male



A55E/A56E**Hydrant angle valve**

Angle valves for hydrant connection, new design and optimized command couple. For use in specific hydrant cabinets or on single connections.

👍 WHY CHOOSE THEM?

- UL & FM Certificate
- Max pressure of use 300 psi
- Also available in chrome-plated and polish chrome-plated versions
- Dimensions:
 - 1-1/2"
 - NPT Female Inlet x NPT Female Outlet
 - NPT Female Inlet x Male Outlet

- 2"-1/2"

- NPT Female Inlet x NPT Female Outlet
- NPT Female Inlet x Male Outlet
- Inlet Groove x NPT Female Outlet
- Inlet Groove x Male Outlet

**A62 - A62 K****"Test and Drain" angle valve**

Angle valves providing test, drain and safety functions.

👍 WHY CHOOSE IT?

- UL certificate
- Max pressure of use 300 psi
- A62K: it combines the A62 Test and Drain valve to a safety drain valve
- Inlet and outlet Groove-Groove, Female-Female or Groove-Female
- Dimensions:
 - 1-1/4"
 - K factor min. 2.8
 - K factor max 14.0
 - 2"
 - K factor min. 4.2
 - K factor max 25.2

**A7****Nozzles for fire hoses**

Adjustable "Fog" nozzles for fire hoses. Brass or plastic material.

👍 WHY CHOOSE THEM?

- UL and FM Certificates
- Also available with rubber protection ring (bumper)
- Max pressure of use 100 psi
- Dimensions and versions:
 - 1-1/2"
 - Brass, with or without bumper
 - Chrome-plated brass, with bumper
 - Plastic material, with bumper
 - 2-1/2"
 - Brass, with bumper



THE "HYDROGEN" AND "ZERO-IMPACT" CLIMATE CONTROL PROJECT

When the electric line is unable to power all-electric the solution are hydrogen systems. The goal of our studies and development projects in the hydrogen sector is to achieve the best in terms of sustainability, that is bringing to life a "zero-emission" cycle to produce thermal energy.

INNOVAHUB DISTRICT

Multi-function power plant

Multi-function power plant to provide the associated residential quarter with sustainable electric and thermal energy (hot or cold). The ideal solution to develop sustainable energy districts without congesting the network and respecting the limits on nitric oxide.

👍 WHY CHOOSE IT?

- Electric energy, heating, and cooling for existing and/or new buildings
- Production of green hydrogen
- Energy, heat, and cold storage
- Balancing the green energy demand and offer at district level through local energy generation
- Buffering for the electric grid and the future hydrogen network
- Optimizing energy management on a domestic and quarter level (Energy Management System)
- Collective solution for any type of building

H₂YDROGEM 5

Hydrogen-fueled boiler

The H₂hydroGEM hydrogen-fueled boiler by Giacomini has great new features:

- thermal power increased to 25 kW, for a wider range of heating applications and instantaneous and integrated production of hot domestic water
- new wall mounting design, just like the traditional gas condensation boilers it aims at replacing by distributing hydrogen in the existing networks

The core is once again the cutting-edge zero-emission catalytic burner developed by Giacomini.

👍 WHY CHOOSE IT?

- Thermal power 25 kW
- Hot domestic water instantaneous production
- Wall-mount installation
- Zero emissions, including NO_x





HOW TO MAKE HVAC SYSTEMS MORE EFFICIENT: DIRT SEPARATION AND DEAERATION

The duration and efficiency of a HVAC system strongly depends on the quality of the water it contains. Air and debris in the thermal vessel fluid can lead to corrosions and affect the correct distribution of thermal energy. Specific devices

are therefore essential to eliminate air and debris in the quickest and most effective way possible while preserving the system and cutting down the costs related to its lifecycle.

R145XC

Compact magnetic dirt separator

Extra-compact magnetic dirt separator with 2-inlet connection fitting. For installation underneath wall-mount boilers and on any straight pipe section (horizontal, vertical or slanted). Equipped with a shut-off ball valve and an integrated check valve to insulate the device in case of maintenance.



👍 WHY CHOOSE IT?

- It includes a G 3/4" F tailpiece fitting to connect the filter outlet directly to the wall-mount boiler.
- Complete of self-sealing female-thread cap for the unused inlet.
- Brass main body, fitting and ball valve, AISI 304 stainless steel filter; filter-holder cartridge in glass-filled nylon (PA66-GF20), EPDM gaskets, neodymium magnet (13.000 Gauss).
- Compatible fluids: water, glycol-based solutions (max 50 % of glycol).
- Temperature range 5+90 °C.
- Max working pressure 3 bar
- Patented

R146C**Adjustable magnetic dirt separator**

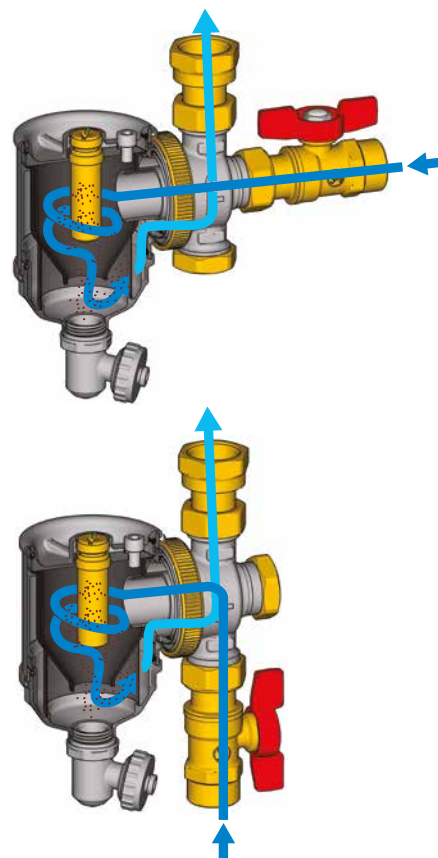
Cyclonic magnetic dirt separator, to separate and remove debris from the hydraulic circuit, special adjustable fitting included.

Outstanding cleaning action and prompt intervention: residues are efficiently channeled to the filter bottom thanks to the integrated filter and the cyclonic particle separation. Just stop the system circulation pump, open the drain cock, loosen and remove the magnet from the top and when the running water is clear, close the cock, reinsert the magnet and restart the circulation.



👍 WHY CHOOSE IT?

- Patented
- Enhanced performance (+30% of cleaning capacity) and special permanent neodymium magnet (13.000 Gauss) resistant to high temperatures
- Its cyclonic mechanic filtering and magnetic action provide a triple cleaning effect for top-notch performance
- Brass, with flat-seat male-thread connections 3/4", 1" and 1-1/4" (1-1/2" coming soon) .
- Also available with compression fittings for connection to copper pipes
- Adjustable drain cock included
- Temperature range 5÷90 °C
- Max working pressure 10 bar
- Optional insulation shell



R74M**Y filters with magnet**

Y filters equipped with special permanent magnet (magnetic candle), fit for use in HVAC circuits and for drinking water distribution.



👍 WHY CHOOSE THEM?

- Wide range that includes female-thread connections from 1/2" up to 2"
- Inspectionable filter with stainless steel basket
- Extremely easy to service and clean
- Max working temperature 90 °C
- Max working pressure 30 bar

R701F**Ball valve with integrated filter**

Full-port ball valve with integrated filter for convenient inspection and service of the HVAC systems.



👍 WHY CHOOSE IT?

- Red T-handle
- 1/2", 3/4" and 1" female-female connections
- Stainless steel filter 500 µm filtering capacity
- Temperature range 5÷-110 °C
- Fit for installation of the P74M magnetic kit inside the valve body for an even more efficient filtering action. Temperature range with magnetic kit: 5/-90 °C

R88E

Compact automatic air vent valve

Compact automatic air vent valve with adjustable horizontal drain, cap with hygroscopic gaskets, shut-off cock integrated in the valve body and inspectionable filter.



👍 WHY CHOOSE IT?

- 3/8" and 1/2" connections
- Stainless steel filter (500 µm)
- Quick-opening system with technopolymer clip
- Patented

R89

High-performance automatic air vent valve

High-performance automatic air vent valve with vertical drain and fully renewed drain mechanism, cap with hygroscopic gaskets, shut-off cock integrated in the valve body and inspectionable filter.



👍 WHY CHOOSE IT?

- 3/8", 1/2", 3/4" and 1" connections
- Stainless steel filter (500 µm)
- Quick-opening system with technopolymer clip
- Patented



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