New underfloor heating system

Watts solution in a villa near Barcelona

Case Study

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AIM
Complete renovation of a one-family house with design of a new underfloor heating system to provide comfort and energy efficiency for the property owners.

- **WHAT**
  Complete renovation of a one-family house with planning of a new underfloor heating system..
- **SOLUTION**
  ACS/AFE, anti-legionella valve for ACS and AFS expansion vessels, WSS, SFR, INT Intervent, WHOF1, OneFlow®, Watts Vision® 2.0 (BT-CT03-RF, BT-D03 RF, WFC-03-HC), 22CX, HKV 2013A-AFC.
- **WHERE**
  Sant Quirze del Vallès (Barcelona, Spain)
- **WHEN**
  2024

The area north of Barcelona combines the charm of cities with the beauty of nature, making it an ideal destination for those seeking a balance between urban life and serenity, with numerous green areas ideal for excursions and outdoor activities.

In particular, we were responsible for the complete renovation of a detached house; a project that included the installation of an underfloor heating system to provide comfort and energy efficiency for the property owners. New heating systems require continuity of operation, fast maintenance and low running costs. The Watts solution dedicated to this type of system offers a complete range of components to ensure control and efficiency, from the hydraulic part to the regulation part. With the implementation of the multi-stage project, in line with the installer's work plan, we supported the installer to realise an efficient, reliable and easy-to-manage system.

Establishing deadlines and timings for each type of intervention, numerous products were installed for the hydraulic part in the heating plant.

To compensate for variations in the volume of the heat transfer fluid in the heating circuit, the **ACS/AFE expansion vessel** has been installed, which prevents increased pressure in the system from damaging pipes and components.

In addition, **the anti-legionella valve for ACS and AFS expansion vessels** has been connected to the expansion vessel.

This valve is designed to constantly take part of the water circulating in the pipe and push it into the expansion vessel to eliminate the risk of water stagnation inside the vessel itself. WRAS-certified, this device is equipped with a shut-off valve through which the flow of water can be stopped and a plug which, when removed, allows the water to be drained off so that the sump can be easily replaced or serviced.

Ensuring the protection of systems also means assessing their efficiency, not only with routine maintenance activities but also with the use of components that, although small, represent great added value for everyday life in terms of performance and energy savings.

The WSS magnetic dirt separator is one of them: it is a component that, by means of a mechanical action that exploits the centrifugal force of water, has the task of separating all the impurities that may be inside the closed heating circuit such as sediments, ferrous residue, sludge, limestone, etc.

Watts' WSS threaded magnetic dirt separator is considered state-of-the-art thanks to the magnet included in the body of the device, which is able to filter and retain any type of ferrous residue, depositing it inside a "collection chamber" to prevent the accumulation and clogging of pipes and other circuit components (such as exchangers) with consequent damage to the boiler. Characterised by its small size and a swivelling connection (it can be easily installed horizontally, vertically and diagonally), the WSS magnetic dirt separator must be installed on the return circuit, below the boiler, and is intended exclusively for domestic heating systems.

NF-approved and ACS-compliant, **the SFR straight-body safety unit** for boilers up to 10kW is crucial for the protection and proper functioning of heating systems and consists of a safety valve, shut-off valve (to isolate the boiler from the supply line), inspectable non-return valve (to prevent 'contaminated' water from flowing back into the supply line) and manual drain lever.

The **INT Intervent air vent valve** from Watts is a manual device for eliminating air in heating and air conditioning systems. This device is used in all heating systems (autonomous, centralised, radiant panel, etc.) to eliminate the presence of air both during the filling phase and that which is released into the water during the heating phase. The presence of air in the systems, in fact, prevents the normal circulation of the thermovector fluid, especially in points characterised by a low circulation speed (heating bodies), thus altering their thermal efficiency. Air vent valves allow air to escape at high points in the system where it tends to accumulate (distribution manifolds, tops of risers, or directly into the boiler). To improve the quality of water for sanitary use, the designer also decided to install the kit **WHOF1 auto-cleaning filter + One Flow® anti-limescale system** which, combined, perform the function of protecting all system components from impurities and the formation of lime scale.

For the control component, on the other hand, the newly launched **Watts Vision® 2.0** system was installed, an innovative solution to optimise home comfort and simplify the control of heating systems for a more comfortable smart and sustainable daily life.

Specifically, the **central control unit** for the Smart Home Vision® Wireless **BT-CT03-RF** system allows you to programme and visualise heating system settings by managing and monitoring temperature control in all rooms in the home. It has a built-in WiFi module and is compatible with Google Home and Amazon Alexa voice control systems.

The central unit communicates with the **BT-D03 RF** wireless thermostats for temperature control in rooms.

Finally, through the **WFC-03-HC control unit**, all the components of the Vision® Wireless system can be integrated into the system to ensure effective control of the different zones of the underfloor heating and cooling circuit.

ico e semplificare il controllo degli impianti riscaldamento per una vita quotidiana più comoda smart e sostenibile.

Connected to the WFC-03-HC control unit are the **compact 22CX electro-thermal actuators**, which guarantee performance and reliability thanks to their IP54 protection rating. The 22CX actuators are the best choice for managing heat supply to underfloor heating circuits.

The 22CX actuators, installed on the **HKV 2013A-AFC manifold**, have the task of opening and closing the passage of water in the actual underfloor heating circuits.

The manifold used for this system is the HKV 2013A-AFC model, with a stainless steel body and dynamic self-balancing system for the circuits.

Thanks to the self-balancing system of the circuits, an even heat distribution throughout the house is guaranteed by ensuring that the water flow is evenly distributed between the various circuits of the system.

The combination of high quality, efficiency and ease of operation made Watts underfloor heating solutions the best choice for the owners of this semi-detached house, allowing them to combine comfort and reliability of the system.

The customer experience

"I could not be more satisfied with my decision to rely on Watts for the underfloor heating of my detached house" comments the property owner. "The extensive catalogue of products available allowed me to find everything I needed from a single supplier, making project management much simpler and more straightforward, while also meeting the completion deadlines.

I was particularly impressed by Watts' technical know-how; my installer received valuable support and advice during every stage of the renovation project. Thanks to Watts, my house is now equipped with an efficient and easy-to-manage underfloor heating system".

Adds the technician who supervised the work, "The ease of installation of Watts products is definitely a big plus, along with the quality and reliability of the materials. In addition, the high level of customer service was crucial. Whenever I had questions, they were always available to provide prompt and detailed answers".

About us

Watts is an American multinational and one of the world's biggest manufacturers of plumbing and heating products and components. Established in 1874, the business is based in North Andover (USA) and listed on the New York Stock Exchange. Watts has an administrative headquarters in Italy, along with two production sites and two research centres, and owns various market-leading brands Thanks to its know-how, reliability, professional ethics and attention to health, safety and the environment, Watts contributes to technological research in the sector with a constant focus on energy saving, safety, and the quality of life.

For further information, visit **www.watts.eu**

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