

EXAMPLES OF APPLICATION



Q-ton for DHW only

Residential

APARTMENT BUILDINGS	12
---------------------	----

Commercial

HOTELS WITH SPA	13
-----------------	----

Q-ton for DHW and heating

Residential

LARGE APARTMENT BUILDINGS	14
---------------------------	----

NEWLY BUILT APARTMENT BUILDINGS	15
---------------------------------	----

EXISTING APARTMENT BUILDINGS	17
------------------------------	----

SMALL APARTMENT BUILDINGS	18
---------------------------	----

Commercial

PUBLIC AND PRIVATE OFFICE BUILDINGS	19
-------------------------------------	----

APARTMENT BUILDINGS

Q-ton for centralized DHW production

SYSTEM DESCRIPTION

The example describes the system of a large condominium in which the production of domestic hot water is entrusted to the Q-ton system, a CO₂ heat pump: the system is combined with 3 stratified tanks whose volume can vary from 500 up to 1500 litres.

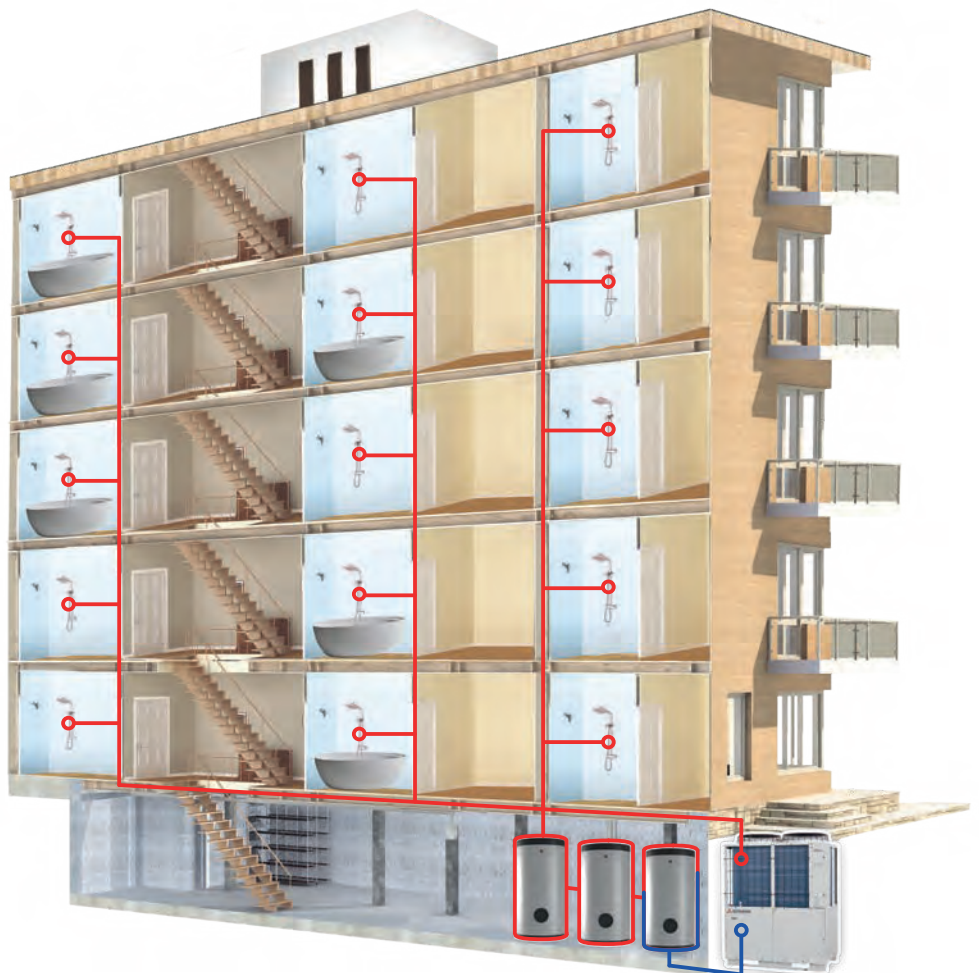
Q-ton produces 750 litres per hour of post-mixed hot water at 45 °C, except for the energy input necessary for recirculation.

The Q-ton system can also be installed in series with tanks already present in a pre-existing system.

FEATURES OF THE SYSTEM



Litres of DHW
per day



SPA RESORTS/BIG HOTELS

Q-ton for centralized DHW production

SYSTEM DESCRIPTION

The example describes the system of a hotel with a SPA in which the production of domestic hot water is entrusted to the Q-ton system, a CO₂ heat pump: the system consists of 2 Q-ton units, connected in series, combined with 5 stratified tanks whose volume can vary from 500 up to 1500 litres, except for the energy input necessary for recirculation.

To meet the need to produce large quantities of DHW, the Q-ton system can be installed in a modular combination: it is possible to connect up to 16 units of 30 kW each, controlled by a single remote control.

Consider that a 30-kW unit can produce up to 17,000 litres of DHW per day.

FEATURES OF THE SYSTEM

16

Connectable outdoor units

1500

Litres of DHW per day

30 kW

Modular combination



LARGE APARTMENT BUILDINGS

Q-ton in heating and DHW production mode

SYSTEM DESCRIPTION

Large, newly built apartment buildings increasingly utilise radiant underfloor heating systems and require a DHW production system.

Up to 16 Q-ton units can be hydraulically connected and controlled from a single control, depending on the actual needs of the building. This flexibility makes it possible to fulfil the multiple requirements of both residential and commercial applications.

FEATURES OF THE SYSTEM

54
kWt in heating

2000
Litres of DHW
per day

20+
Flats

Radiant
flooring

Components to be accessed on site

- ST Temperature sensor
- CP Circulation pump
- VM Mixing valve
- FM Flow meter
- PCX Constant flow control valve
- HE Heat exchanger
- PLC Control unit



Q-TON FOR HEATING

Supposing we have a newly built condominium consisting of 20 flats (70 m² each), the estimated heating demand is about 54 kWt.

This demand is met by two Q-ton units feeding a radiant flooring system.

Q-TON FOR DHW

Q-ton is also able to meet the demand for DHW, which for an apartment building of this size is around 2000 litres/day.

Q-ton will work on a (third party) exchanger connected to an 800-litre ESA tank and a 1500-litre ESA tank.

Calculation according to UNI TS 11300-2

NEWLY BUILT APARTMENT BUILDINGS

Q-ton in heating

SYSTEM DESCRIPTION

Newly built apartment buildings must fulfil the parameters of current energy classification regulations. Compliance with the parameters is achieved by intervening both on the building structure and on the systems, using radiant flooring heating systems.

Q-Ton fulfils the requirements in terms of plant engineering.

FEATURES OF THE SYSTEM



kWt in heating



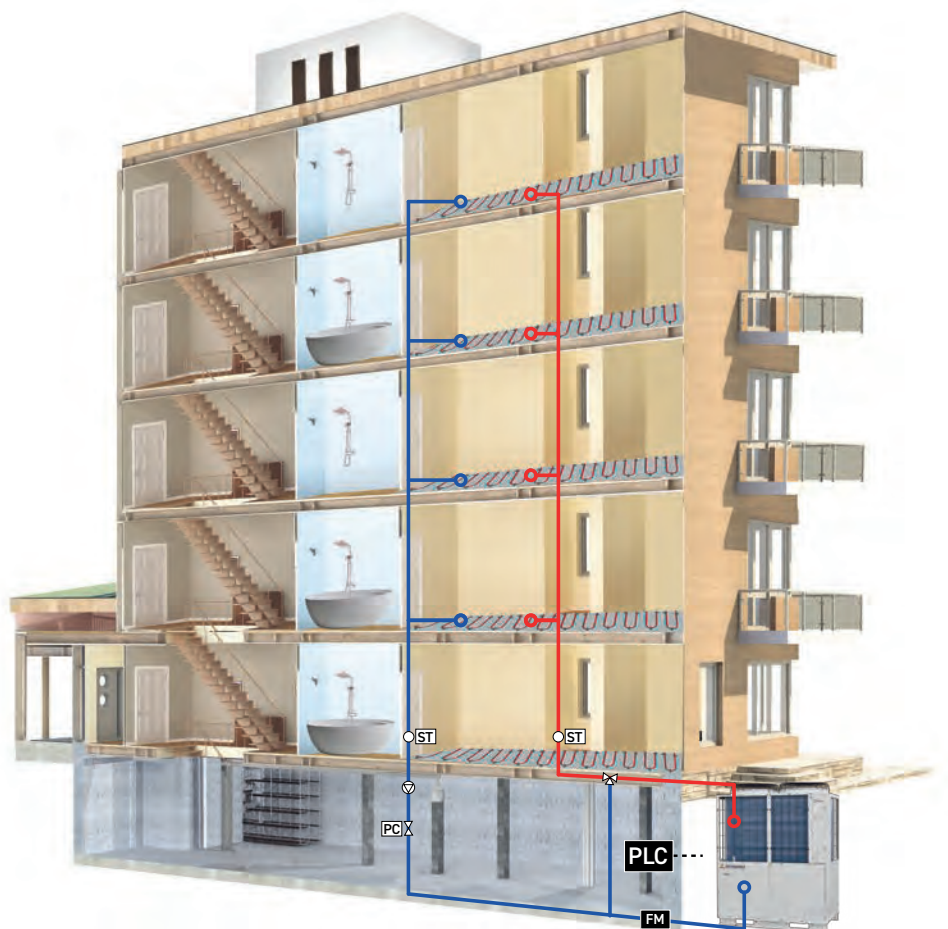
Flats



Radiant flooring

Components to be accessed on site

- Ⓢ Temperature sensor
- Ⓢ Circulation pump
- FM Flow meter
- PCX Constant flow control valve
- PLC Control unit



Q-TON FOR HEATING

Supposing we have a newly built condominium consisting of 10 flats (70 m² each), the estimated heating demand is about 27 kWt.

This demand is met by a Q-ton unit feeding a radiant flooring system.

Calculation according to UNI TS 11300-2

NEWLY BUILT APARTMENT BUILDINGS

Q-ton in heating and DHW production mode

SYSTEM DESCRIPTION

Q-ton in heating and DHW production mode allows for the installation of a single system that meets winter heating needs and produces DHW all year round for the entire building.

FEATURES OF THE SYSTEM



kWt in heating



Litres of DHW per day



Flats



Radiant flooring

Components to be accessed on site

- Temperature sensor
- Circulation pump
- Mixing valve
- Flow meter
- Constant flow control valve
- Heat exchanger
- Control unit



Q-TON FOR HEATING

Supposing we have a newly built apartment building composed of 10 flats (70 m² each), the estimated heating demand is about 27 kW_t.

This demand is met by a Q-ton unit feeding a radiant flooring system.

Q-TON FOR DHW

Q-ton is also able to meet the demand for DHW, which for an apartment building of this size is around 1000 litres/day.

Q-ton will work on a (third party) exchanger connected to a 800-litre ESA tank.

Calculation according to UNI TS 11300-2

EXISTING APARTMENT BUILDINGS

Q-ton in heating

SYSTEM DESCRIPTION

The type of application illustrated in the figure below describes an existing apartment building with an existing radiant system.

Q-ton connects to the existing radiant system, thus reducing installation costs and, given the high performance values, also utility consumption.

FEATURES OF THE SYSTEM



kWt in heating



Flats



Radiant flooring

Components to be accessed on site

- Ⓢ Temperature sensor
- Ⓢ Circulation pump
- Ⓢ Flow meter
- Ⓢ Constant flow control valve
- Ⓢ Control unit



Q-TON FOR HEATING

Supposing we have a newly built condominium consisting of 10 flats (70 m² each), the estimated heating demand is about 27 kWt.

This demand is met by a Q-ton unit feeding a radiant flooring system.

Calculation according to UNI TS 11300-2

SMALL APARTMENT BUILDINGS

Q-ton in heating and DHW production mode

SYSTEM DESCRIPTION

Small, newly built apartment buildings, generally composed of 5 flats, require a heating and DHW production system.

Thanks to the Inverter system, Q-ton is able to modulate according to the actual energy needs of the building, effectively improving its energy performance.

FEATURES OF THE SYSTEM



kWt in heating



Litres of DHW per day



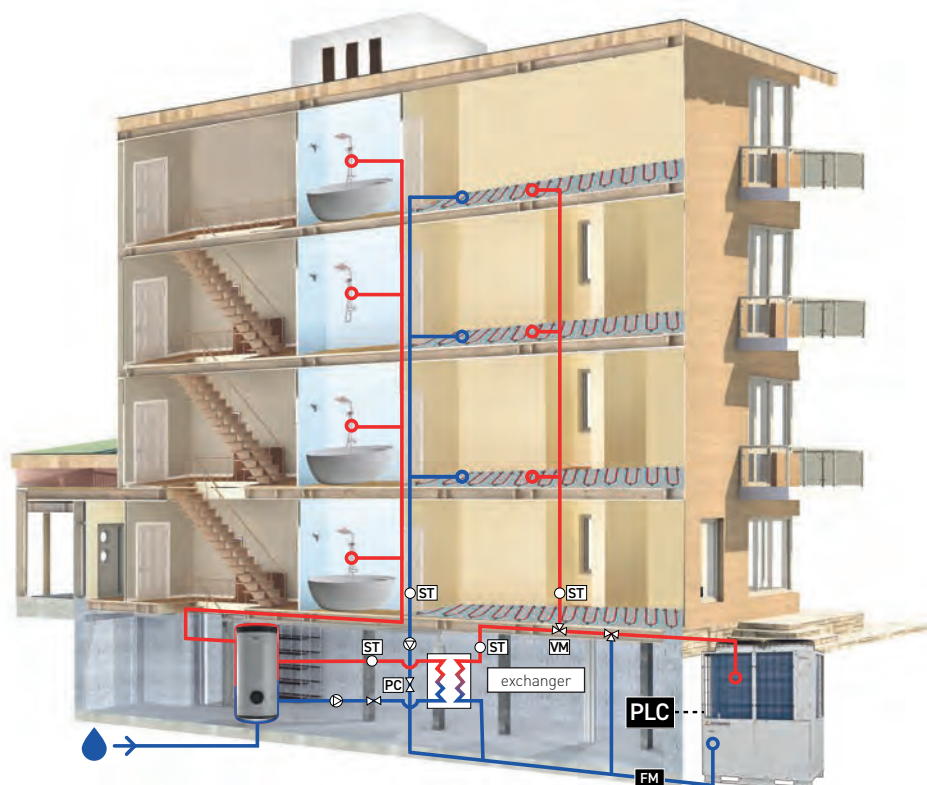
Flats



Radiant flooring

Components to be accessed on site

- Temperature sensor
- Circulation pump
- Mixing valve
- Flow meter
- Constant flow control valve
- Heat exchanger
- Control unit



Q-TON FOR HEATING

Supposing we have a newly built condominium consisting of 5 flats (70 m² each), the estimated heating demand is about 14 kWt.

This demand is met by a Q-ton unit feeding a radiant flooring system.

Q-TON FOR DHW

Q-ton is also able to meet the demand for DHW, which for an apartment building of this size is around 500 litres/day.

Q-ton will work on a (third party) exchanger connected to a 500-litre ESA tank.

Calculation according to UNI TS 11300-2

PUBLIC AND PRIVATE OFFICES

Q-ton in heating and DHW production mode

SYSTEM DESCRIPTION

Working inside buildings requires a careful study of the environmental conditions in which occupants can carry out their tasks in optimal climatic conditions. More and more companies pay attention to the well-being of their workers, creating, for example, a fitness area and heated changing rooms where there is hot water for showers.

Q-ton fulfils the dual demand for primary heating and DHW production with a single system.

FEATURES OF THE SYSTEM

27
kWt in heating

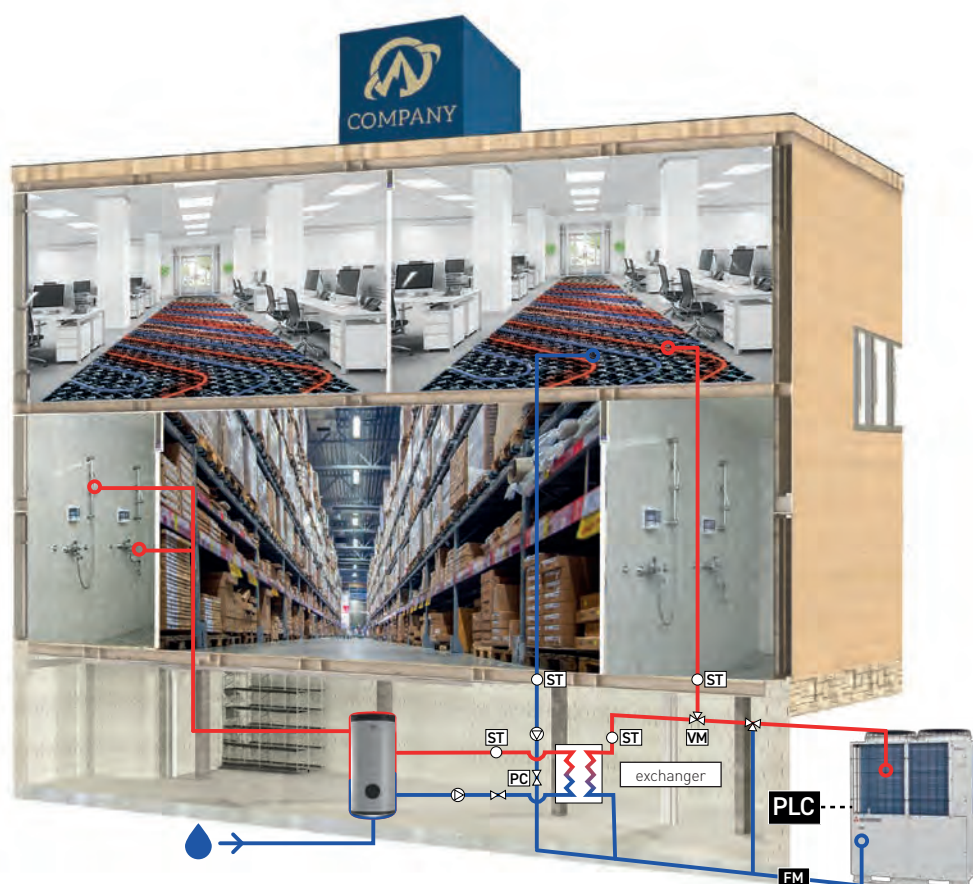
270
Litres of DHW
per day

500
superficie
ufficio in m²

Radiant
flooring

Components to be accessed on site

- Ⓢ Temperature sensor
- Ⓢ Circulation pump
- Ⓢ Mixing valve
- Ⓢ Flow meter
- Ⓢ Constant flow control valve
- Ⓢ Heat exchanger
- Ⓢ Control unit



Q-TON FOR HEATING

Supposing we have a newly built 500 m² office, the estimated heating demand is about 27 kWt.

This demand is met by a Q-ton unit feeding a radiant flooring system.

Q-TON FOR DHW

Q-ton is also able to meet the hot water demand.

Supposing that an office of this size has 3 showers and 6 toilets, the daily requirement is around 270 litres.

Q-ton will work on a (third party) exchanger connected to a 500-litre ESA tank.

Calculation according to UNI TS 11300-2