# Fresh Water Stations for DHW









fiorini

# AQUAMATIC

## Instantaneous DHW (Domestic Hot Water) production unit with integrated storage tank

### Italian style, innovation and technology




AQUAMATIC is an innovative product consisting of an inertial heat storage system coupled with an instantaneous hot water production unit. Everything is enclosed in a uniquely designed element, which combines style, innovation, and technology. AQUAMATIC is used in heating systems, even multi-energy ones, which are powered by sources (heat pump, solar heating, biomass boilers, and so on) requiring the use of a heat storage unit for optimal function. In the event of heat pump systems, which also furnish hydronic cooling, an inertial storage system is also available that perfectly integrates with the AQUAMATIC base and is suitable for containing hot or cold water, depending on the season.

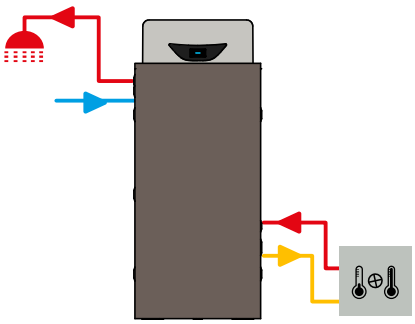
The production of domestic hot water occurs within a plate heat exchanger with stainless steel plates that guarantee:

- ✔ maximum hygiene
- ✔ high production of domestic hot water without the need for a high level of installed power

The heart of the system is the integrated display through which the user sets and controls all of the AQUAMATIC functions

#### Main features of the AQUAMATIC:

- ✔ Compact and original design
- ✔ Simple installation, thanks to already integrated elements
- ✔ Easy and intuitive use, thanks to the graphic display
- ✔ Activates automatically even with a low demand for domestic water (2 litres/min)
- ✔ Guarantees maximum hygiene and prevents the formation of legionella
- ✔ Easy access to internal parts for maintenance
- ✔ Minimum heat dispersion (B energy class)
- ✔ Ability to communicate with control systems
- ✔ Can be used with various energy sources
- ✔ Produces a quantity of domestic water at a comfortable temperature, greater than any other traditional system (heaters) of equal capacity
- ✔ Communication with bms supervision systems; Modbus as standard
- ✔ Digital inputs (clean contacts) for remote control of:
- ✔ Device ON/OFF management
- ✔ Electrical resistance disabling
- ✔ Disabling of the DHW recirculation pump
- ✔ Enabling of a second Set Point, useful for improving the comfort of use or for increasing (maximizing) the use of renewable energy sources.
- ✔ Disabling the heat source (boiler)

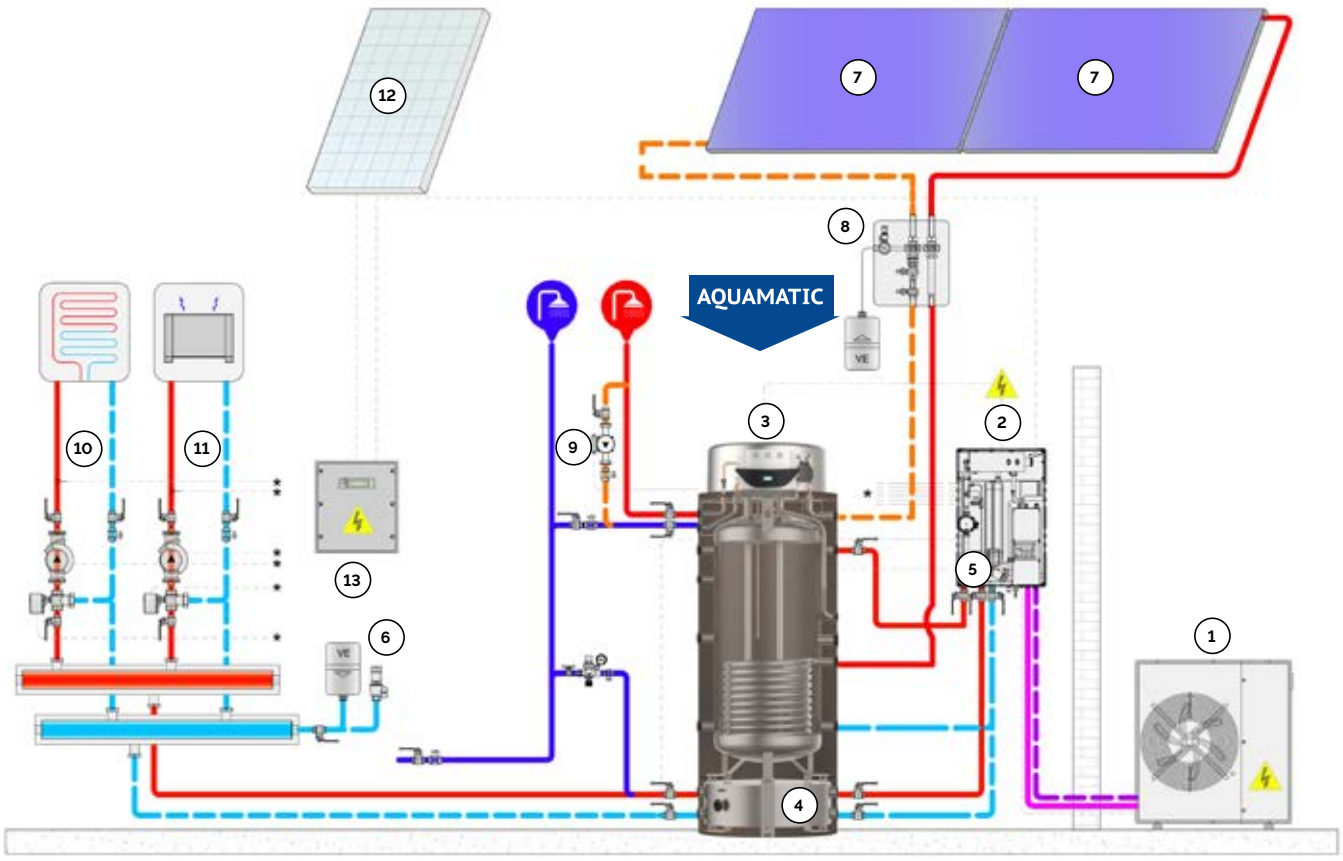


**Available accessories see pag. 238**

**Start-up:** the first start-up is recommended. See page 361

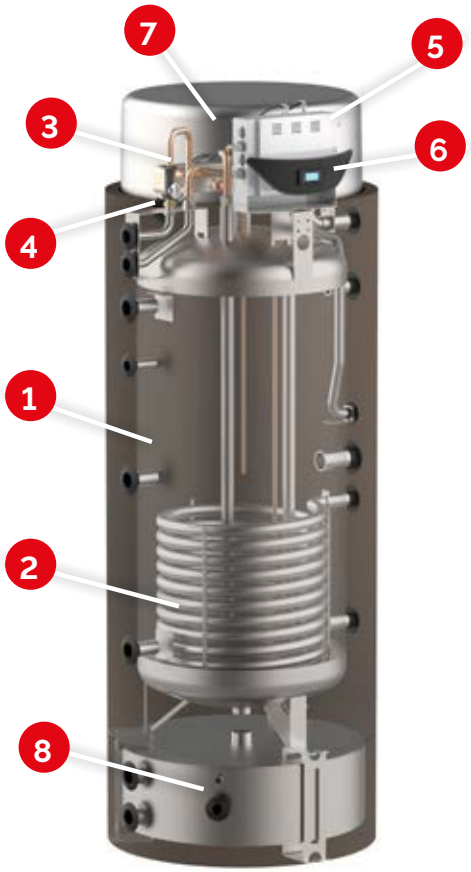
| | | | | With vertical packaging | |
|---|---|---|---|---|---|
| Model | Capacity l | Code | Price | Dimensions cm | Weight kg |
| AQUAMATIC | 200 | 842030104X | | 75x75x140 | 80 |
| | 300 | 842030105X | | 75x75x180 | 94 |
| | 500 | 842030106X | | 90x90x185 | 121 |
| AQUAMATIC PLUS | 300 | 842030107X | | 75x75x180 | 101 |
| | 500 | 842030108X | | 90x90x185 | 136 |
| AQUAMATIC SOLAR | 300 | 842030109X | | 75x75x180 | 106 |
| | 500 | 842030110X | | 90x90x185 | 141 |

# Aquamatic
## Installation schema and components




### Legend

| | |
|---|---|
| 1 | Heat pump (outdoor unit) |
| 2 | Heat pump (indoor unit) |
| 3 | Fresh water station AQUAMATIC |
| 4 | Built-in inertial tank AQUAMATIC |
| 5 | Built-in three way diverter valve |
| 6 | Safety group |
| 7 | Fiorini solar panel |
| 8 | Solar station no pump |
| 9 | DHW recirculation pump |
| 10 | Heating circuit 1 |
| 11 | Heating circuit 2 |
| 12 | Photovoltaic modules |
| 13 | Inverter for photovoltaic system |




### Components list

| | |
|---|---|
| 1 | Storage tank |
| 2 | Coil (SOLAR and PLUS versions) |
| 3 | DHW exchanger |
| 4 | flow/temp gauge |
| 5 | electric board |
| 6 | electronic regulator |
| 7 | circulation pump |
| 8 | Built-in storage tank |

# AQUAMATIC
# Available Versions

The AQUAMATIC system is available with three different storage capacities and in three different versions. The versions differ in the presence of a second heat exchanger for additional sources and in the possibility of managing the additional heat source through an electronic pump and the specially programmed software.

- **AQUAMATIC (1 source): see pag. 234**
- **AQUAMATIC Plus (2 sources): see pag. 235**
- **AQUAMATIC Solar (2 sources for solar circulation): see pag. 236**

Next to those three devices, an integrative resistor is also available, which can meet the highest heat requirements.

| Code | Description | Primary pump | Primary exchanger | Electronic regulation | Additional exchanger | Additional cric. pump |
|---|---|---|---|---|---|---|
| 842030104X | **AQUAMATIC 200** | ✔ | ✔ | ✔ | | |
| 842030105X | **AQUAMATIC 300** | ✔ | ✔ | ✔ | | |
| 842030106X | **AQUAMATIC 500** | ✔ | ✔ | ✔ | | |
| 842030107X | **AQUAMATIC "Plus" 300** | ✔ | ✔ | ✔ | ✔ | |
| 842030108X | **AQUAMATIC "Plus" 500** | ✔ | ✔ | ✔ | ✔ | |
| 842030109X | **AQUAMATIC "Solar" 300** | ✔ | ✔ | ✔ | ✔ | ✔ |
| 842030110X | **AQUAMATIC "Solar" 500** | ✔ | ✔ | ✔ | ✔ | ✔ |

The AQUAMATIC system is delivered packed in cardboard boxes on pallets.
It is equipped with electric cable with plug SHUCO, length 1.5 m.

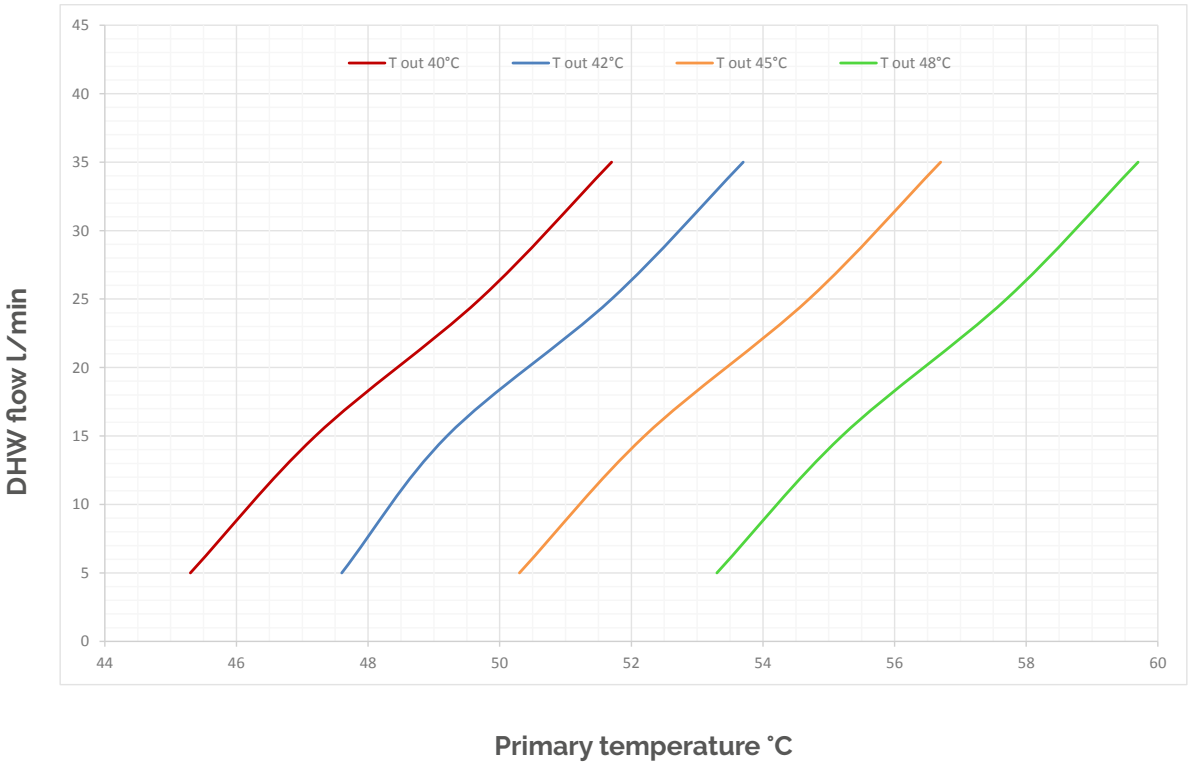
# Technical information

| | | AQUAMATIC | | | AQUAMATIC PLUS | | AQUAMATIC SOLAR | |
|---|---|---|---|---|---|---|---|---|
| | | 200 | 300 | 500 | 300 | 500 | 300 | 500 |
| Electrical supply | V/Ph/Hz | 230/1/50 | | | 230/1/50 | | 230/1/50 | |
| Absorbed power min/max | W | 25/75 | | | 25/75 | | 27/127 | |
| Absorbed current min/max | A | 0,14/0,53 | | | 0,14/0,53 | | 0,18/1,05 | |
| Min DHW flow rate at start-up | l/min | 2 | | | 2 | | 2 | |
| Max DHW flow rate | l/min | 35 | | | 35 | | 35 | |
| Max operating pressure primary circuit | bar | 6 | | | 6 | | 6 | |
| Max operating pressure DHW circuit | bar | 10 | | | 10 | | 10 | |
| Max operating temperature | °C | 95 | | | 95 | | 95 | |
| Capacity of the tank | l | 199 | 290 | 480 | 290 | 480 | 290 | 480 |
| Deliverable flow rate* | l/m | 18,5 | 18,5 | 18,5 | 18,5 | 18,5 | 18,5 | 18,5 |
| Deliverable litres* | l | 153 | 214 | 337 | 214 | 337 | 214 | 337 |
| Empty weight | kg | 75 | 89 | 116 | 96 | 131 | 101 | 136 |
| Integr. Heat Exchanger Surf. | $m^2$ | - | - | - | 1,4 | 1,9 | 1,4 | 1,9 |
| Sound pressure at 1 m | dB(A) | 25 | | | 25 | | 25 | |
| Heat loss ** | W | 59 | 68 | 80 | 68 | 80 | 68 | 80 |
| Energy class | | B | B | B | B | B | B | B |
| Electronic regulation of the pump velocity | | ● | | | ● | | ● | |
| Graphic display | | ● | | | ● | | ● | |
| Settings for DHW temperature | | ● | | | ● | | ● | |
| Possibility to set antilegionella treatments | | ● | | | ● | | ● | |

*Working conditions in accordance with EN 16417 (DHW 42°C, tank 50°C)
**Working conditions in accordance with UE N. 812/2013 and N.814/2013 (ambient air 20°C, tank 65°C)

# Performance AQUAMATIC

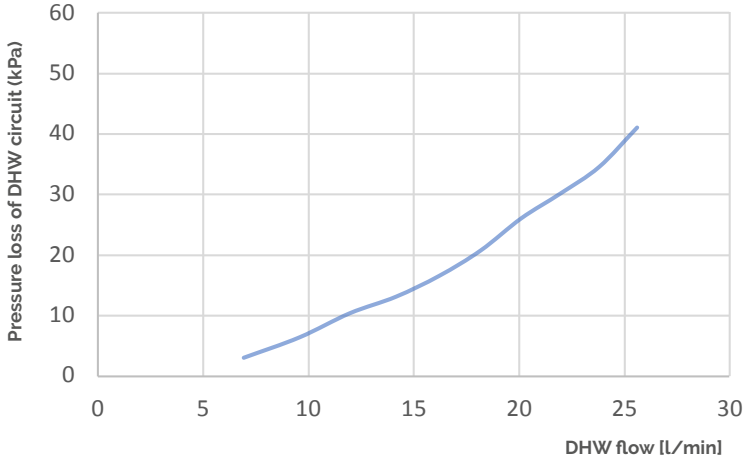
Quantity of domestic water produced in l/m with different storage temperatures and different outlet temperatures




Deliverable DHW flow in function of the storage temperature fluctuations and the various outlet temperatures (can be set as setpoint for domestic hot water)
Inlet temperature domestic 10°C

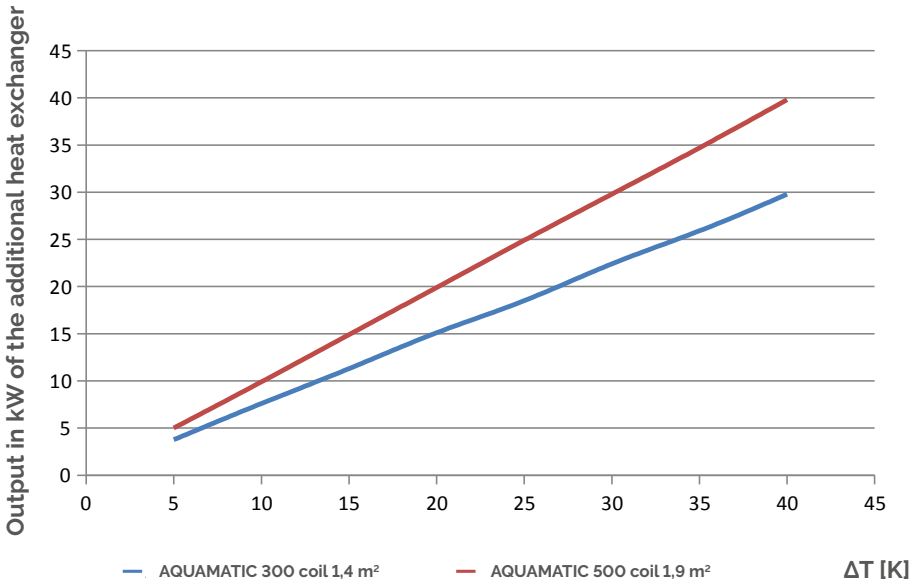
For example, if Taccumulo =52°C
And TDHW =45°C, the AQUAMATIC guarantees a flow of approximately 14 l/min
And TDHW = 42°C, the AQUAMATIC guarantees a flow of approximately 26 l/min

# Hydraulic performance



# Performance AQUAMATIC

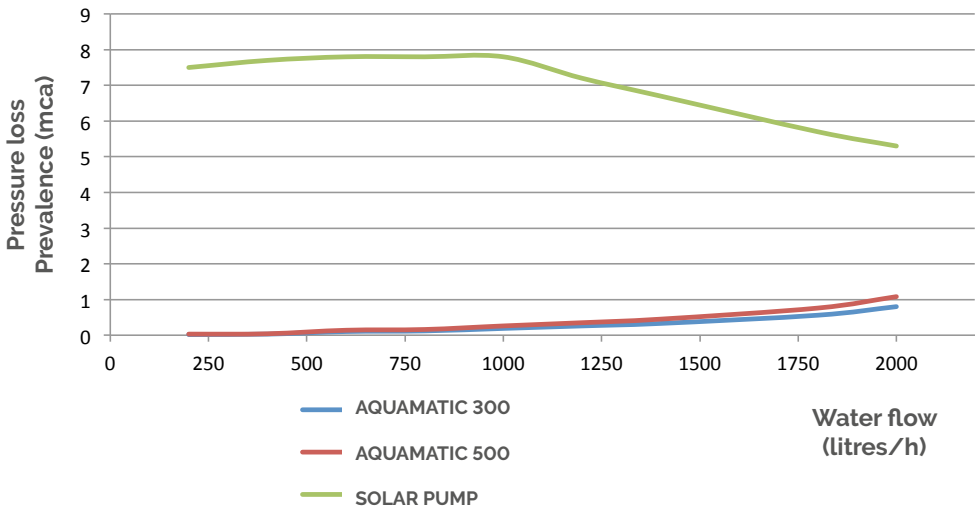
Output in kW of the additional heat exchanger in fucntion of the variation of the value ΔT between the temperature of the integrative source and the storage temperatore.
Only for AQUAMATIC PLUS and AQUAMATIC SOLAR.




For example, if $T_{AVERAGE\ IN\ TANK}$ = 30°C
Suppose the integrative coil is supplied with water at a temperature of 60°C (inlet) and that water cools to 40°C (outlet).
We can consider an average temperature on the integrative circuit of 50°C.
As such, we can refer to an indicative average DT of 50-30 = 20 K
In this case the performance of the additional heat exchangers would be:
AQUAMATIC 300: 15 kW on average
AQUAMATIC 500: 20 kW on average

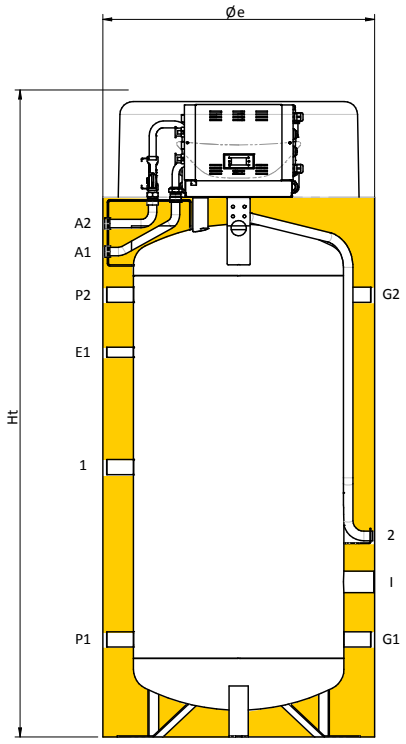
ΔT : temperature difference between the average temperatures in the primary circuit (coil) and secondary circuit (tank).

# Pressure loss in integrative coils and characteristic graphic of solar circulator

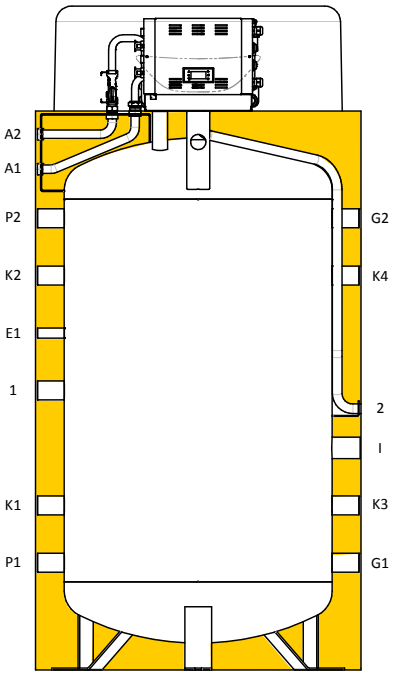


# Dimensions Aquamatic

200 l ≤ cap. ≤ 300 l




cap. = 500 l




## Couplings legend

| | |
|---|---|
| **A1** | DHW inlet |
| **A2** | DHW outlet |
| **E1** | Service/inlet probe |
| **G1** | From plant |
| **G2** | To plant |
| **I** | Electrical resistor |
| **K1** | Auxiliary circuit outlet |
| **K2** | Auxiliary circuit inlet |
| **K3** | Auxiliary system inlet |
| **K4** | Auxiliary system outlet |
| **P1** | To energy source |
| **P2** | From energy source |
| **1** | Coupling kit with deviation valve for stratification |
| **2** | Inlet resistor cable |

## Insulation

| Capacity (l) | Type | Thick. (mm) |
|---|---|---|
| from 200 to 500 | High density rigid polyurethane foam | 80 |

## Couplings chart

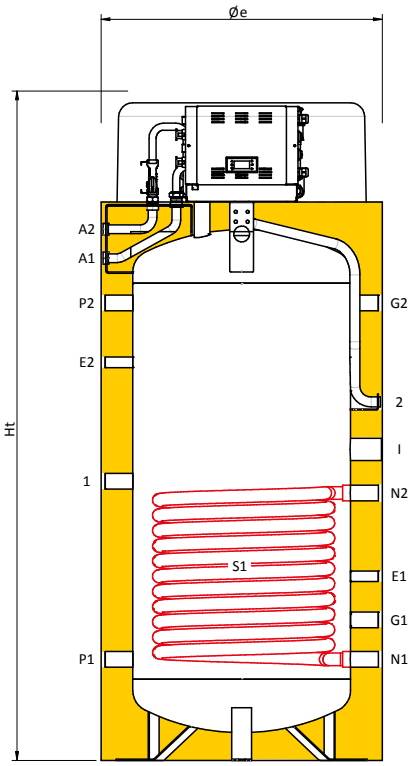
| Cap. l | A1 inch | A2 inch | E1 inch | G1 inch | G2 inch | I inch | K1 inch | K2 inch | K3 inch | K4 inch | P1 inch | P2 inch | 1 inch | 2 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 200 | 3/4" | 3/4" | 1/2" | 1" | 1" | 1"1/2 | - | - | - | - | 1" | 1" | 1" | Case Ø20 |
| 300 | 3/4" | 3/4" | 1/2" | 1" | 1" | 1"1/2 | - | - | - | - | 1" | 1" | 1" | Case Ø20 |
| 500 | 3/4" | 3/4" | 1/2" | 1"1/4 | 1"1/4 | 1"1/2 | 1"1/4 | 1"1/4 | 1"1/4 | 1"1/4 | 1"1/4 | 1"1/4 | 1"1/4 | Case Ø20 |

## Size chart

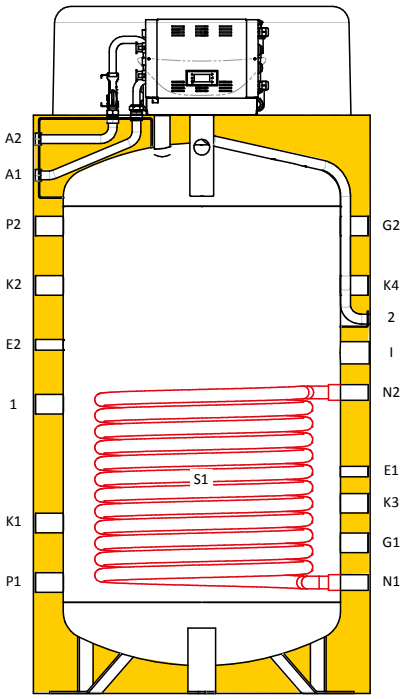
| Cap. l | Øe mm | Ht mm | A1 mm | A2 mm | E1 mm | G1 mm | G2 mm | I mm | K1 mm | K2 mm | K3 mm | K4 mm | P1 mm | P2 mm | 1 mm | 2 mm |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 200 | 710 | 1315 | 890 | 965 | 629 | 255 | 780 | 405 | - | - | - | - | 255 | 780 | 518 | 525 |
| 300 | 710 | 1690 | 1270 | 1340 | 1005 | 255 | 1155 | 405 | - | - | - | - | 255 | 1155 | 705 | 525 |
| 500 | 850 | 1740 | 1310 | 1400 | 880 | 280 | 1180 | 580 | 430 | 1030 | 430 | 1030 | 280 | 1180 | 730 | 683 |

# Dimensions AQUAMATIC Plus

cap. = 300 l




cap. = 500 l




## Couplings legend

| | |
|---|---|
| A1 | DHW inlet |
| A2 | DHW outlet |
| E1 | Service/inlet probe |
| E2 | Service/inlet probe |
| G1 | From plant |
| G2 | To plant |
| I | Electrical resistor |
| K1 | Auxiliary circuit outlet |
| K2 | Auxiliary circuit inlet |
| K3 | Auxiliary system inlet |
| K4 | Auxiliary system outlet |
| N1 | Additional exchanger outlet |
| N2 | Additional exchanger inlet |
| P1 | To energy source |
| P2 | From energy source |
| S1 | Lower exchanger |
| 1 | Coupling kit with deviation valve for stratification |
| 2 | Inlet resistor cable |

## Insulation

| Capacity (l) | Type | Thick. (mm) |
|---|---|---|
| from 300 to 500 | High density rigid polyurethane foam | 80 |

## Couplings chart

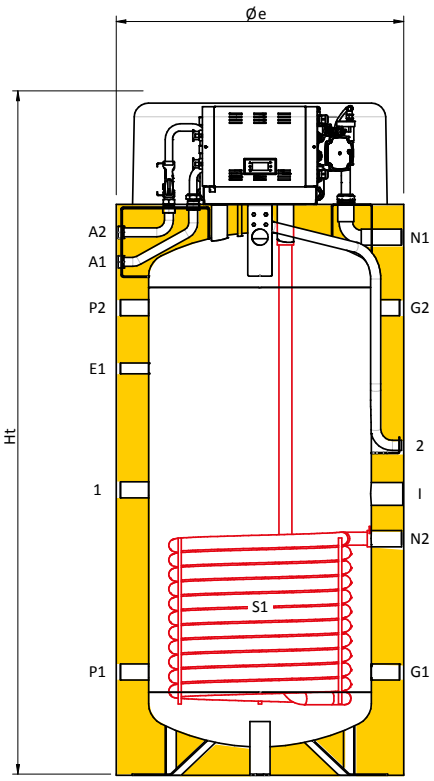
| Cap. l | A1 inch | A2 inch | E1 inch | E2 inch | G1 inch | G2 inch | I inch | K1 inch | K2 inch | K3 inch | K4 inch | N1 inch | N2 inch | P1 inch | P2 inch | 1 inch | 2 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 300 | 3/4" | 3/4" | 1/2" | 1/2" | 1" | 1" | 1"1/2 | - | - | - | - | 1" | 1" | 1" | 1" | 1" | Case Ø20 |
| 500 | 3/4" | 3/4" | 1/2" | 1/2" | 1"1/4 | 1"1/4 | 1"1/2 | 1"1/4 | 1"1/4 | 1"1/4 | 1"1/4 | 1" | 1" | 1"1/4 | 1"1/4 | 1"1/4 | Case Ø20 |

## Size chart

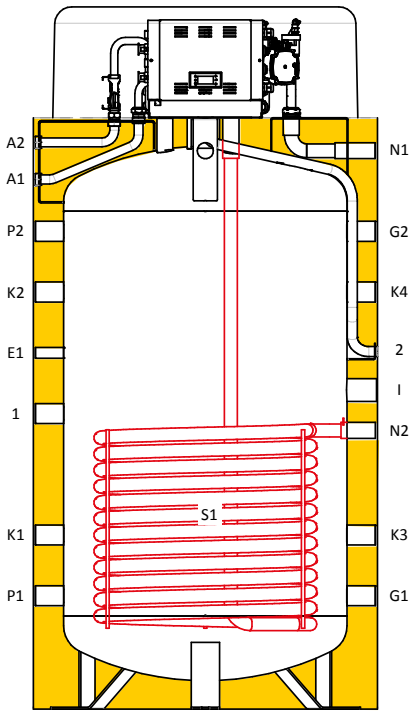
| Cap. l | Øe mm | Ht mm | A1 mm | A2 mm | E1 mm | E2 mm | G1 mm | G2 mm | I mm | K1 mm | K2 mm | K3 mm | K4 mm | N1 mm | N2 mm | P1 mm | P2 mm | 1 mm | 2 mm | S1 m² |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 300 | 710 | 1690 | 1290 | 1345 | 465 | 1005 | 355 | 1155 | 785 | - | - | - | - | 255 | 675 | 255 | 1155 | 705 | 905 | 1,4 |
| 500 | 850 | 1740 | 1340 | 1395 | 560 | 880 | 380 | 1180 | 860 | 430 | 1030 | 480 | 1030 | 280 | 760 | 280 | 1180 | 730 | 945 | 1,9 |

# Dimensions AQUAMATIC Solar

cap. = 300 l




cap. = 500 l




## Couplings legend

| | |
|---|---|
| A1 | DHW inlet |
| A2 | DHW outlet |
| E1 | Service/inlet probe |
| G1 | From plant |
| G2 | To plant |
| I | Electrical resistor |
| K1 | Auxiliary circuit outlet |
| K2 | Auxiliary circuit inlet |
| K3 | Auxiliary system inlet |
| K4 | Auxiliary system outlet |
| N1 | Solar exchanger inlet |
| N2 | Solar exchanger outlet |
| P1 | To energy source |
| P2 | From energy source |
| S1 | Lower exchanger |
| 1 | Coupling kit with deviation valve for stratification |
| 2 | Inlet resistor cable |

## Insulation

| Capacity (l) | Type | Thick. (mm) |
|---|---|---|
| from 300 to 500 | High density rigid polyurethane foam | 80 |

## Couplings chart

| Cap. l | A1 inch | A2 inch | E1 inch | G1 inch | G2 inch | I inch | K1 inch | K2 inch | K3 inch | K4 inch | N1 inch | N2 inch | P1 inch | P2 inch | 1 inch | 2 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 300 | 3/4" | 3/4" | 1/2" | 1" | 1" | 1"1/2 | - | - | - | - | 3/4" | 3/4" | 1" | 1" | 1" | Case Ø20 |
| 500 | 3/4" | 3/4" | 1/2" | 1"1/4 | 1"1/4 | 1"1/2 | 1"1/4 | 1"1/4 | 1"1/4 | 1"1/4 | 3/4" | 3/4" | 1"1/4 | 1"1/4 | 1"1/4 | Case Ø20 |

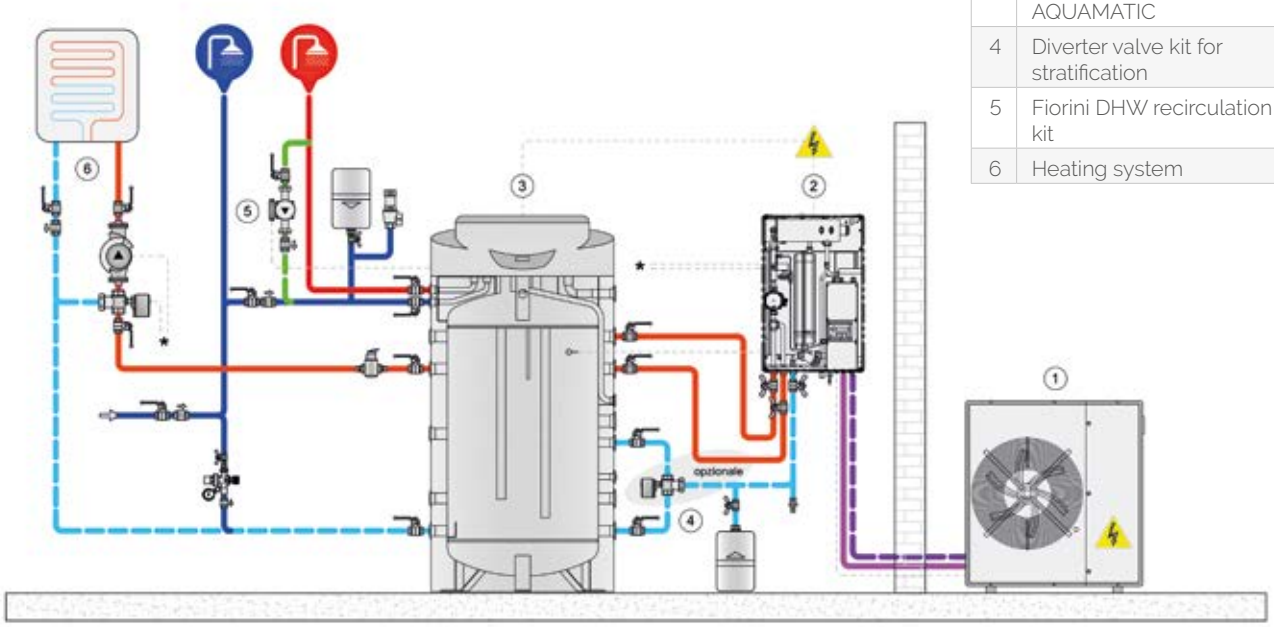
## Size chart

| Cap. l | Øe mm | Ht mm | A1 mm | A2 mm | E1 mm | G1 mm | G2 mm | I mm | K1 mm | K2 mm | K3 mm | K4 mm | N1 mm | N2 mm | P1 mm | P2 mm | 1 mm | 2 mm | S1 m² |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 300 | 710 | 1690 | 1270 | 1340 | 1005 | 255 | 1155 | 695 | - | - | - | - | 1329 | 584 | 255 | 1155 | 705 | 815 | 1,4 |
| 500 | 850 | 1740 | 1310 | 1400 | 880 | 280 | 1180 | 788 | 430 | 1030 | 430 | 1030 | 1379 | 688 | 280 | 1180 | 730 | 883 | 1,9 |

# Installation chart AQUAMATIC

**Legend**

| | |
|---|---|
| 1 | Heat pump (outdoor unit) |
| 2 | Heat pump (indoor unit) |
| 3 | Fresh water station AQUAMATIC |
| 4 | Diverter valve kit for stratification |
| 5 | Fiorini DHW recirculation kit |
| 6 | Heating system |

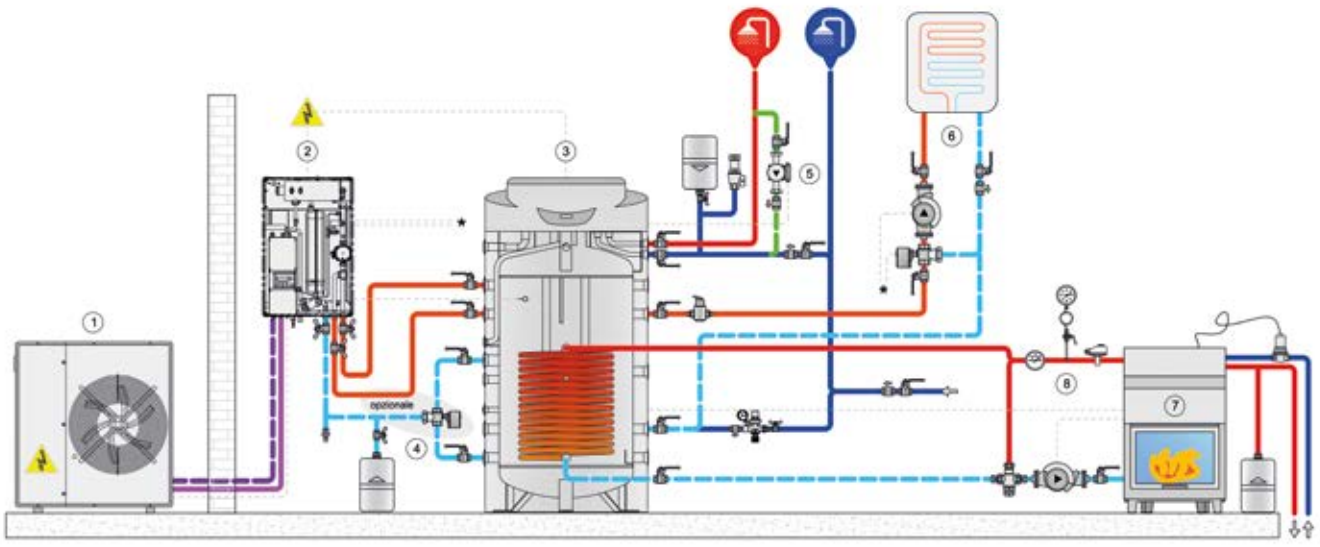



# Installation chart AQUAMATIC Plus Example 1 (Heating fireplace / stove)

**Legend**

| | |
|---|---|
| 1 | Heat pump (outdoor unit) |
| 2 | Heat pump (indoor unit) |
| 3 | Fresh water station AQUAMATIC PLUS |
| 4 | Diverter valve kit for stratification |

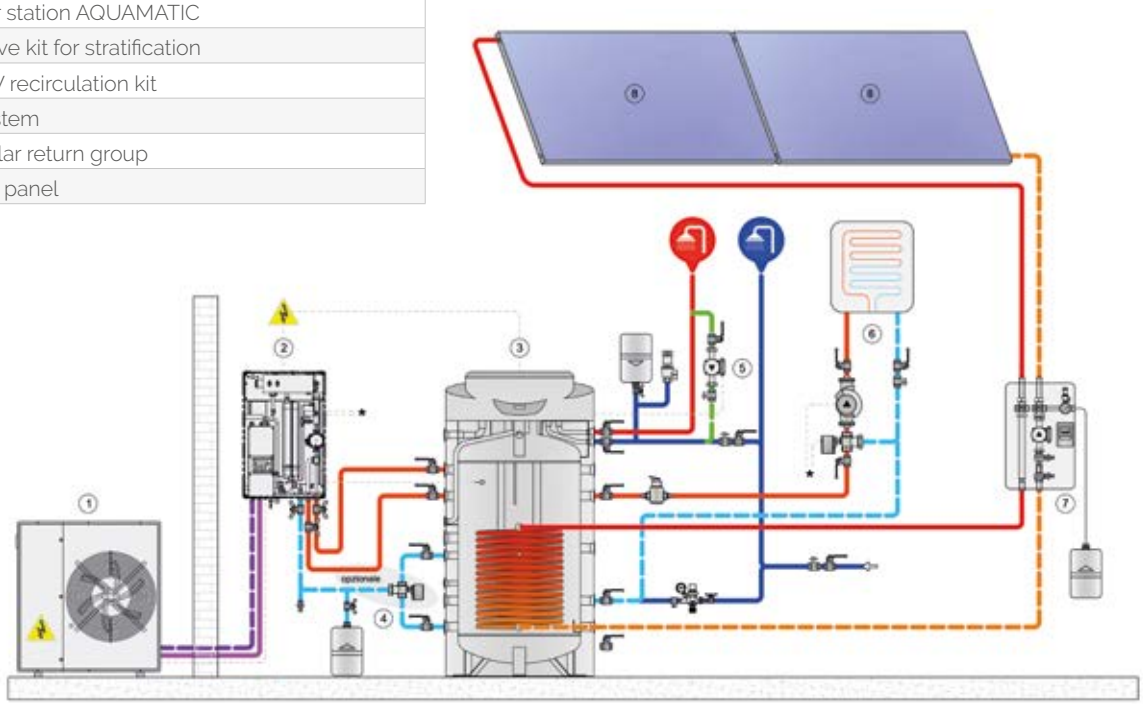
| | |
|---|---|
| 5 | Fiorini DHW recirculation kit |
| 6 | Heating system |
| 7 | Heating fireplace / stove |
| 8 | Plant components for biomass generators |



# Installation chart AQUAMATIC Plus Example 2 (Thermal solar)

**Legend**

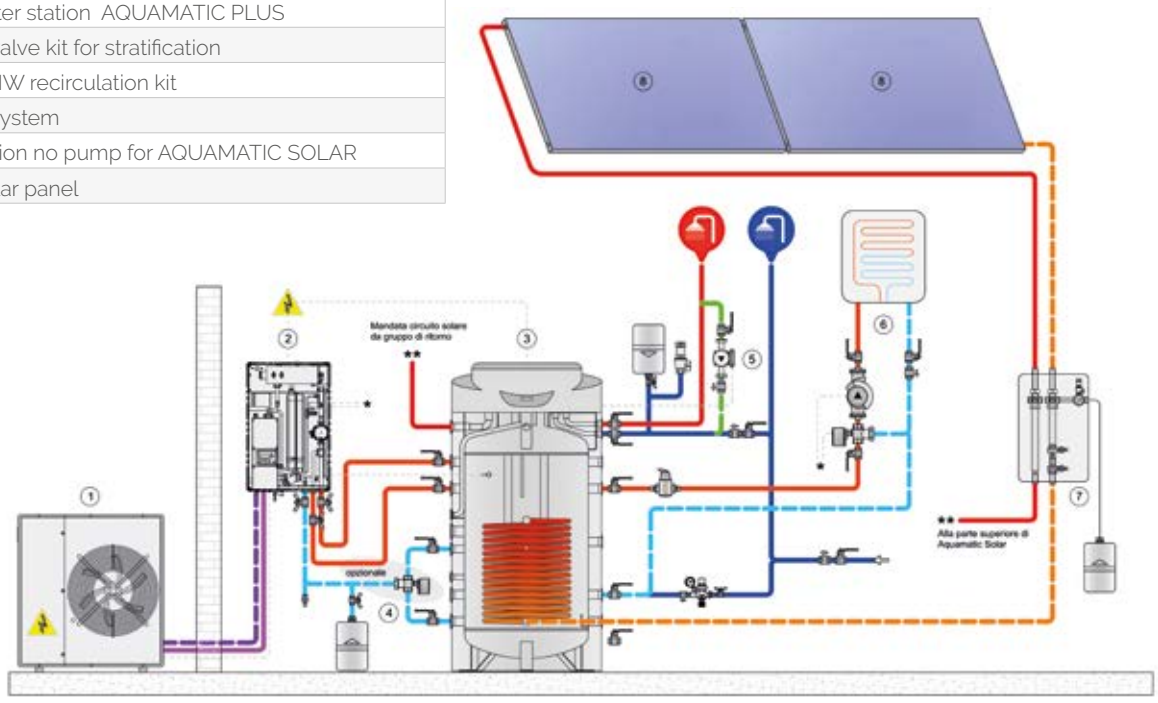
| | |
|---|---|
| 1 | Heat pump (outdoor unit) |
| 2 | Heat pump (indoor unit) |
| 3 | Fresh water station AQUAMATIC |
| 4 | Diverter valve kit for stratification |
| 5 | Fiorini DHW recirculation kit |
| 6 | Heating system |
| 7 | Thermal solar return group |
| 8 | Fiorini solar panel |



# Installation chart AQUAMATIC Solar

**Legend**

| | |
|---|---|
| 1 | Heat pump (outdoor unit) |
| 2 | Heat pump (indoor unit) |
| 3 | Fresh water station  AQUAMATIC PLUS |
| 4 | Diverter valve kit for stratification |
| 5 | Fiorini DHW recirculation kit |
| 6 | Heating system |
| 7 | Solar station no pump for AQUAMATIC SOLAR |
| 8 | Fiorini solar panel |



# Standard Accessories AQUAMATIC

Several kits with accessories that can be connected to the AQUAMATIC are available.
Some of those can be supplied already assembled in our factory.

# Kit Electrical Resistor

The kit with an electrical resistor (integrated) guarantees a constant storage temperature, even in case of insufficient energy supply by the primary heat source. The resistor can be managed directly by the AQUAMATIC control unit, simply by activating it through the display.

The kit can be assembled in our factory or supplied after delivery.

It contains:
✔ 1200 W single-phased 230 V electrical resistor with regulation thermostate
✔ fuses and wiring for integration in the electrical switchboard

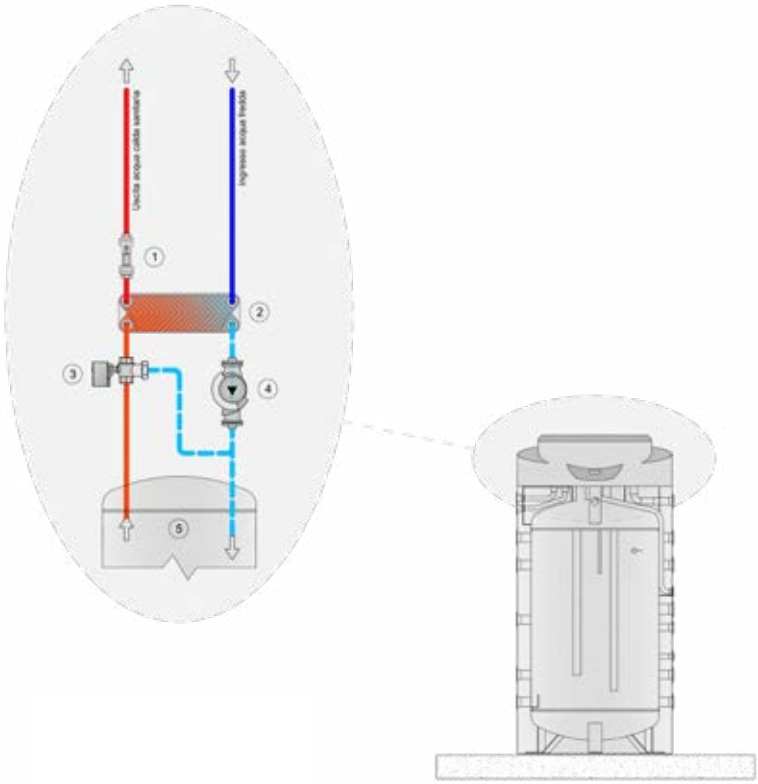
NB The AQUAMATIC has a small channel through the insulation of the tank in order to pass the cable for connecting the resistor to the electronic switchboard.

# Kit mixing valve on primary circuit

The kit with mixing valve (integrated) makes it possible to regulate the inlet temperature of the domestic heat exchanger. In this way, especially in installations that can reach high temperatures in the primary circuit, the precision of the regulation of the production unit improves. This leads to a larger comfort and reduces the chalk formation in the domestic circuit. We recommend the use of this device when the temperature in the primary circuit teaches values higher than 60°C.

The kit can either be pre-assembled in our factory or supplied later on.

It contains:
✔ DN20 three way mixing valve
✔ Servo drive 24Vac/dc Signal 0.10 V
✔ kit with tubes for installing the kit to the top part of the AQUAMATIC
✔ temperature probe
✔ Pre-cabled gudgeon pin for connection to the electric switchboard



**Legend**

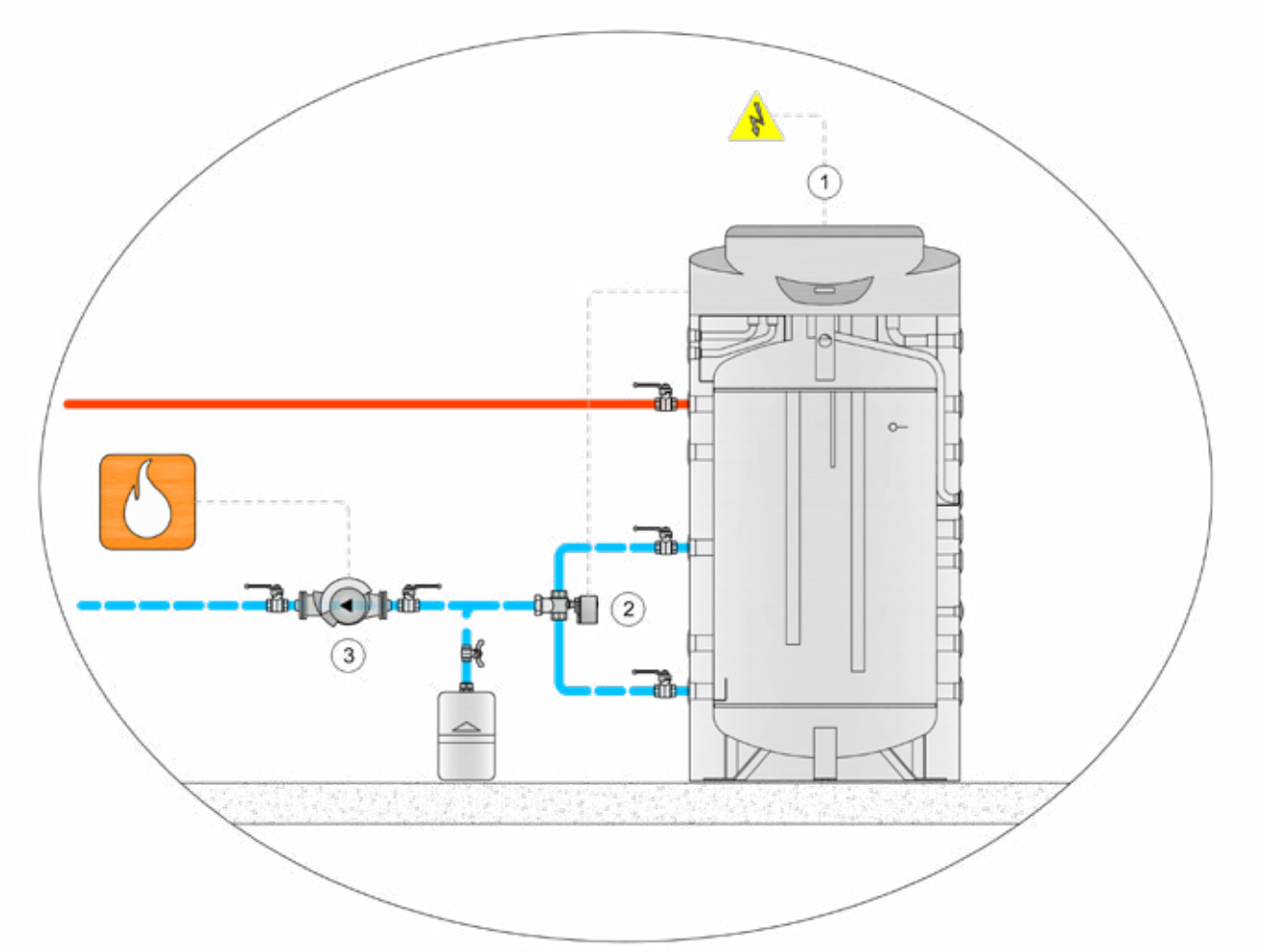
| | |
|---|---|
| 1 | Flowmeter |
| 2 | Domestic plate heat exchanger |
| 3 | Primary mixing valve |
| 4 | Pump |
| 5 | Tank |

# Kit External deviation valve for stratification

The kit with external deviation valve makes it possible to take the water for the return to the heat pump from the lower parts of the tanks instead of the middle in function of the temperature difference between the two zones in the tank.
In this way the temperature of the water that returns to the heat pump makes it possible to produce hot water at a higher temperature than the storage temperature. This maximizes the efficiency of the entire heating installation.

**N.B.** In case of connection in series, you should provide a deviation valve kit for every AQUAMATIC.

Contains:
✔ DN32 three-way valve
✔ On/off servo drive 230V




**Legend**

| | |
|---|---|
| 1 | AQUAMATIC (all versions) |
| 2 | Kit External deviation valve for stratification |
| 3 | Pump AQUAMATIC (system) |

# Accessory – storage tank for installation

A tank that can be put under the AQUAMATIC when you need an inertial flywheel dedicated exclusively to the heating installation of cool water installation. Reccommended in all cases in which you have a heat pump as thermal source. Its installation makes it possible for the heat pump to operate at a low temperature when it has to reach the thermal demand of the installation. In this way the operation at high temperature is limited to the production of domestic hot water. Moreover, the tank serves as a thermal flywheel in summer mode in order to guarantee an optimal modulation of the heat pump.



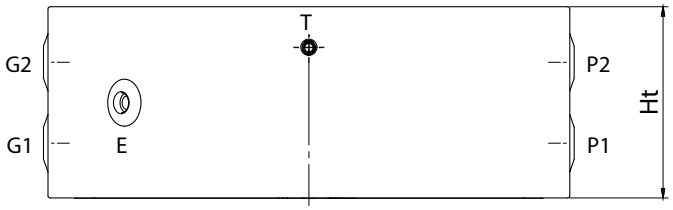

✔ Energetic efficiency
✔ Easy installation
✔ Does not take a lot of space
✔ Same design as the AQUAMATIC

In carbon steel without internal treatments of the surface area, insulated with 30 mm thick rigid polyurethane, externally covered in thick coloured PVC. Two available capacities in function of the size of the selected AQUAMATIC. Supplied with manual air vent valve and coupling for probe pit.

✔ **Material:** carbon steel
✔ **insulation:** 30 mm thick rigid foam
✔ **external covering:** coloured PVC

**User limitations**
Min temperature -10 °C
Max temperature 95 °C
Max pressure 3 bar

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## Couplings legend

| | |
|---|---|
| **P1** | To energy source |
| **P2** | From energy source |
| **E** | Probe |
| **G1** | From plant |
| **G2** | To plant |
| **T** | Vent |

## Chart with dimensions and couplings

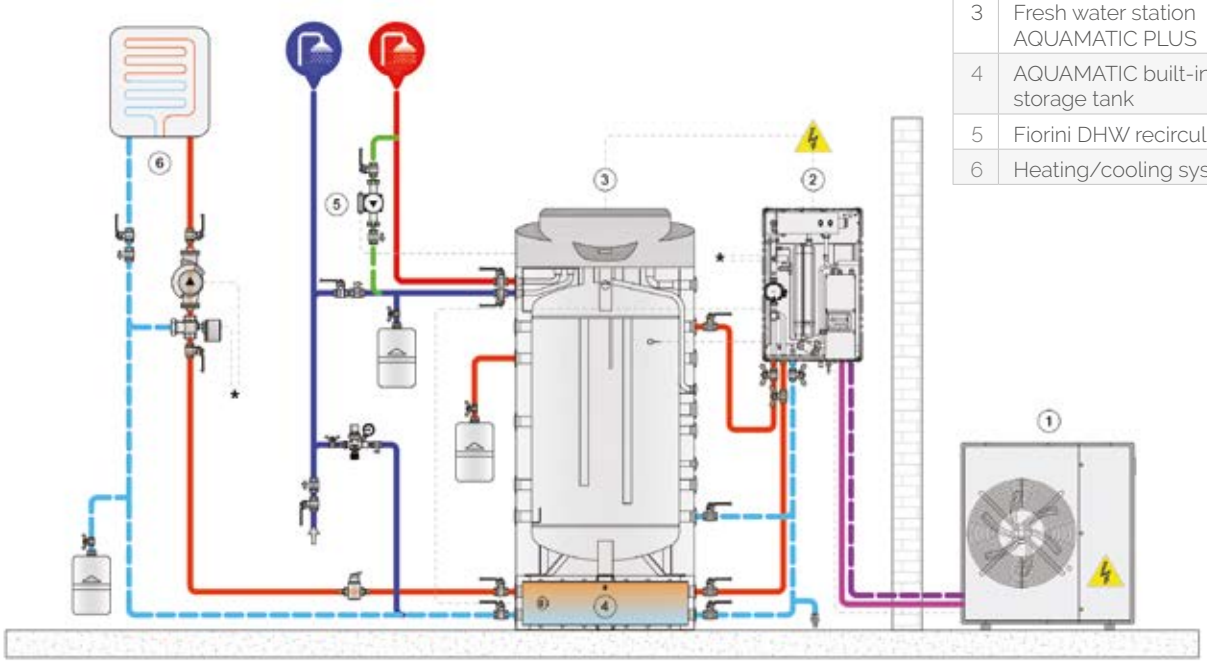
| Cod. | cap. l | pairing AQUAMATIC | Øe mm | Ht mm | P1 mm | P2 mm | G1 mm | G2 mm | E mm | T mm | P1 inch | P2 inch | E inch | G1 inch | G2 inch | T inch |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 817010158X | 66 | 200 l - 300 l | 710 | 260 | 75 | 185 | 75 | 185 | 130 | 205 | 1" | 1" | 1/2" | 1" | 1" | 1/4" |
| 817010159X | 93 | 500 l | 850 | 260 | 75 | 185 | 75 | 185 | 130 | 205 | 1"1/4 | 1"1/4 | 1/2" | 1"1/4 | 1"1/4 | 1"1/4 |

# Installation chart accessory

## Accessory Storage with AQUAMATIC (1 source)

**Legend**

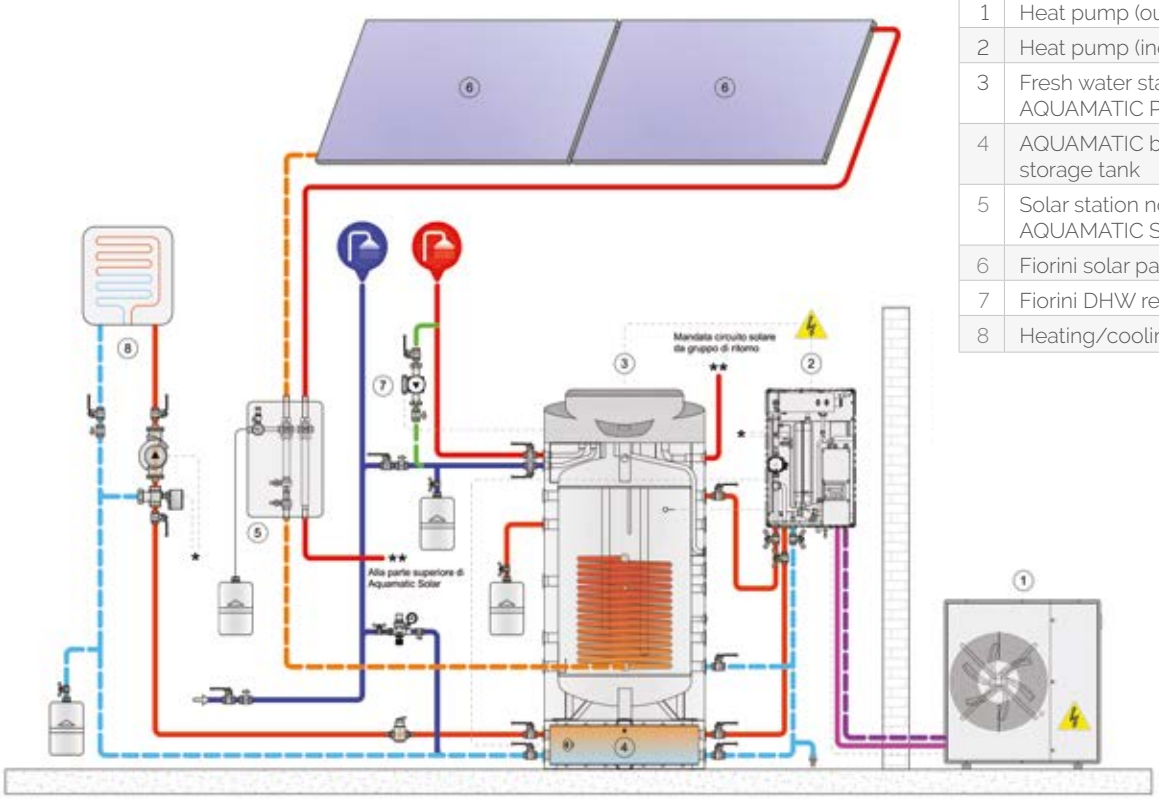
| | |
|---|---|
| 1 | Heat pump (outdoor unit) |
| 2 | Heat pump (indoor unit) |
| 3 | Fresh water station AQUAMATIC PLUS |
| 4 | AQUAMATIC built-in-storage tank |
| 5 | Fiorini DHW recirculation kit |
| 6 | Heating/cooling system |



## Accessory Storage with AQUAMATIC SOLAR

**Legend**

| | |
|---|---|
| 1 | Heat pump (outdoor unit) |
| 2 | Heat pump (indoor unit) |
| 3 | Fresh water station AQUAMATIC PLUS |
| 4 | AQUAMATIC built-in-storage tank |
| 5 | Solar station no pump for AQUAMATIC SOLAR |
| 6 | Fiorini solar panel |
| 7 | Fiorini DHW recirculation kit |
| 8 | Heating/cooling system |



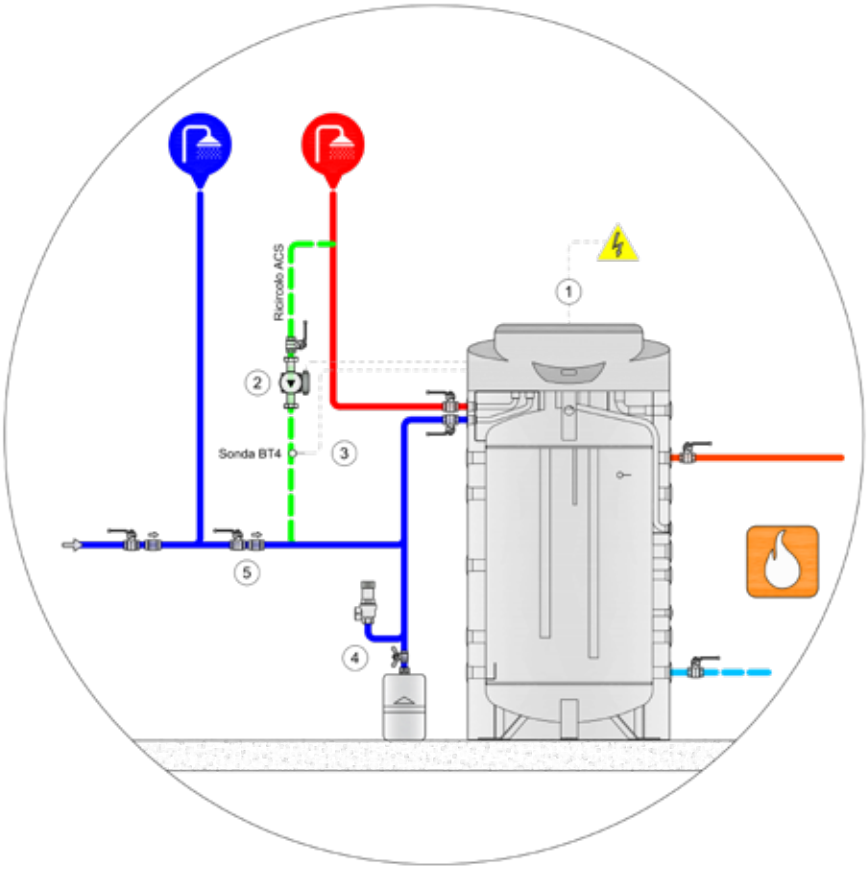
# Recirculation kit

The recirculation kit makes it possible to check the pump of the domestic recirculation circuit (circulator not supplied). Possible settings:

✔ Programming the recirculation in time slots
✔ Programming the recirculation based on the temperature of the recirculation ring.
✔ Programming the recirculation based on a combinations of the two above-mentioned settings
✔ Recirculation pump always running.
The kit is supplied separately and not assembled.

It contains:
✔ Temperature probe to be put on the recirculation ring
✔ Instructions

**Recirculation pump**
The recirculation pump is not supplied with the kit because the device has to be selected based on the specifics of the installation. However, because it is controlled by the regulator of the AQUAMATIC group, it has to have the following features
✔ Power supply 230V/50hz/1ph
✔ Max absorption 200 W




**Legend**

| | |
|---|---|
| 1 | AQUAMATIC (all versions) |
| 2 | Recirculation pump (not included) |
| 3 | NTC temprature probe |
| 4 | Safety group |
| 5 | Non-return valve |

# Kit serial port RS485 Modbus

KIT Modbus, allows the creation of an RS485 Modbus serial port as an alternative to the one already installed as standard.

# Kit web (remote control)

Makes it possible to check and monitor the device via internet

# Solar unit without pump for AQUAMATIC SOLAR

Solar unit with double tube to couple with the AQUAMATIC SOLAR when a pre-assembled solar station is needed that integrates and completes the functions already present in the AQUAMATIC SOLAR.

The solar unit with double tube, completely assembled and tested, consists of:



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**Return circuit:**
✔ Flow meter and regulator with couplings for the filling and emptying of the installation
✔ Ball valve with non-return valve which can be excluded by turning the handle with 45° (useful in the filling phase of the installation)
✔ 6 bar safety valve with manometer Ø50 mm 0-10 bar and drain outlet ¾"F
✔ coupling for expansion vessel ¾"M
✔ Thermometer 0-120°C

**Flow circuit:**
✔ Ball valve with non-return valve which can be excluded by turning the handle with 45° (useful in the filling phase of the installation)
✔ Thermometer 0-120°C
✔ Brass deaerator with manual vent valve
✔ Connecting hose and coupling

| | |
|---|---|
| Min/max flow | 2-12 l/min |
| Max pressure | 6 bar |
| Max temp | 120 °C |
| Couplings | 1" Male |
| Wheelbase | 125 mm |
| Insulation box | in EPP |
| Dimensions | 277x425x150 mm |

# Codes and prices for AQUAMATIC accessories

| Code | Description | Price |
|---|---|---|
| 829000209X | Kit resistor | |
| 842030116X | Kit internal primary mixing valve | |
| 842030120X | Kit external deviation valve for stratification | |
| 842030119X | Recirculation kit (pump not included) | |
| 817010158X | Accessory puffer 70 litres AQUAMATIC 200/300 (Energy class C) | |
| 817010159X | Accessory puffer 90 litres AQUAMATIC 500 (Energy class C) | |
| 838110069X | Solar station no pump | |
| 452010010 | Kit serial port RS485 | |
| 452010006 | Kit web (remote control) | |

# T-SET
# Instant DHW production units

The **T-SET** is an instant domestic hot water production unit that uses a brazed stainless steel plate heat exchanger.
Domestic hot water **temperature is regulated** using a **three-way, thermostatic mixing valve** installed on the primary circuit (hot water buffer tank side).
The module, connected to a hot water buffer tank from which it draws power, includes all the components required for its operation: a pump on the primary circuit operated by a flow switch positioned on the DHW circuit inlet, and a mixing valve operated by a **thermostatic actuator**, which allows the user to keep the set DHW temperature at a constant level.
For optimal ease of use, accessories are available for the management of domestic hot water **recirculation** that can be combined with each other, or used individually, according to the needs of the user.




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## Plus

- ✔ Compact wall module
- ✔ Accurate regulation of domestic hot water temperature
- ✔ Pre-painted, aluminium cladding case
- ✔ Closed-cell, polyethylene foam insulation, which insulates the entire hydraulic system
- ✔ STAINLESS STEEL domestic hot water circuit
- ✔ Fitted for internal assembly of the recirculation kit
- ✔ Shut-off valves on each connection
- ✔ Integrated safety valve on DHW circuit
- ✔ Easy Plug and Play installation
- ✔ Simple and economical use

## Main features

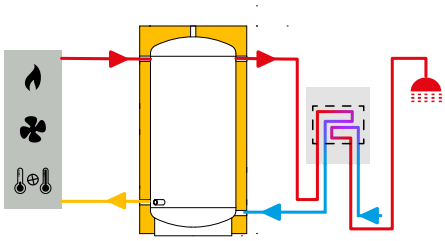
The main features are outlined below:

- ✔ Very simple factory setting: the set point is set using a knob that allows selection of the desired DHW usage temperature
- ✔ A mechanical stop positioned on the valve allows the maximum temperature of the SET POINT, which is selectable by the user, to be set

**Available accessories from page 248**

**Start-up:** the first start-up is recommended. See page 361

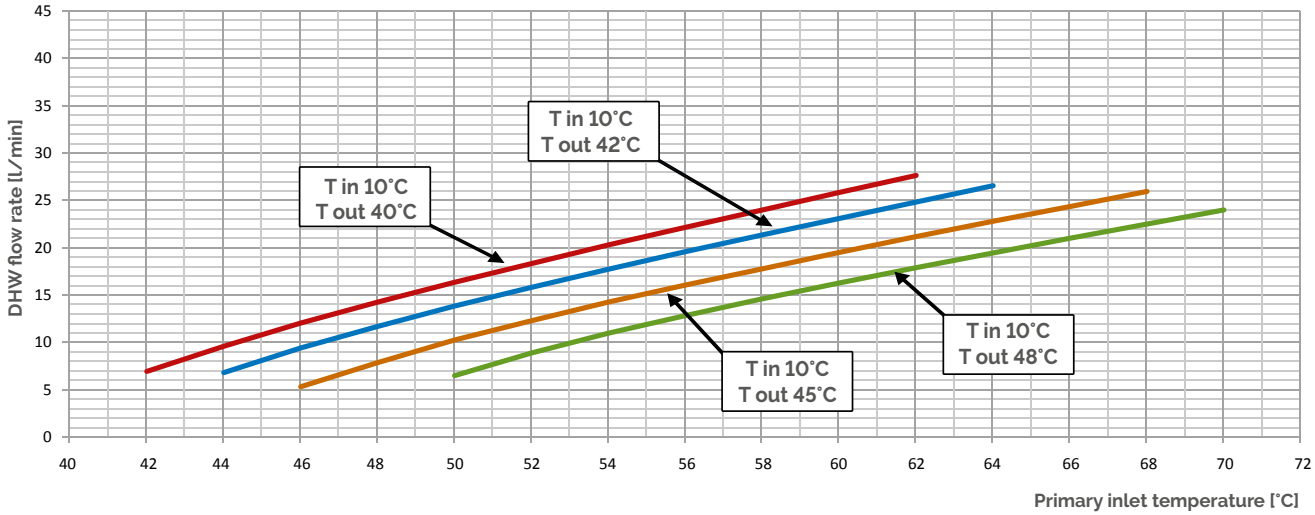
| | | | | With packaging | |
|---|---|---|---|---|---|
| **Model** | **DHW nominal flow** | **Code** | **Price** | **Dimensions cm** | **Weight kg** |
| T-SET 20 | (20 l/min. DHW) | 842030152X | | 63x40x21 | 19 |
| T-SET 30 | (30 l/min. DHW) | 842030153X | | 63x40x21 | 20 |



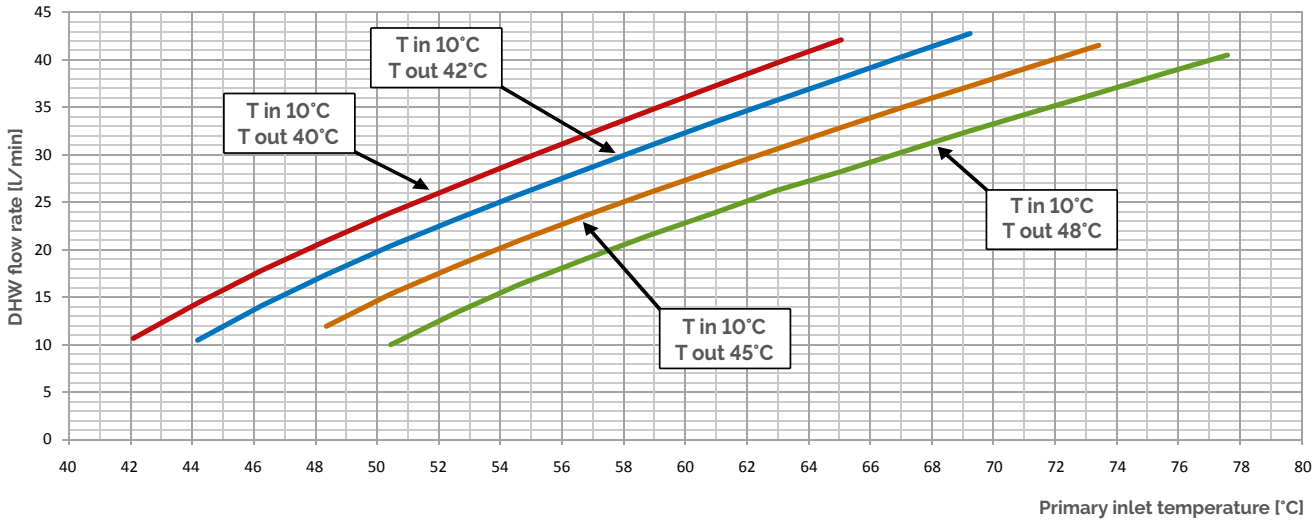
# T-SET

## Thermal performances

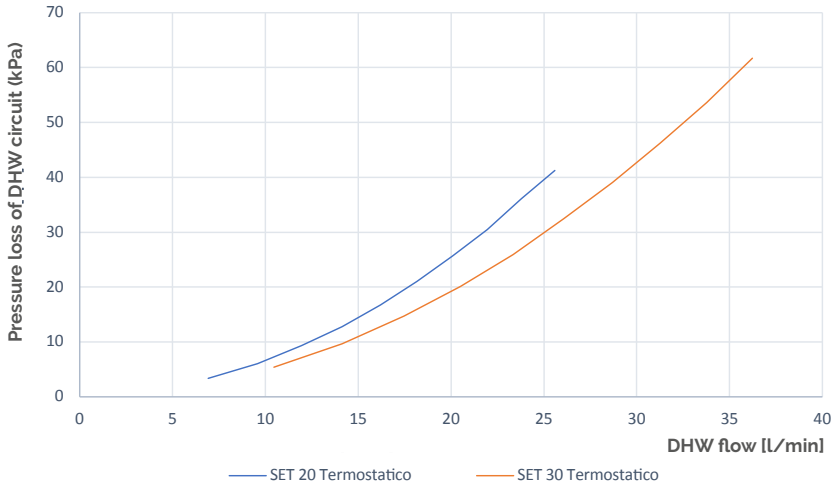
### Thermal performance T-SET 20



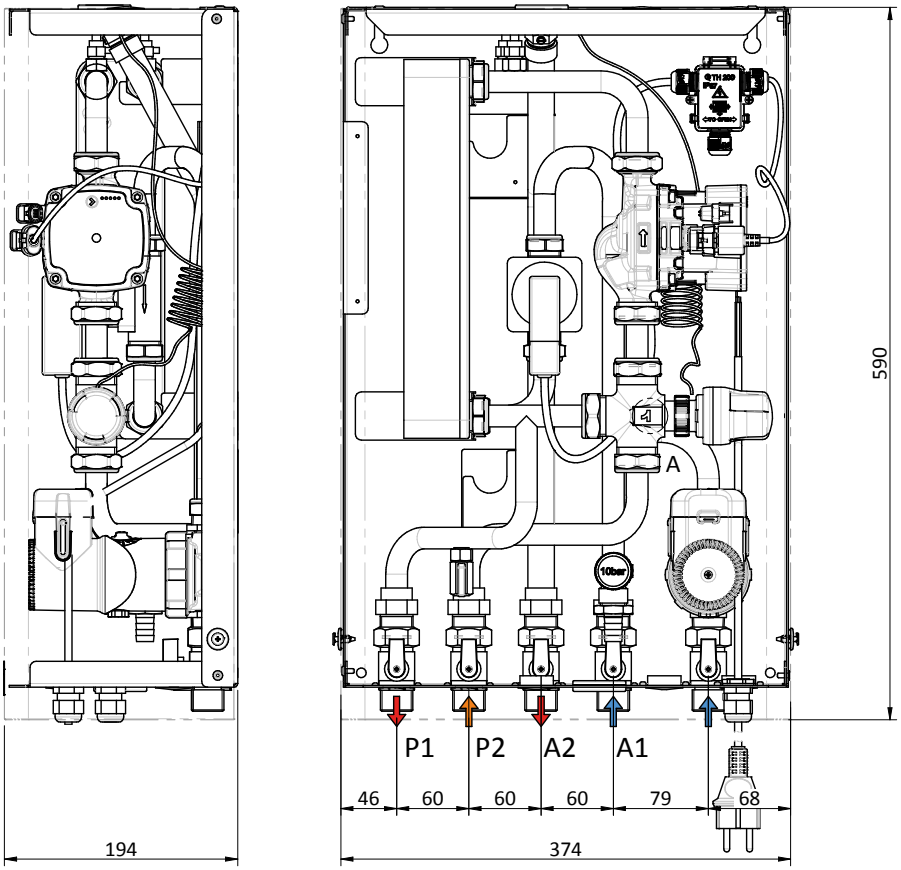

### Thermal performance T-SET 30




## Hydraulic performances



# T-SET
# Dimensions




**Key**

| | |
|---|---|
| A1 | DHW inlet |
| A2 | DHW outlet |
| P1 | To energy source |
| P2 | From energy source |

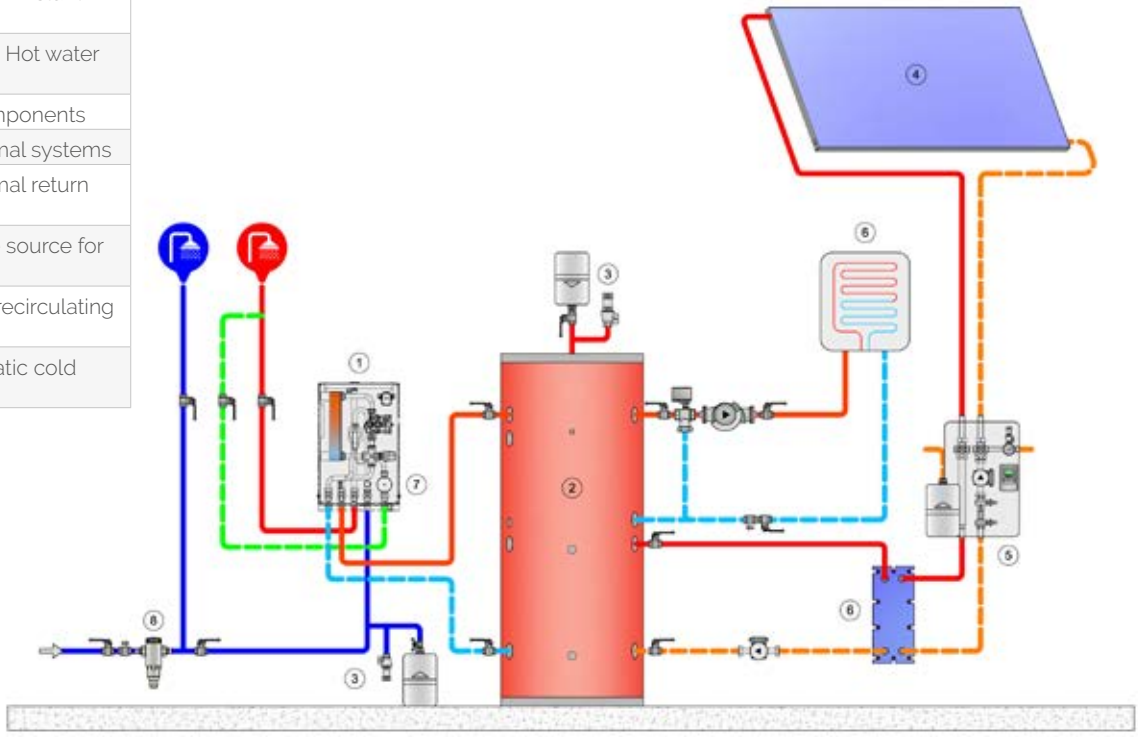
# Technical Data Table

| | | T-SET 20 | T-SET 30 |
|---|---|---|---|
| Power supply | V/Ph/Hz | 230/1/50 | |
| Primary pump power min/max | W | 10-75 | |
| Primary pump consumption min/max | A | 0.03-0.66 | |
| Maximum system recirculating pump power managed by the control unit | W | 460 | |
| Primary flow rate | l/h | 1500 | 1600 |
| Primary circuit residual head | $mH_2O$ | 1.5 | |
| Weight without packaging/with packaging | kg | 18/19 | 19/20 |
| Primary circuit volume | l | 0.7 | 1 |
| Domestic circuit volume | l | 0.6 | 0.9 |
| Maximum operating pressure primary circuit | bar | 5 | |
| Maximum operating pressure domestic circuit | | 10 | |
| Primary circuit connections | inches | UNI ISO 228/1 – G 3/4 | |
| Secondary circuit connections | inches | UNI ISO 228/1 – G 3/4 | |
| Maximum operating temperature | °C | 95 | |
| Electrical protection rating | | IP40 | |
| Type of electric plug | | SCHUKO 10-16A/250V | |
| Electrical cable length | m | 1.5 | |
| Min DHW ignition flow | l/min | 2 | |
| Dimensions (HxLxW) | mm | 590X374X194 | |

# T-SET
# Installation diagram
# in combination with hot water buffer tank

**Key**

| | |
|---|---|
| 1 | T-SET DHW instant heaters |
| 2 | Fiorini PFB Hot water buffer tank |
| 3 | Safety components |
| 4 | Solar thermal systems |
| 5 | Solar thermal return unit |
| 6 | Alternative source for heating |
| 7 | Domestic recirculating pumps |
| 8 | Bacteriostatic cold water filter |



N.B.: Installation of an expansion vessel on the cold water line is mandatory

# Standard supply

The T- SET instant water heater is shipped in a cardboard box and includes:
- ✔ Complete instant water heater with power cord and Schuko plug
- ✔ Template for easy layout of wall holes to mount the instant DHW heater
- ✔ Rawlplugs and L-hooks to mount the instant DHW heater to the wall
- ✔ Use and maintenance manual

# T-SET
# Accessories on request

The T-SET may be integrated with three accessories to manage recirculation. Recirculation increases comfort for the end user by the immediate supply of hot water when a tap is opened with no cold water being wasted. Three accessory codes are available:

1. recirculation kit consisting of circulator, valves and instructions (can be integrated internal to the T-SET),
2. recirculation control unit consisting of an electronic board and 2 PT 1000 probes, one contact and one immersion probe
3. PT 1000 contact probe for the recirculation loop

These three accessories provide the installer with a great degree of freedom of choice. They may, for example, purchase a recirculation kit coupled to the control unit, or a recirculation kit coupled to the probe, to decide freely how to best manage the kit. The T-SET recirculation kit (1) is not supplied with a probe as the installer is left free to manage the pump: if the circulator needs to be controlled electronically, a recirculation control unit may be purchased (equipped with probes) (2) or possibly only a recirculation probe (3).

**(1) T-SET recirculation kit**

The recirculation kit can be integrated internal to the T-SET body using the supplied hydraulic fittings. The kit is supplied separately, unassembled and includes:

- ✔ Recirculating pump
- ✔ Shut-off valve
- ✔ Non-return valve
- ✔ Instructions

NB: A temperature probe is not supplied with this Kit. The Kit is designed to be easily installed inside the unit. To obtain the Complete Recirculation Kit and optimise consumption, it is advisable to combine the **Recirculation kit with the Probe accessory for the recirculation kit** and set up a panel with thermostat (and/or timer).



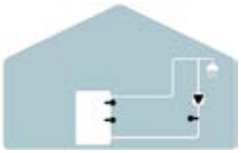
**(2) Control unit for recirculation kit**

The kit is supplied separately, unassembled and includes:

- ✔ CC Control unit
- ✔ 1 PT1000 immersion temperature probe to be installed on the upper part of the tank
- ✔ 1 PT1000 contact temperature probe to be positioned on the recirculation loop
- ✔ Instructions

NB: When purchasing the control unit kit, purchasing probes separately is not required.





**(3) Probe for recirculation kit**

The kit is supplied separately, unassembled and includes:

- ✔ PT1000 temperature probe to be positioned on the recirculation loop
- ✔ Instructions

NB: The recirculating pump is not supplied with this Kit.
Fittings for assembly are, however, provided inside the T-SET heater.
When purchasing the control unit kit, purchasing probes separately is not required.

# Accessory codes and prices

| Description | Code | Price |
|---|---|---|
| T-SET RECIRCULATION KIT | 842040003X | |
| PROBE FOR RECIRCULATION KIT – T-SET /SET | 842040009X | |
| CC CONTROL UNIT - FOR DHW RECIRCULATION | C22120034 | |

# SET
# Instant DHW production units

The new SET is an instant domestic hot water production unit that uses a brazed stainless steel plate heat exchanger.

The SET comes with a control unit for DHW temperature regulation, time bands, accessory management and much more. The SET model has the same compact components and dimensions as the T-SET model but includes a greater number of options and adjustment possibilities.

Special **electronic regulation** is carried out by means of a control unit and flow meter on the secondary circuit. The graphic display on control unit allows the user to monitor operations as well as easily set the parameters of use.

For optimal ease of use, a variety of accessories is available, including the new domestic hot water **RECIRCULATION KIT**, which is to be installed inside the unit. Find out more on page 257




TESTED

SET 20, 30, 40



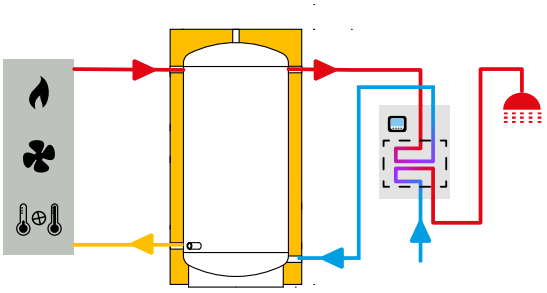
SET 80



## Plus

- ✔ Compact wall module with reduced overall dimensions
- ✔ Pre-painted, aluminium cladding case
- ✔ Fitted for assembly of DHW recirculation kit
- ✔ Closed-cell, polyethylene foam insulation, which insulates the entire hydraulic system
- ✔ STAINLESS STEEL domestic hot water pipes
- ✔ Shut-off valves on each connection
- ✔ Integrated safety valve on DHW circuit
- ✔ Easy Plug and Play installation
- ✔ Simple and economical use
- ✔ Ultrasonic flowmeter (SET 80 only)

**Start-up:** the first start-up is recommended. See page 361



### The SET is available in 4 models

| | | | | With packaging | |
|---|---|---|---|---|---|
| Model | DHW nominal flow rate | Code | Price | Dimensions cm | Weight kg |
| SET 20 | (DHW 20 l/minute) | 842030149X | | 63x40x21 | 18 |
| SET 30 | (DHW 30 l/minute) | 842030150X | | 63x40x21 | 19 |
| SET 40 | (DHW 40 l/minute) | 842030151X | | 63x40x21 | 20 |
| SET 80 | (DHW 80 l/minute) | 842030180X | | 63x40x21 | 30 |

# SET
# Main features

Efficient electronic control of the pump speed

Option of controlling a recirculating pump for the domestic water loop, by setting the pump operating times and the temperature of the recirculation loop below which the pump is activated

Option of managing anti-legionella treatment by means of thermal shocks along the entire DHW adduction line (activation of a supplemental heat source is possible when anti-legionella treatment is active): the anti-legionella function can be activated if there is a heat source above 65°C

High-efficiency electronic pump controlled using PWM signal

Wall assembly using rawlplugs and L-hooks, supplied with the unit

Graphic display including:
- Setting the DHW usage temperature
- Setting the maximum DHW temperature. This is a safety setting that stops the unit if the temperature reaches the maximum value entered

Solar power system circulator command and control
Heat generator management (boiler, heat pump, heating elements, etc.): option of activating and deactivating a heat generator when the storage tank temperature falls below the set point
Managing cascade kits
Managing the mixing valve kit on the primary circuit
Storage tank stratification kit management



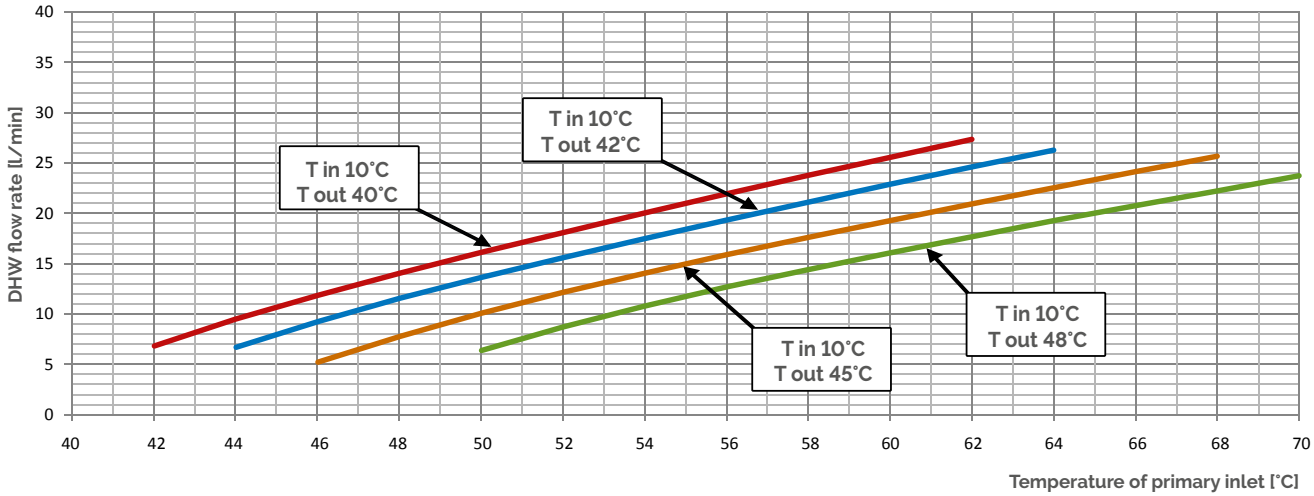
**Specific features of SET 80**

The new **Ultrasonic Flowmeter**, installed on the secondary circuit, is free of mechanical components vulnerable to pressure changes, ensuring greater durability and reliability of the product over time. The flowmeter has an extremely high detection sensitivity: it activates starting from 1 l/min and reaches up to 80 l/min.

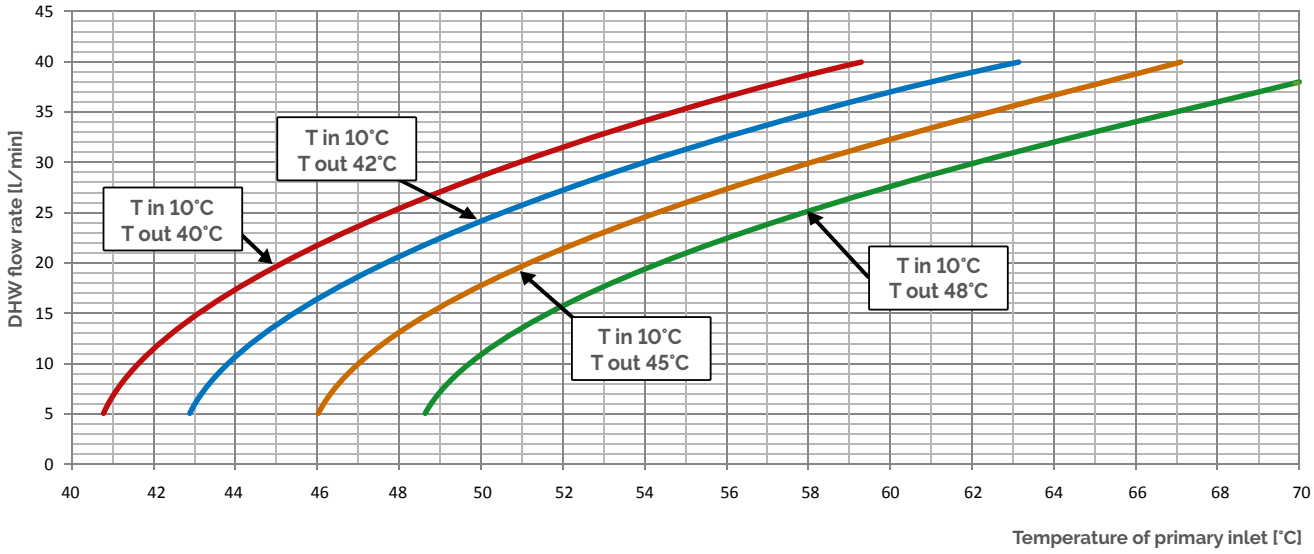


# SET
# Thermal performance

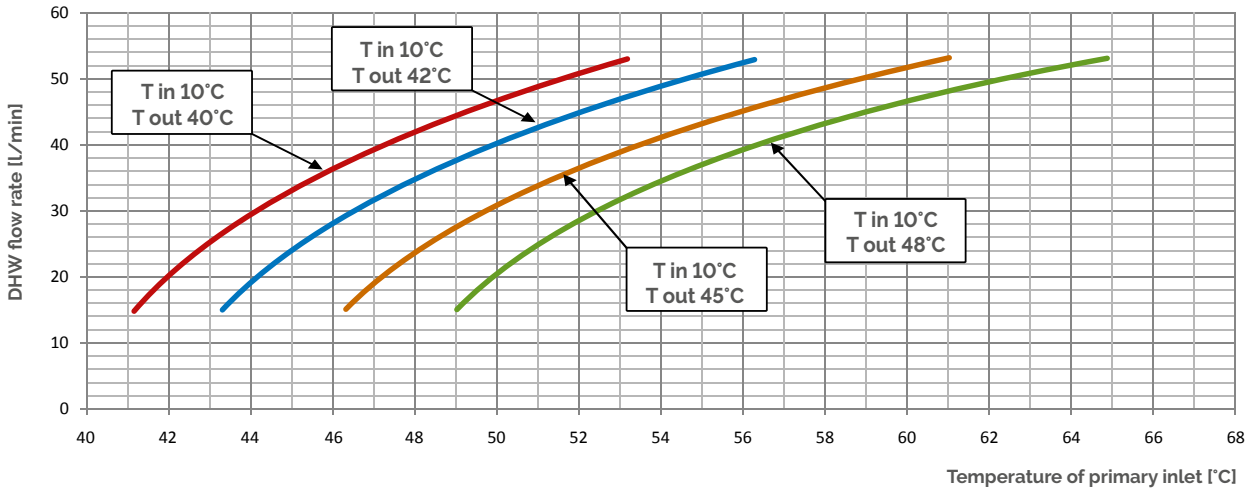
## Thermal performance SET 20




## Thermal performance SET 30

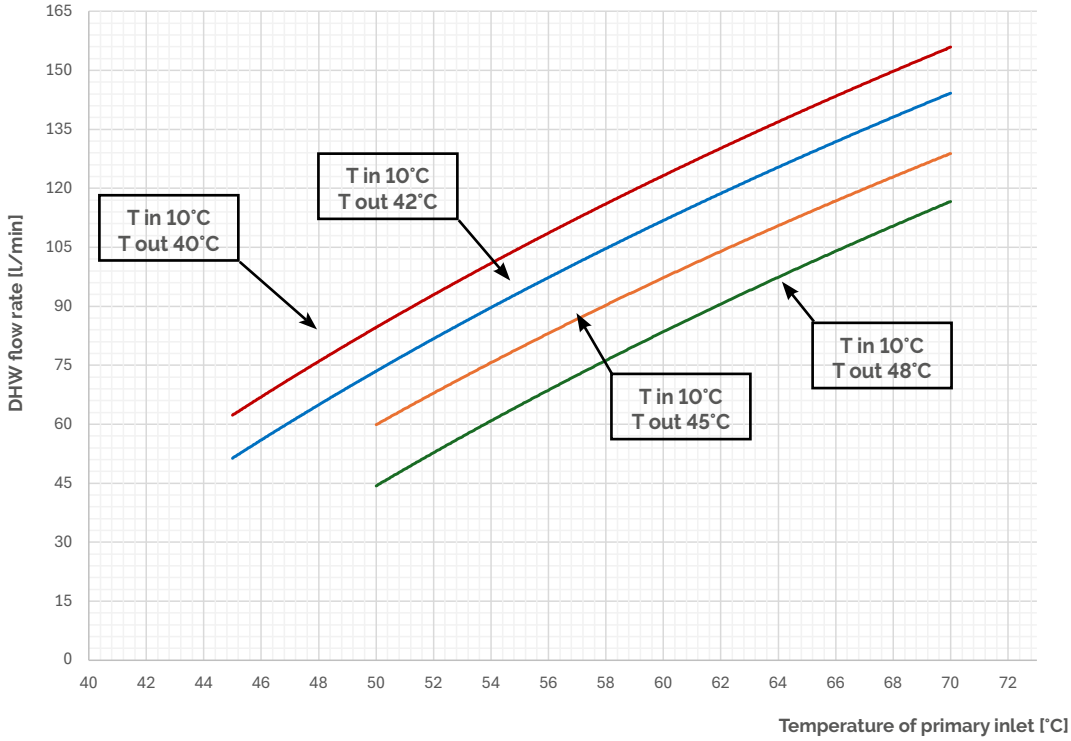



## Thermal performance SET 40

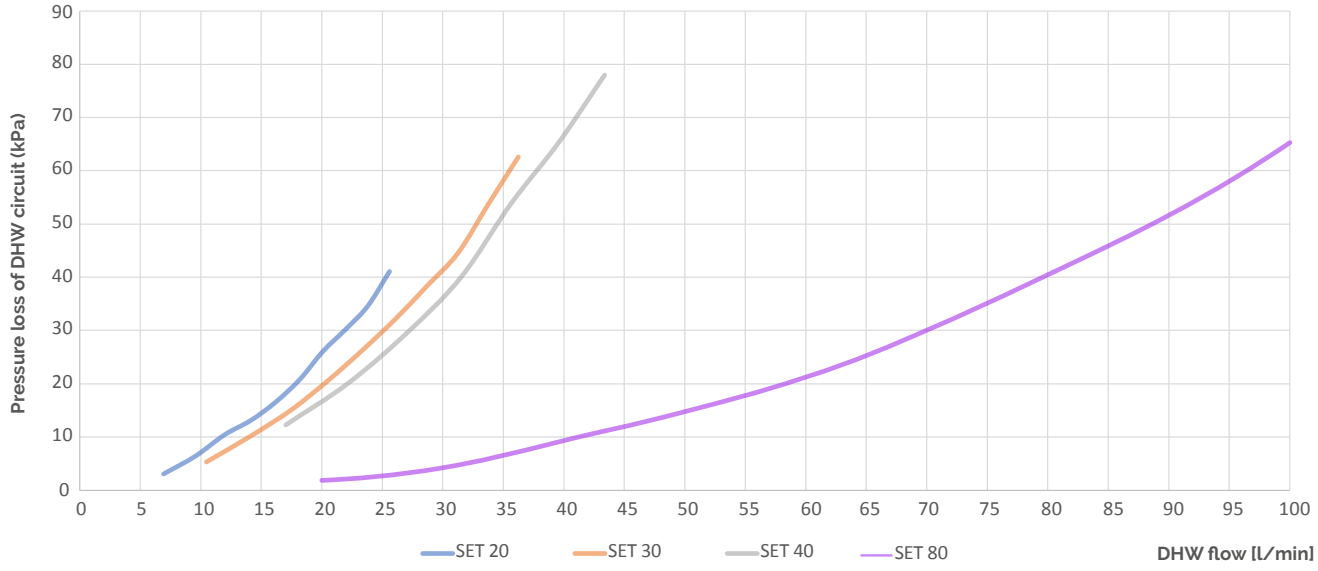


# SET
# Thermal performance

**Thermal performance SET 80**

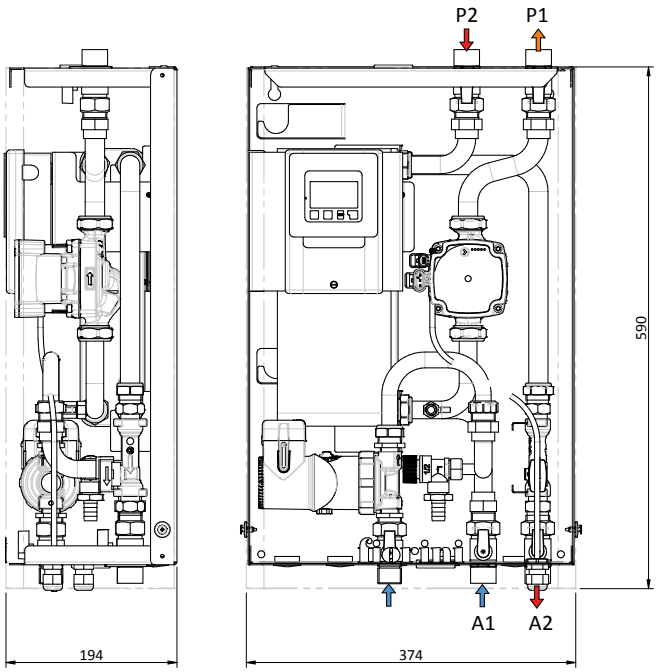



# SET
# Hydraulic performance



# SET
# Dimensions

**SET 20, 30, 40**




**SET 80**

**Key**

| | |
|---|---|
| A1 | DHW inlet |
| A2 | DHW outlet |
| P1 | To energy source |
| P2 | From energy source |

The domestic recirculating pump shown in the drawing is optional

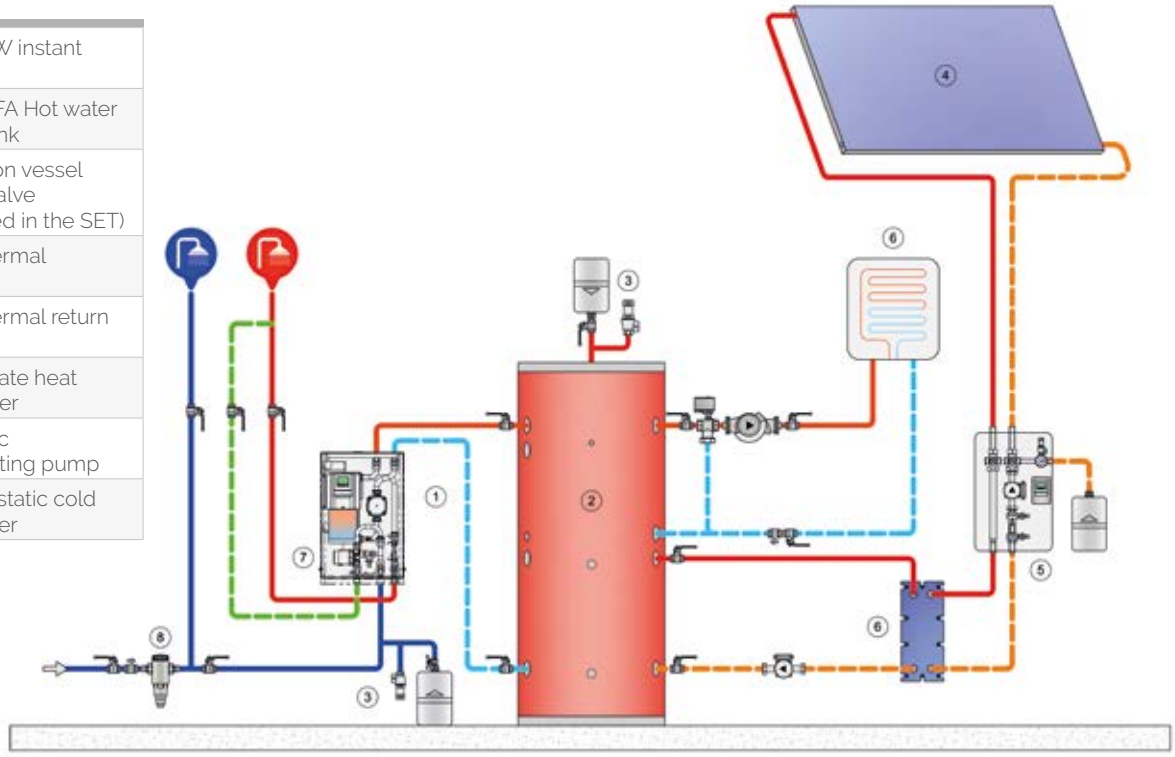
# Technical Data Table

| | | SET 20 | SET 30 | SET 40 | SET 80 |
|---|---|---|---|---|---|
| Power supply | V/Ph/Hz | 230/1/50 | | | |
| Primary pump power min/max | W | 10-75 | | | 3-180 |
| Primary pump consumption min/max | A | 0,03-0,66 | | | 0,04-1,42 |
| Maximum system recirculating pump power managed by the control unit | W | 460 | | | |
| Primary flow rate | l/h | 1500 | 1600 | 2500 | 5400 |
| Primary circuit residual head | m.c.a. | 5 | 4 | 3 | 4 |
| Weight without packaging/with packaging | kg | 17/18 | 18/19 | 19/20 | 27/28 |
| Primary circuit volume | l | 0,6 | 0,8 | 1,2 | 2,8 |
| Domestic circuit volume | l | 0,7 | 0,9 | 1,4 | 2,9 |
| Maximum operating pressure primary circuit | bar | 6 | | | 10 |
| Maximum operating pressure domestic circuit | bar | 10 | | | 10 |
| Primary circuit connections | inches | UNI ISO 228/1 – G 3/4 | | | UNI ISO 228/1 – G 1 |
| Secondary circuit connections | inches | UNI ISO 228/1 – G 3/4 | | | UNI ISO 228/1 – G 1 |
| Maximum operating temperature | °C | 95 | | | |
| Electrical protection rating | | IP40 | | | |
| Length of the power supply cable | m | 1,5 | | | |
| Min DHW ignition flow | l/min | 2 | | | 2 |
| Max DHW flow | l/min | 25 | 35 | 45 | 80 |
| Dimensions (HxLxW) | mm | 590X374X194 | | | |

# SET
# Installation diagram
# in combination with hot water buffer tank

**Key**

| | |
|---|---|
| 1 | SET DHW instant heater |
| 2 | Fiorini PFA Hot water buffer tank |
| 3 | Expansion vessel (safety valve integrated in the SET) |
| 4 | Solar thermal systems |
| 5 | Solar thermal return unit |
| 6 | Fiorini plate heat exchanger |
| 7 | Domestic recirculating pump |
| 8 | Bacteriostatic cold water filter |



# Standard supply

The SET instant water heater is shipped in a cardboard box and includes:

- ✔ Complete instant water heater with power cord
- ✔ Template for easy layout of holes on the wall to secure the instant DHW heater
- ✔ Rawlplugs and L-hooks to mount the instant DHW heater to the wall
- ✔ Use and maintenance manual

# SET
# Accessories on request

A number of accessory kits are available to be combined exclusively with the SET heater to improve efficiency, optimise consumption and enhance ease of use for the end user:

1. SET connection kit in cascade
2. SET recirculation kit
3. Mixing valve kit on primary circuit
4. Stratification buffer tank kit (with external deviation valve)
5. External relay

N.B.: The SET electronic control unit manages up to 3 digital outputs, so it is necessary to check how many outputs are engaged by each chosen accessory according to their requirements. The new SET model may be integrated with the external relay accessory to add a digital output to the control unit.

The following pages outline detailed specifications for each accessory: codes and prices can be found on page 259

## SET connection kit in cascade

The SET connection Kit in cascade (not usable on T-SET units), is the ideal solution for all applications where the demand for domestic hot water is highly variable. It is possible to connect up to a maximum of 8 instant DHW heaters, guaranteeing a production of DHW from a minimum of 2 l/min up to 360 l/min*. The electronic control units installed on each instant DHW heater communicate with one another via CanBus. The electronics can, thus, decide how many and which DHW heaters must start working depending on the conditions of use.

**Advantages and benefits:**

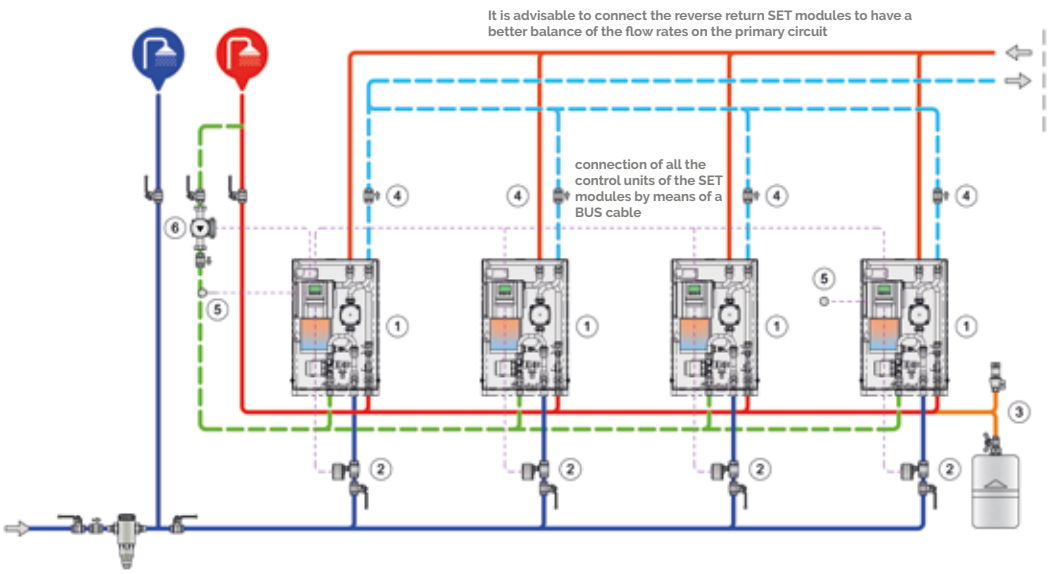
- ✔ Wide DHW production range: from 2 to 360 l/min
- ✔ Maximum reliability. Thanks to the self-diagnosis performed by the control unit, if a DHW heater malfunctions, it is automatically switched off and another one is started. Continuity in the production of DHW is thus guaranteed
- ✔ Even more precise temperature adjustment. Adjustment means that the correct number of instant DHW heaters are started based on the flow rate and DHW temperature requested. Each DHW heater, therefore, only operates in close-to-nominal conditions, improving efficiency and adjustment accuracy.
- ✔ The system designed with DHW heaters in cascade can be expanded by adding other units later on.
- ✔ Possibility of performing scheduled maintenance on DHW heaters without halting the supply of DHW.
- ✔ Each DHW heater works for the same number of hours, guaranteeing maximum system durability.

**Kit supplied.**

Install one kit for every instant DHW heater. The kit is supplied separately, unassembled and includes:
- ✔ 1 x motorized zone valve with fast 230 V motor
- ✔ 1 x fittings for coupling
- ✔ 1 x CanBus cable and 2 x CanBus line terminal resistors
- ✔ Instructions

*The flow rate of DHW that can be delivered by a cascade system is equal to the sum of the flow rates that can be delivered by each
single active heater included in the Thermal performance section.

## Installation diagram




**Key**

| | |
|---|---|
| 1 | DHW production unit SET |
| 2 | 2-way valve for waterfall kit |
| 3 | Expansion tank |
| 4 | Non-return valve |
| 5 | Temperature probe |
| 6 | DHW circulation pump |

# MULTIGATEWAY -Remote management for SET fresh water stations

The Multigateway is a device with a touchscreen display for remote management of devices that communicate with the CAN protocol. Once the Multigateway is installed, it is possible to manage the system directly via the App or with the integration of a BMS (Building Management System) that communicates using the Modbus protocol. In the case of a SET cascade, it is sufficient to use 1 Multigateway.

### Operating conditions

- ✔ Protection class: IP 20
- ✔ Temperatures: 0°C - 50°C
- ✔ CAN cable length < 3 m, or you need to use shielded cable

### Main features

- ✔ Data Logger
- ✔ Fieldbus CAN
- ✔ Modbus RTU RS 485
- ✔ WiFi module
- ✔ Display touchscreen
- ✔ 12/24 V Power supply
- ✔ Android & iOS app
- ✔ Dimensions: 75 x 95 x 19 mm
- ✔ ABS body and glass front

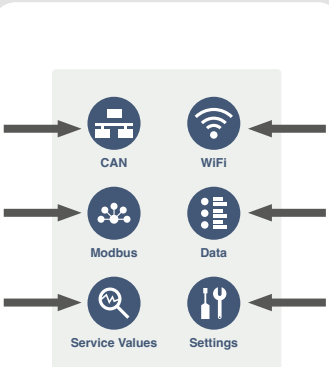



### Main menu

**CAN**
Add devices to the network

**Modbus**
Protocol specific settings

**Service values**
System messages and data




**WiFi**
WiFi settings

**Data**
Data storage settings

**Settings**
Device parameters such as language, brightness, etc.

# SET recirculation kit

The SET can be integrated into an internal or external recirculation system: the internal recirculation kit (1) is equipped with probe and circulator, while the external recirculation kit (2) consists of a probe that controls an external circulator. The two KITs are individually selectable but NOT combinable.
The recirculation kits make it possible to exploit the many options provided by the electronic control unit to control the pump of the domestic recirculation circuit.
The possible settings of the electronic control unit include, among others:

- Time band recirculation programming: the recirculating pump is activated only during the enabled times and when the recirculation temperature is below the set temperature.
- Recirculation pump always on

**(1) Internal SET recirculation kit**

The recirculation kit can be integrated internal to the SET body using the supplied hydraulic fittings. In case of installation of SET in cascade, the internal recirculation kit cannot be used, but the external kit must be used. In any case, it must be checked that the performance of the recirculation pump is sufficient to deliver a flow rate that is adequately higher than the minimum flow rate of the flowmeter.
The kit is supplied separately, unassembled and includes:

✔ Circulator
✔ Temperature probe to place on the recirculation loop
✔ Recirculation connection pipe
✔ Shut-off valve
✔ Instructions



**(2) External SET recirculation kit**

The kit is supplied separately, unassembled and includes:

✔ PT1000 temperature probe to be positioned on the recirculation loop
✔ Instructions

A recirculating pump is not supplied with the external kit. A single-phase pump with a maximum power of 460W must be used
N.B.: In the case of several SETS connected in cascade, a common recirculation pump can be installed, managed by the control unit of any of the groups.

# Mixing valve kit on primary circuit

The mixing kit allows you to regulate the inlet temperature to the DHW heater. The adjustment precision of the DHW heater is consequently improved, thus ensuring greater comfort, especially in systems that can reach high temperatures in the primary circuit.

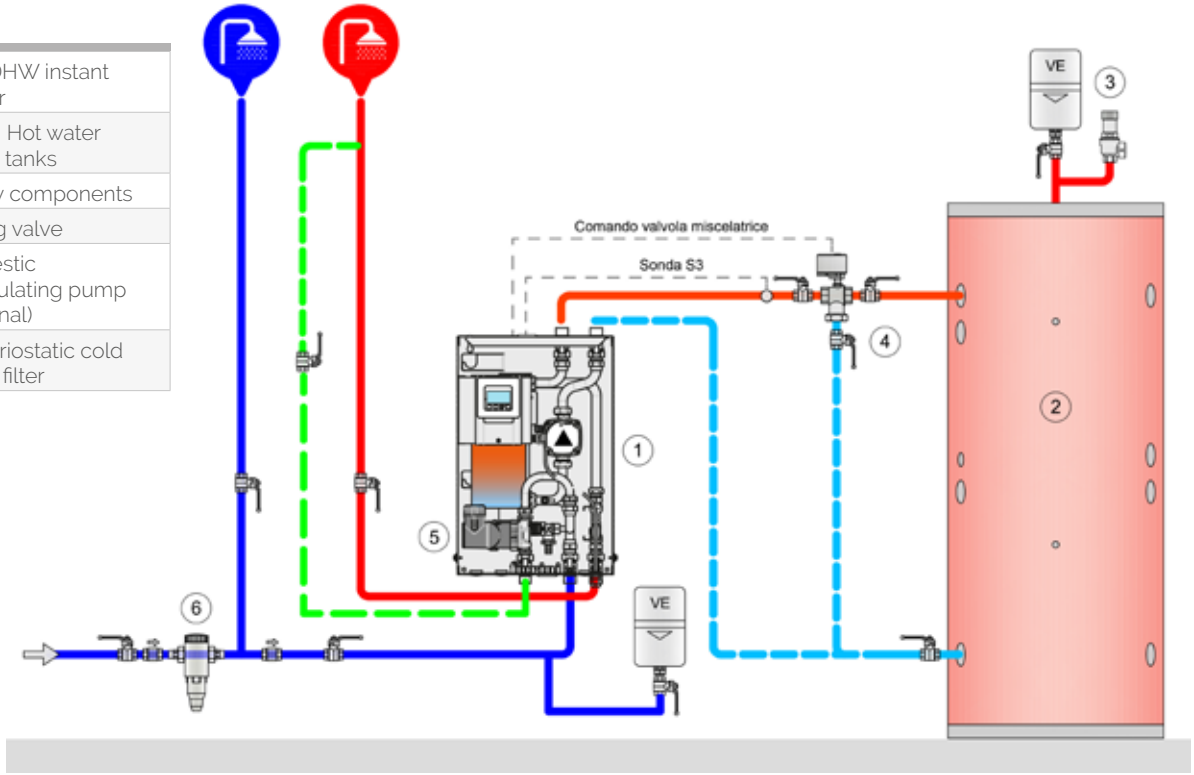
N.B.: If several SETs are installed in cascade to manage the inlet temperature of the primary, a mixing kit must be provided for each SET installed.

**Kit supplied**

The kit is supplied separately, unassembled and includes:
- ✔ S3 temperature probe to be placed at the exchanger inlet on the primary circuit
- ✔ Instructions
- ✔ Motorised mixing valve

**Key**

| | |
|---|---|
| 1 | SET DHW instant heater |
| 2 | Fiorini Hot water buffer tanks |
| 3 | Safety components |
| 4 | Mixing valve |
| 5 | Domestic recirculating pump (optional) |
| 6 | Bacteriostatic cold water filter |



# Stratification buffer tank kit (with external deviation valve)

The stratification kit on the primary circuit (storage tank) directs the return from the instant heaters to 2 points at different heights of the storage tank, thus favouring the phenomenon of stratification inside the hot water buffer tank and optimising the efficiency of the entire heating system.

N.B.: If several SETs are installed in cascade, it is possible to install a single stratification kit managed by the control unit of any SET.

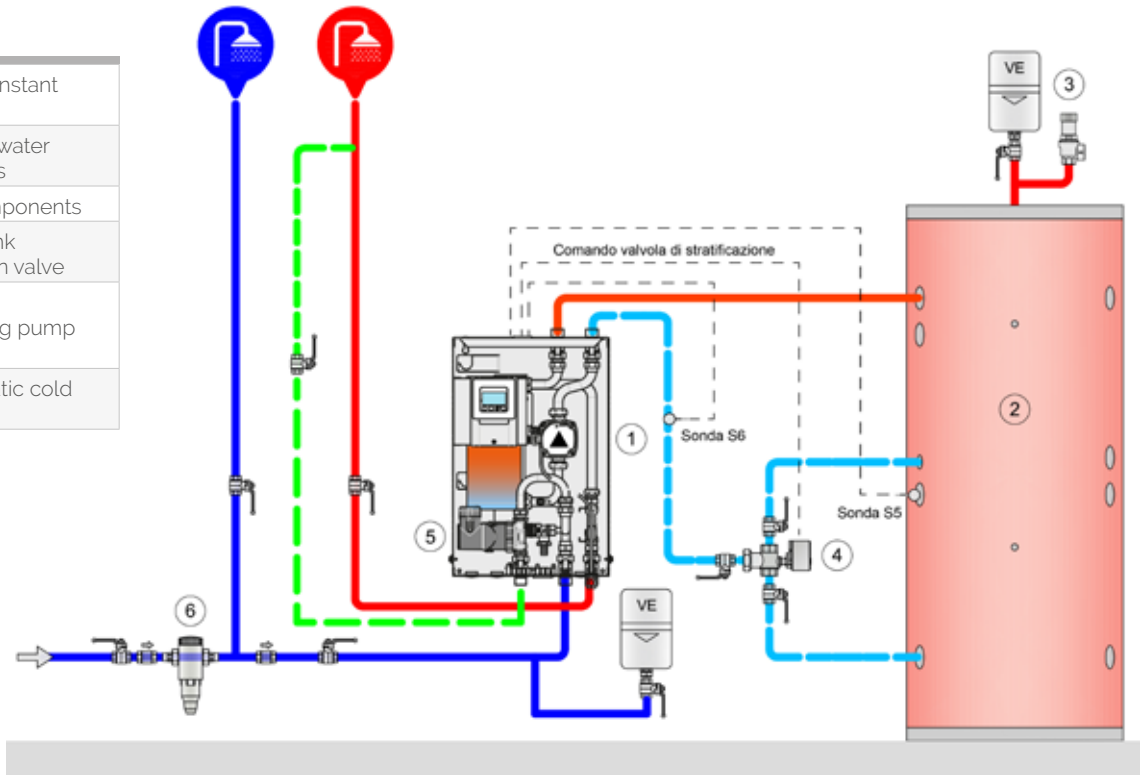
**Kit supplied**

The kit is supplied separately, unassembled and includes:

- ✔ S5 probe temperature to be placed in the middle of the buffer tank
- ✔ S6 probe temperature on the return of the primary circuit
- ✔ Instructions
- ✔ Motorised stratification valve

**Key**

| | |
|---|---|
| 1 | SET DHW instant heater |
| 2 | Fiorini Hot water buffer tanks |
| 3 | Safety components |
| 4 | Storage tank stratification valve |
| 5 | Domestic recirculating pump (optional) |
| 6 | Bacteriostatic cold water filter |




# SET - Accessory codes and prices

| Description | Digital ports | Code | Price |
|---|---|---|---|
| SET 20,30,40 EXTERNAL CASCADE KIT | -1 | 842040006X | |
| SET 80 EXTERNAL CASCADE KIT | -1 | 842030092X | |
| SET INTERNAL RECIRCULATION KIT | -1 | 842040004X | |
| T-SET/SET EXTERNAL RECIRCULATION KIT | -1 | 842040009X | |
| SET EXTERNAL MIXING VALVE KIT | -2 | 842040007X | |
| SET EXTERNAL STORAGE TANK STRATIFICATION KIT | -1 | 842040008X | |
| MULTIGATEWAY | 0 | C22120078 | |
| EXTERNAL RELAY 1W 6A OUTPUT 0-10V IP55 | +1 | C24090225 | |

**N.B.: The control unit manages up to 3 digital outputs:** check the availability of the free outputs and the requirements of the various accessories. The following accessory is available: **External relay** 1W 6A OUTPUT 0-10V IP55, which converts one of the unused analogue outputs (V2) from 0-10V / PWM into an exchange contact (allows the increase of the digital outputs of the control unit by 1 unit)

# Floor standing SET
# DHW fresh water station

A plug and play system for transferring heat from the technical water storage tank with a programmable control unit and a circulator. The SET unit ensures the DHW production with a limited formation of chalk and at a temperature chosen by the user. The heat exchange is carried out by the AISI 316 stainless steel plate heat exchanger in a high performance and hygienic manner.

The unit, connected to the water storage tank from which it takes energy, is composed of all necessary parts. Through a control unit with a graphical display the user can monitor the functioning or easily impose user parameters. The heart of the SET unit is the special electronic control unit which keeps up the imposed DHW temperature by modulating the flow in the primary circuit.



TESTED

The Floor standing SET unit is available in several sizes (60, 70, 80, 100, 120, 160 and 200*)
(*): DHW production of 10 to 45C with a temperature of 55°C in the primary circuit

The innovative and qualifying element of the SET unit is the electronic control unit which guarantees the DHW temperature through the modulation of the flow in the primary circuit.
In this way the following is guaranteed:

- ✔ max heat drop in the primary circuit in order the optimize the efficiency of the generator (solar thermal power, heat pump, biomass,etc.)
- ✔ precise and trustworthy management

Thanks to the high efficiency heat exchanger the unit is ideal for installations with heat pumps or solar panels that use water storage tanks for low temperatures (50-55°C)

**Plus**

- ✔ regulation of the hot water temperature
- ✔ easy and cheap in use
- ✔ high efficiency circulation pump (in accordance with the 2005-35/CE directive) and with an electronic control of the number of turns
- ✔ synoptically graphical display with the indication of the temperatures in the installation and of the power
- ✔ easy Plug and Play installation
- ✔ insulated pipe fittings
- ✔ vessel with a metal structure and thermoform panels for mounting to the wall
- ✔ possibility to manage the sanitary recirculation pump

**Available accessories see pag. 270**

| | | | Packed | |
|---|---|---|---|---|
| Code | Description | Price | Dimensions cm | Weight kg |
| 842030004X | SET 60 - DHW FRESH WATER STATION | | 110x60x100 | 166 |
| 842030005X | SET 70 - DHW FRESH WATER STATION | | 110x60x100 | 168 |
| 842030006X | SET 80 - DHW FRESH WATER STATION | | 110x60x100 | 189 |
| 842030007X | SET 100 - DHW FRESH WATER STATION | | 110x60x100 | 193 |
| 842030008X | SET 120 - DHW FRESH WATER STATION | | 110x60x100 | 198 |
| 842030046X | SET 160 - DHW FRESH WATER STATION | | 140x60x100 | 198 |
| 842030016X | SET 200 - DHW FRESH WATER STATION | | 139x63x125 | 200 |

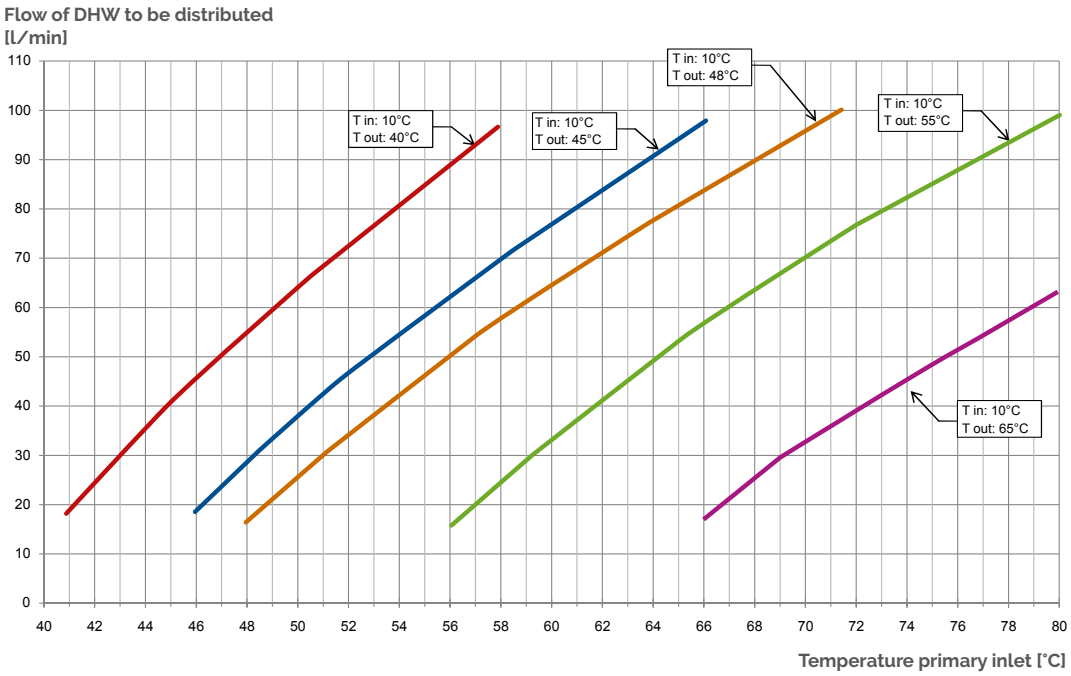
# Functions of the regulator

The SET fresh water station is equipped with a regulator that can execute the following functions:

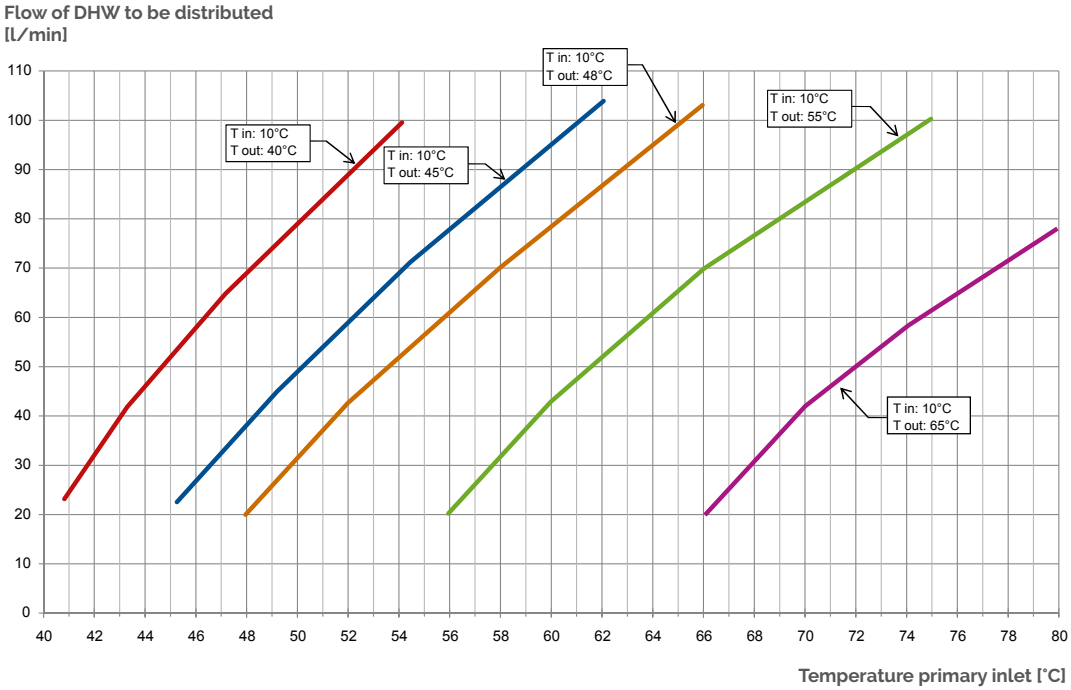
| |
|---|
| Efficient, electronic regulation of the velocity of the pump |
| Graphical display |
| Imposing the temperature of the DHW |
| Imposing the max temperature of the DHW. This is a safety option which stops the unit in case the max value is reached. |
| Management kit in series |
| Management kit Mixing valve on the primary circuit |
| Management kit stratification of the tank |
| Possibility to control the recirculation pump for sanitary purposes by fixing the activation times of the pump and the temperature of the recirculation circuit |
| Anti-legionella: carry out anti-legionella treatments through thermal shocks along the DHW adduction line |
| AL heating: activation of an integrative heat source when the anti-legionella treatment is carried out |
| Comfort function: when activated, the exchanger is kept warm in order to guarantee a fast recuperation |
| Anti-chalk protection: when activated, the circulator keeps on running even when the DHW distribution time is up in order to reduce chalk formation |
| Solar: control and command the circulator of a solar power device |
| Management of the heat generator: activate and deactivate a heat generator when the temperature in the tank is below the set point |
| Consumption accounting functions |

# Floor standing SET thermal performance

## SET 60 performance

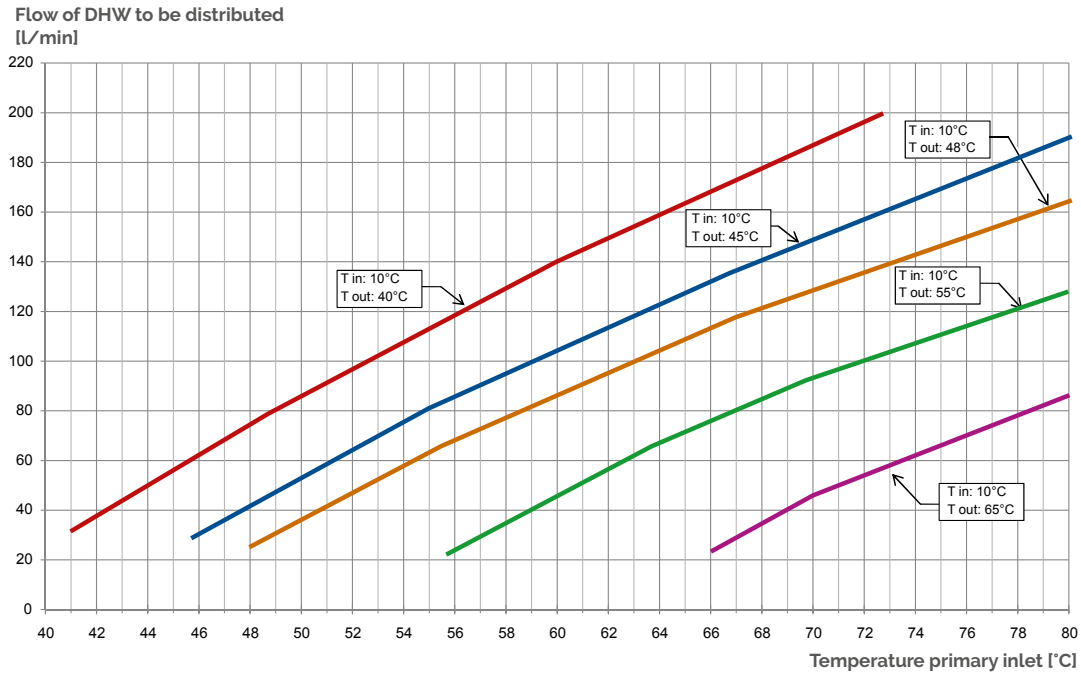



## SET 70 performance

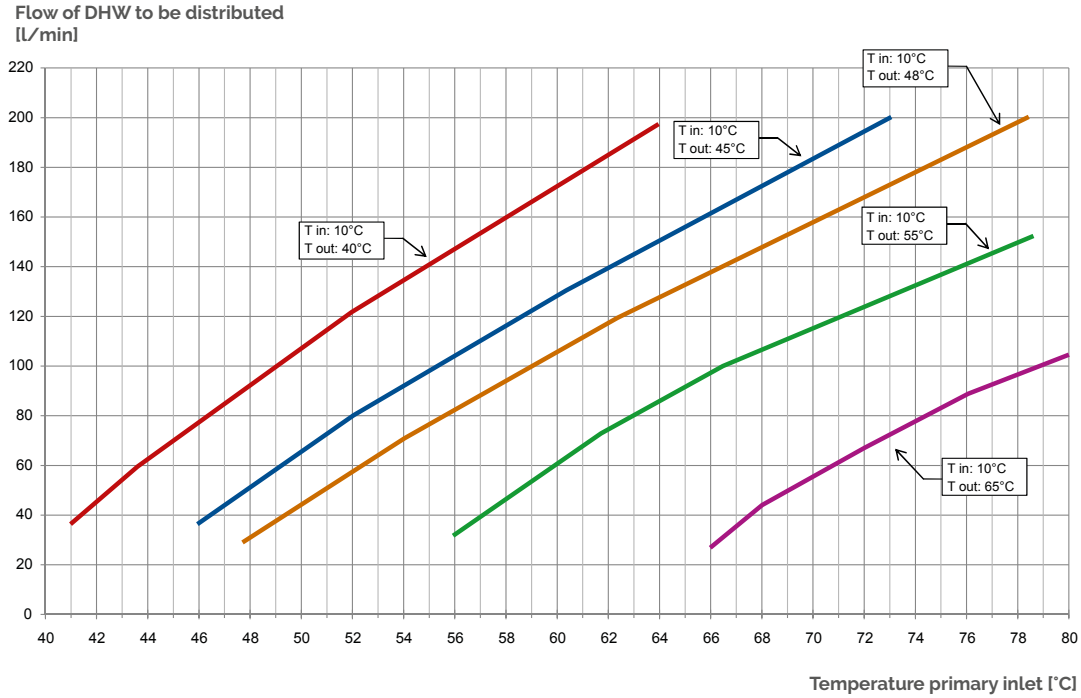


# Floor standing SET thermal performance

## SET 80 performance

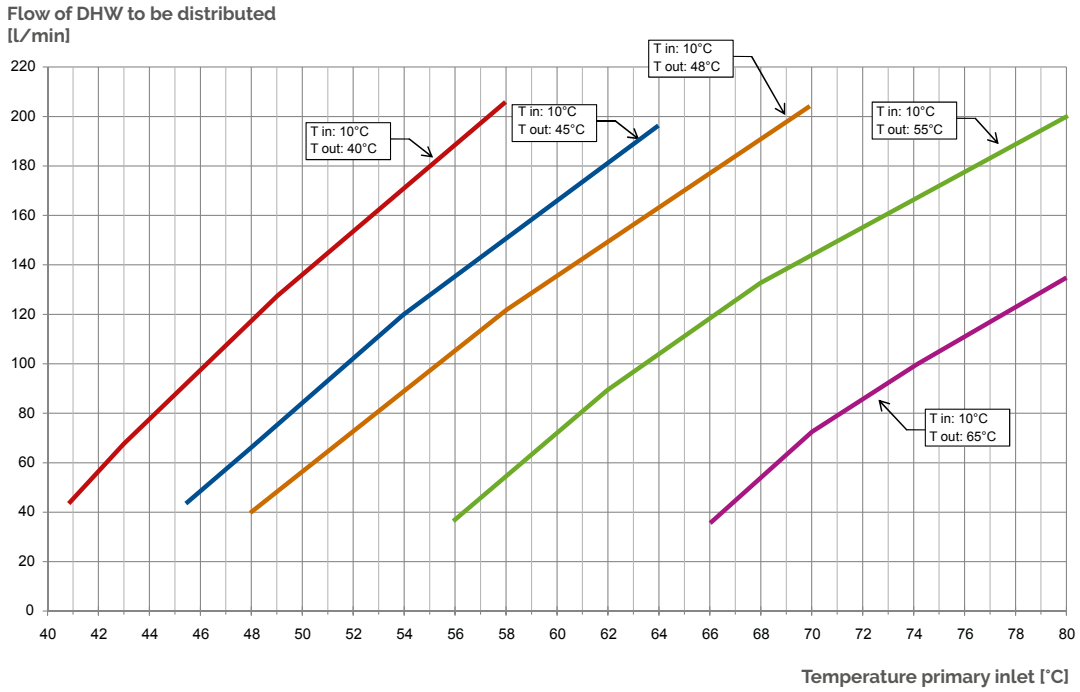



## SET 100 performance

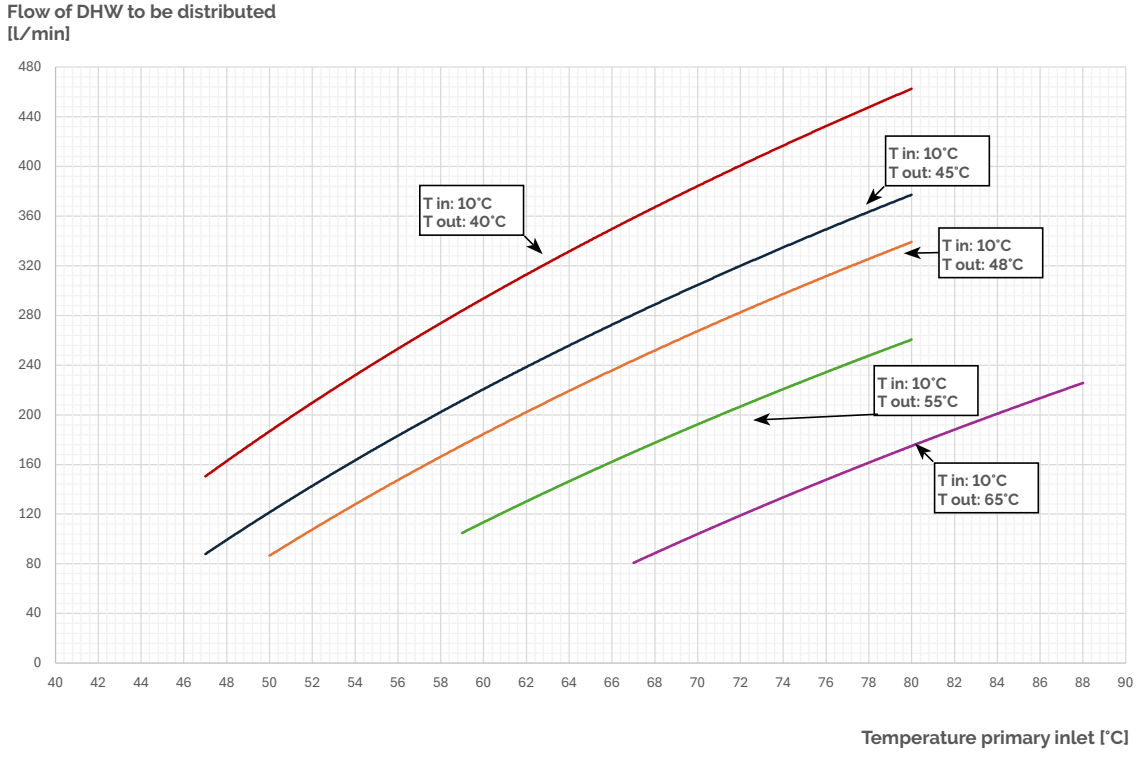


# Floor standing SET thermal performance

## SET 120 performance

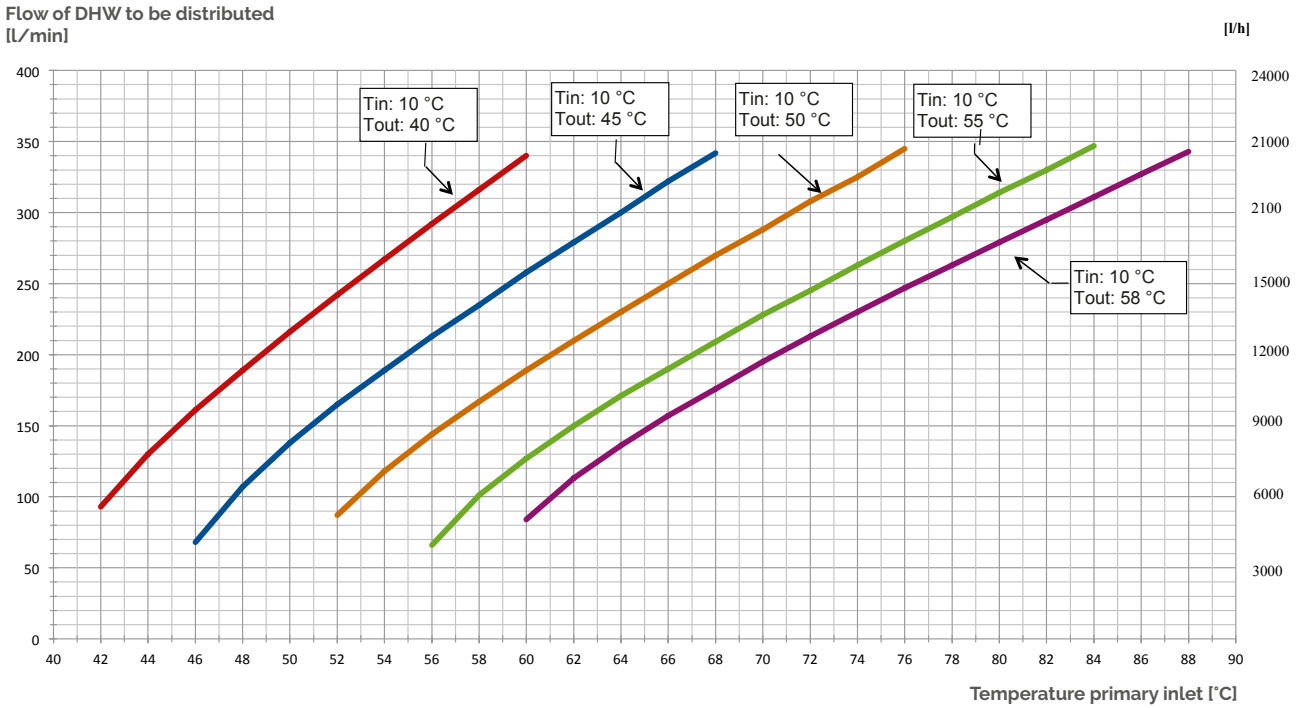



## SET 160 performance

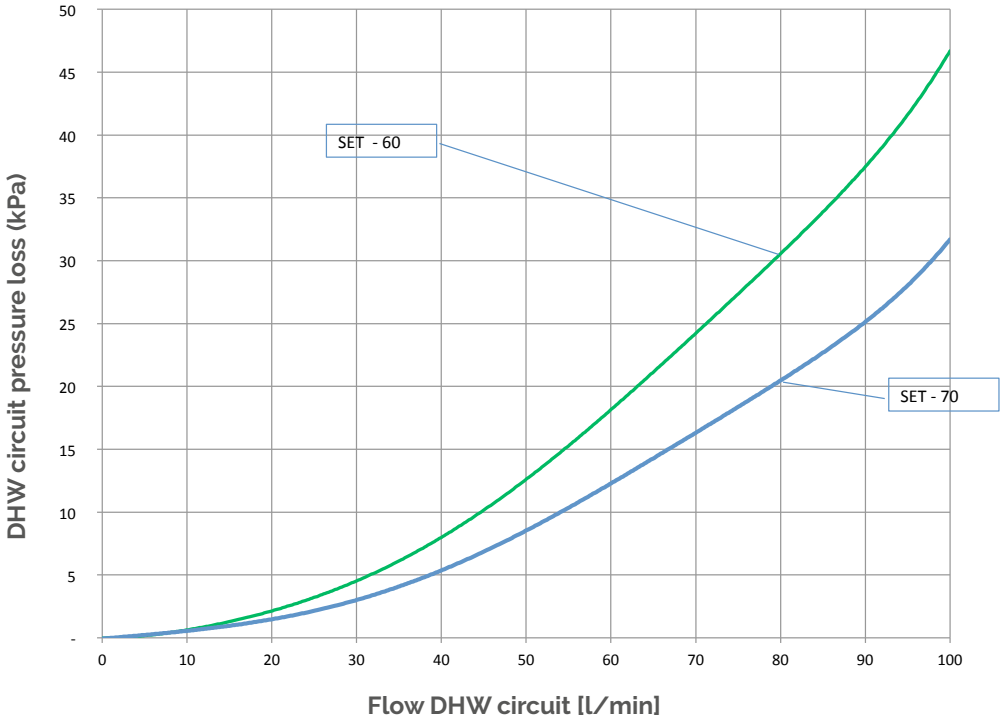


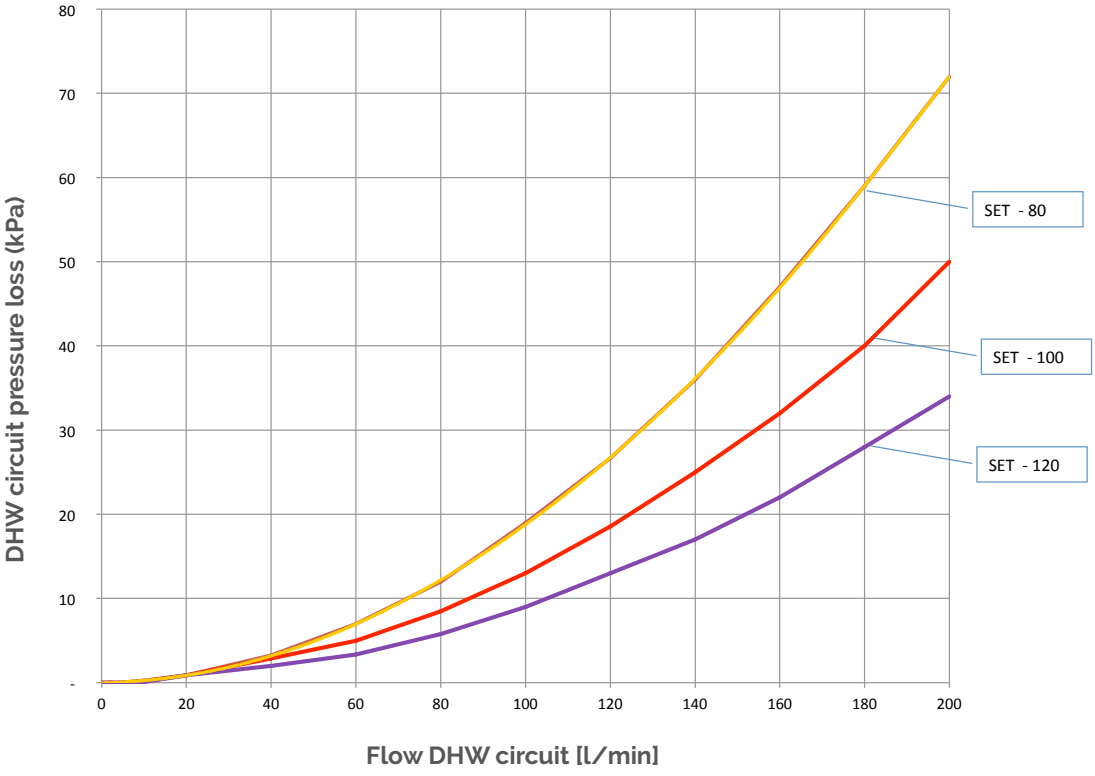
# Floor standing SET thermal performance

## SET 200 performance

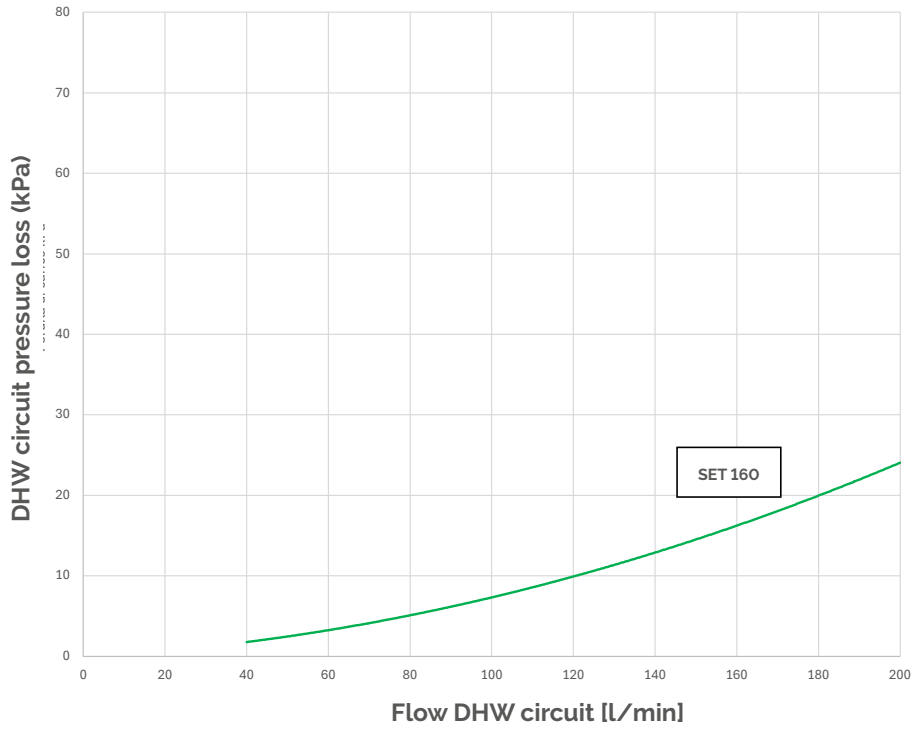


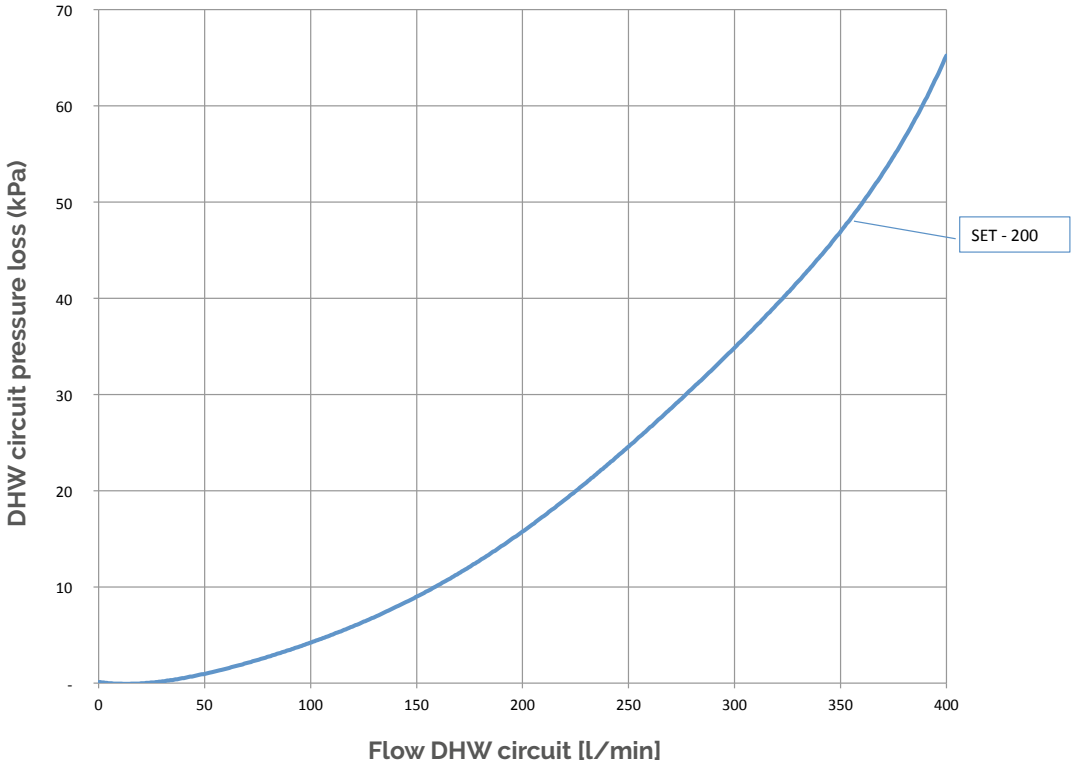
# Hydraulic performance SET



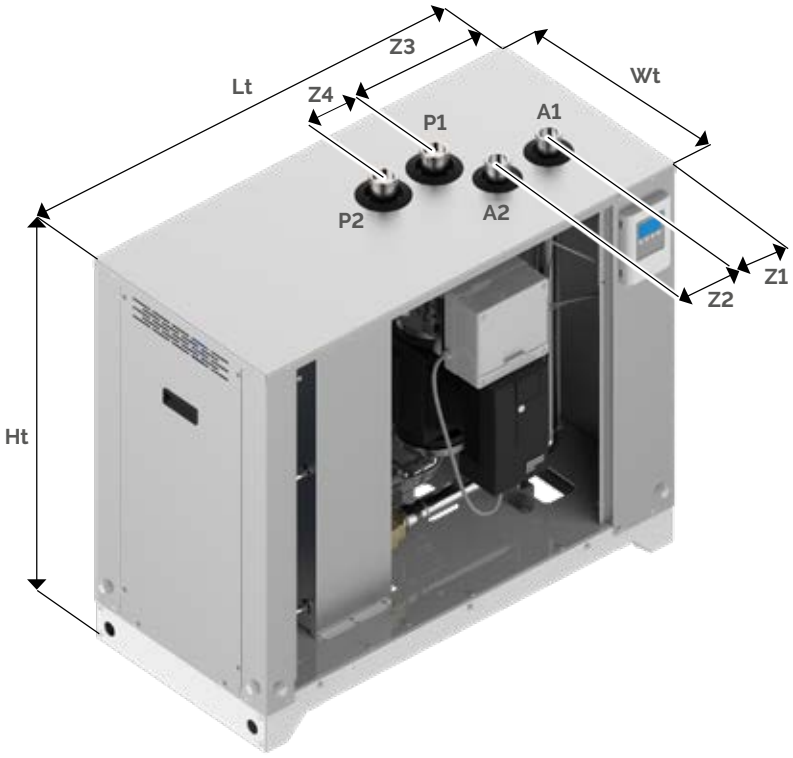



# Hydraulic performance SET



# Dimensions



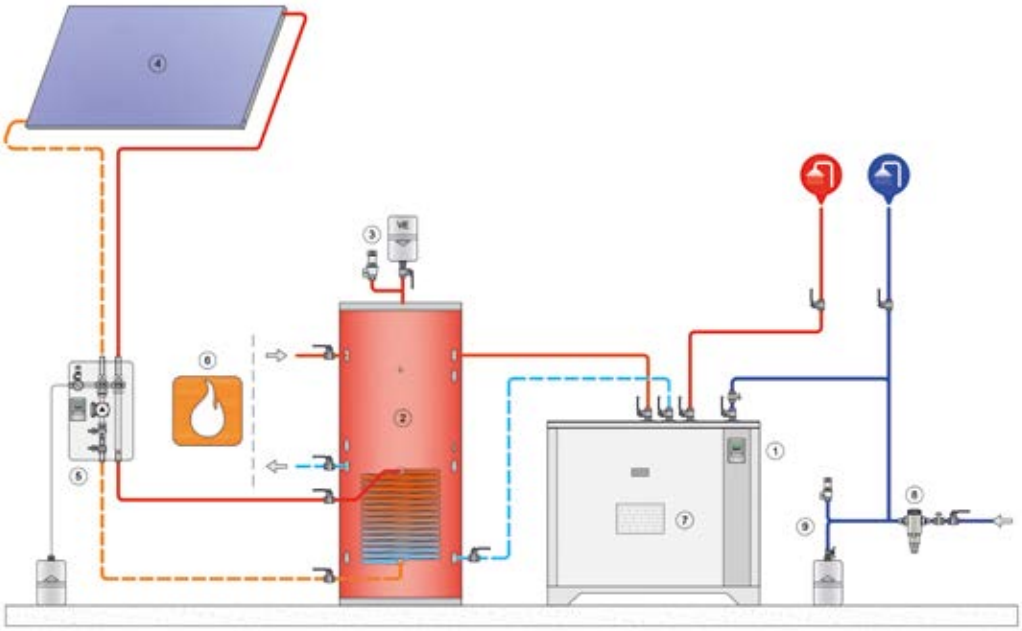

**Couplings legend**

| | |
|---|---|
| A1 | DHW inlet |
| A2 | DHW outlet |
| P1 | To energy source |
| P2 | From energy source |

| Model | Lt mm | Ht mm | Wt mm | Z1 mm | Z2 mm | Z3 mm | Z4 mm |
|---|---|---|---|---|---|---|---|
| SET 60 | 1004 | 871 | 484 | 153 | 125 | 346 | 125 |
| SET 70 | 1004 | 871 | 484 | 153 | 125 | 346 | 125 |
| SET 80 | 1004 | 871 | 484 | 153 | 125 | 346 | 125 |
| SET 100 | 1004 | 871 | 484 | 153 | 125 | 346 | 125 |
| SET 120 | 1004 | 871 | 484 | 153 | 125 | 346 | 125 |
| SET 200 | 1220 | 1100 | 550 | 90 | 125 | 389 | 125 |

| Technical information | Floor standing SET | | | | | | |
|---|---|---|---|---|---|---|---|
| | 60 | 70 | 80 | 100 | 120 | 160 | 200 |
| Electrical supply (V/Ph/Hz) | 230/1/50 | | | | | | |
| Power of primary pump max (W) | 310 | | | 450 | | 480 | 600 |
| Absorption of primary pump max (A) | 1,37 | | | 2,01 | | 2,2 | 2,7 |
| Max power of the recirculation pump (can be managed from the control unit)(pump not supplied) | 460 | | | | | | |
| Primary flow (litres/h) | 6700 | 8200 | 9000 | 11000 | 14000 | 14000 | 22000 |
| Residual prevalence of the primary circuit (m.c.a.) | 2,0 | 4,0 | 2,0 | 2,0 | 4,0 | 4,0 | 2,0 |
| Volume of the primary circuit (l) | 2,66 | 2,90 | 3,15 | 3,87 | 4,84 | 6,1 | 6,55 |
| Volume of the domestic circuit (l) | 2,54 | 2,14 | 3,06 | 3,77 | 4,71 | 6,3 | 6,37 |
| Max operating pressure primary and DHW (bar) | 10 | | | | | | |
| Couplings primary circuit (inch) | 1" 1/2 GAS M | | | | | | 2" 1/2 GAS M |
| Couplings secondary circuit (inch) | 1" 1/4 GAS M | | | | | | 2" GAS M |
| Max operating temperature (°C) | 95 | | | | | | |
| Category of electrical protection | IP40 | | | | | | |
| Min DHW ignition flow (l/min) | 5 | 5 | 10 | 10 | 10 | 10 | 20 |
| Max DHW flow (l/min) | 100 | 100 | 200 | 200 | 200 | 200 | 400 |

# Installation chart
# In combination with the water storage tank



**Legend**

| | |
|---|---|
| 1 | SET fresh water station |
| 2 | Fiorini PFB water storage tank |
| 3 | Heating side safety devices: expansion tank and safety valve |
| 4 | Solat thermal collectors |
| 5 | Solat thermal return |
| 6 | Heating from primary or additional source |
| 7 | DHW recirculation pump |
| 8 | Cold water bacteriostatic filter |
| 9 | Sanitary side safety devices: expansion tank and safety valve |

N.B.: Installation of an expansion vessel on the cold water line is mandatory

# Equipment

The Floor standing SET fresh water station is delivered in a cardboard box with:
✔ Fresh water station with electric switchboard for connection to the electric grid
✔ User guide

# Accessories on request

Several accessory kits are available that can be combined with the SET fresh water station.

| Description | Digital output |
|---|---|
| kit to connect the SET in series | 1 |
| recirculation kit | 1 |
| kit with mixing valve on the primary circuit | 2 |
| kit storage tank stratification (with external diverter valve) | 1 |
| Multigateway | 1 |

* The control unit handles up to 3 digital outputs: check the availability of free outputs and the requirements of the various accessories.

# Kit to connect the SET in series

The kit to connect the SET in series is the option for all applications in which the need for domestic hot water is very variable, for example in sport centres, etc. In this way it is possible to connect max 8 fresh water stations and ensure a DHW production of min 5 l/m and max 3200 l/min*. The electronic control units that are mounted on every fresh water station enables communication between the stations via Modbus. As such, the electronics decide how many and which fresh water stations are activated, depending on the user conditions.

## Advantages and benefits

✔ variable DHW production: from 5 to 3200 l/min
✔ The production by several SET connected in series depends on the temperature in the primary circuit and the production of DHW. The DHW flow that is to be distributed by a system in series is equal to the sum of the flow of all fresh water station as indicated in the graphic Hydraulic Performance
✔ trustworthy. Because the control unit carries out diagnoses by itself, in case of malfunctioning of one of the stations, the station is automatically deactivated and another station is activated. In this way, every fresh water station always operates in circumstances that approach the nominal circumstances and the precision and efficiency of the regulation is improved.
✔ The installation with the fresh water system in series can be expanded. You can add more units, even after the initial installation.
✔ The programmed maintenance of the fresh water stations can be executed without interrupting the DHW distribution.
✔ Every fresh water station operates for an equal number of hours which guarantees a long life span of the system.
✔ Regulation of the temperature is even more precise. The regulation makes it possible to activate the right number of fresh water station based on the flow and the temperature of the DHW.

## Installation of the Kit

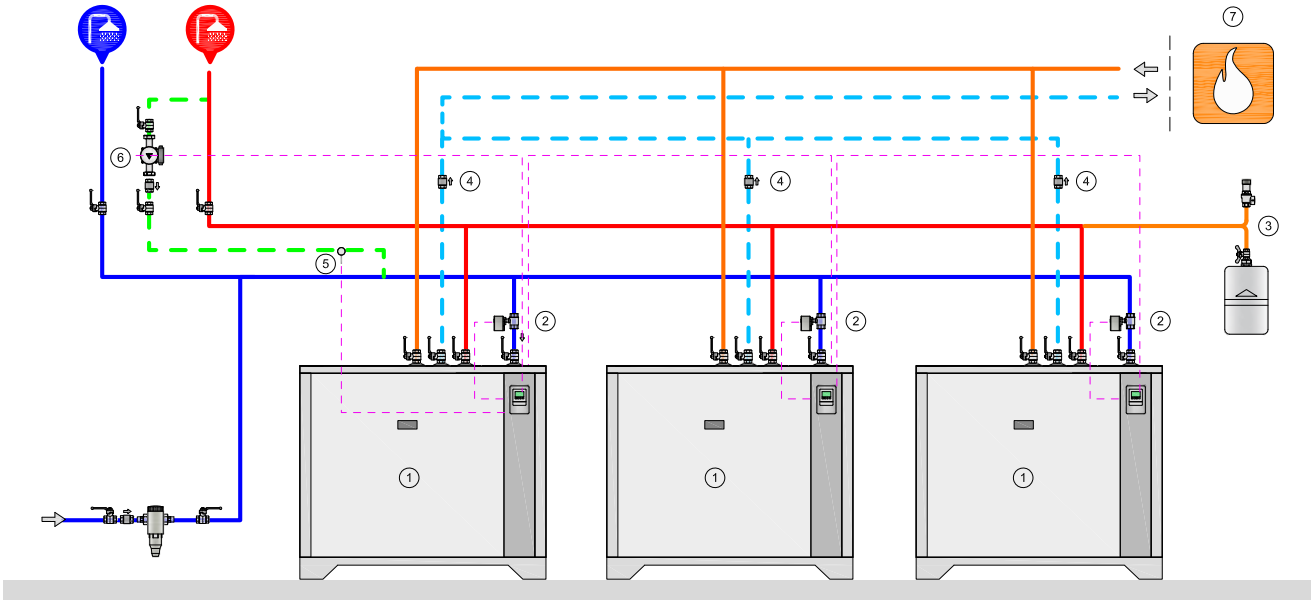
Install one kit for every fresh water station. The kit is supplied in parts, non-assembled and is composed of:

✔ one motorized zone valve with a fast 230V motor
✔ one CanBus cable
✔ the instructions

**Key**

| | |
|---|---|
| 1 | DHW production unit SET |
| 2 | 2-way valve for waterfall kit |
| 3 | Expansion tank |
| 4 | Non-return valve |
| 5 | Temperature probe for DHW recirculation |
| 6 | DHW circulation pump |

## Installation chart



# MULTIGATEWAY -Remote management for SET fresh water stations

The Multigateway is a device with a touchscreen display for remote management of devices that communicate with the CAN protocol. Once the Multigateway is installed, it is possible to manage the system directly via the App or with the integration of a BMS (Building Management System) that communicates using the Modbus protocol. In the case of a SET cascade, it is sufficient to use 1 Multigateway.




### Operating conditions

- ✔ Protection class: IP 20
- ✔ Temperatures: 0°C - 50°C
- ✔ CAN cable length < 3 m, or you need to use shielded cable

### Main features

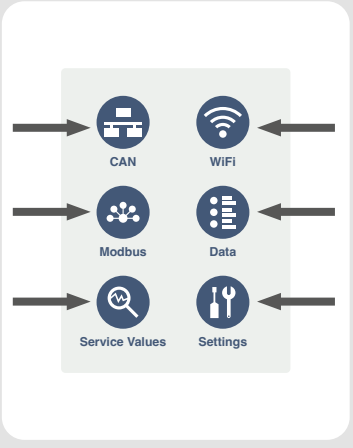
- ✔ Data Logger
- ✔ Fieldbus CAN
- ✔ Modbus RTU RS 485
- ✔ WiFi module
- ✔ Display touchscreen
- ✔ 12/24 V Power supply
- ✔ Android & iOS app
- ✔ Dimensions: 75 x 95 x 19 mm
- ✔ ABS body and glass front

### Main menu

**CAN**
Add devices to the network

**Modbus**
Protocol specific settings

**Service values**
System messages and data




**WiFi**
WiFi settings

**Data**
Data storage settings

**Settings**
Device parameters such as language, brightness, etc.

# Recirculation kit

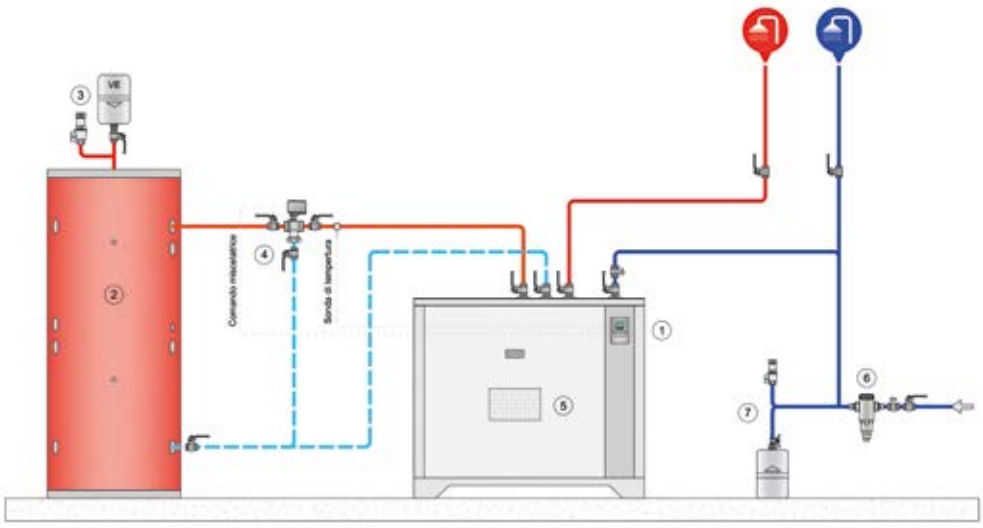
The recirculation kit makes it possible to opt for one of the multiple option offered by the electronic control station to control the pump of the sanitary recirculation circuit (circulator not supplied).

Possible settings
✔ Programming the recirculation in time slots. The recirculation pump is activated only during the indicated time slots and when the recirculation temperature is below the programmed temperature
✔ recirculation pump is always activated
✔ activation of the recirculation pump after a brief sampling period.
This option activates the recirculation pump only when strictly necessary, as such heating the domestic circuit without wasting drinking water.

**Composition of the kit**
The kit is supplied in parts, non-assembled and is composed of:
✔ temperature probe to be put on the recirculation ring
✔ instructions

**Recirculation pump**
The recirculation pump is not supplied with the kit because the pump has to be selected on the basis of the specifics of your installation. However, because the pump is to be controlled by the SET regulator, it has to have the following features
✔ power supply 230V/50hz/1ph
✔ max power 460 W
Alternatively, the controller output could be used to activate a contactor coil.

# Kit with mixing valve on the primary circuit



**Legend**

| | |
|---|---|
| 1 | DHW production SET module |
| 2 | Fiorini water storage tank |
| 3 | Heating side safety devices: expansion tank and safety valve |
| 4 | Primary circuit mixing valve |
| 5 | DHW recirculation pump integrated in the SET module |
| 6 | Bacteriostatic cold water mains filter |
| 7 | Sanitary side safety devices: expansion tank and safety valve |

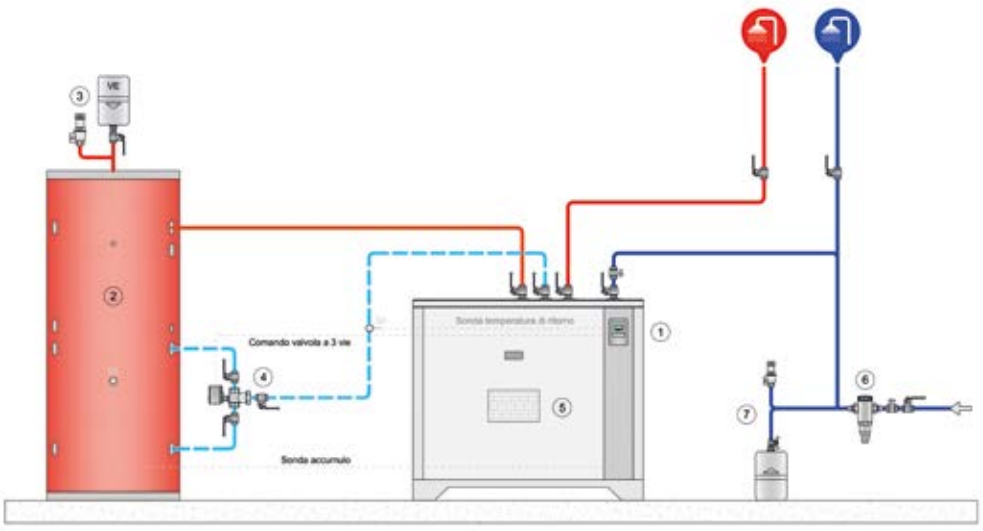
N.B.: Installation of an expansion vessel on the cold water line is mandatory

The kit helps regulate the temperature at the entrance of the fresh water station. In this way, especially in installations that can reach high temperatures in the primary circuit, the precision of the regulation is improved, which guarantees higher comfort.

**Composition of the kit**
The kit is supplied in parts, non-assembled and is composed of:
✔ S3 temperature probe to be placed at the entrance of the exchanger on the primary circuit
✔ instructions
✔ Mixing valve

# Kit with stratification valve for the storage tank

The kit makes it possible to direct the return from the fresh water station to the lower part instead of the mid part of the storage tank. Because of this, the stratification phenomenon in the storage tank is favoured and the efficiency of the entire heating system is maximized.




**Legend**

| | |
|---|---|
| 1 | DHW production SET module |
| 2 | Fiorini water storage tank |
| 3 | Heating side safety devices: expansion tank and safety valve |
| 4 | Three-way valve for accumulation stratification |
| 5 | DHW recirculation pump integrated in the SET module |
| 6 | Bacteriostatic cold water mains filter |
| 7 | Sanitary side safety devices: expansion tank and safety valve |

N.B.: Installation of an expansion vessel on the cold water line is mandatory

**Composition of the kit**

The kit is supplied in parts, non-assembled and is composed of:

✔ S6 temperature probe to be placed in the middle of the storage tank
✔ S6 temperature probe on the return of the primary circuit
✔ instructions
✔ Stratification valve

# Codes and prices for the accessories of SET wall-mounted

| | External accessories | Digital output* | Price |
|---|---|---|---|
| 842030092X | KIT SET SERIES DN32 - Models 60 - 70 - 80 - 100 - 120 - 160 | -1 | |
| 842030140X | KIT SET SERIES DN50 - Model 200 | -1 | |
| 842040009X | Recirculation kit SET (NO PUMP) | -1 | |
| 842030096X | Kit storage tank with stratification with external diverter valve) SET DN40 | -1 | |
| 842030098X | Kit with mixing valve SET DN40 | -2 | |
| C24090225 | EXTERNAL RELAY 1W 6A OUTPUT 0-10V IP55 | +1 | |
| C22120078 | MULTIGATEWAY | 0 | |

* The L control unit handles up to 3 digital outputs: check the availability of free outputs and the requirements of the various accessories.



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