Fresh Water Stations for DHW
AQUAMATIC



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.

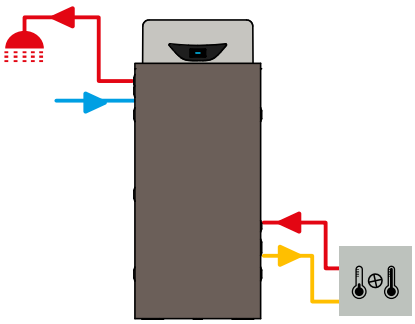
The production of domestic hot water occurs within a plate heat exchanger with stainless steel plates that guarantee:

- ✔ 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)

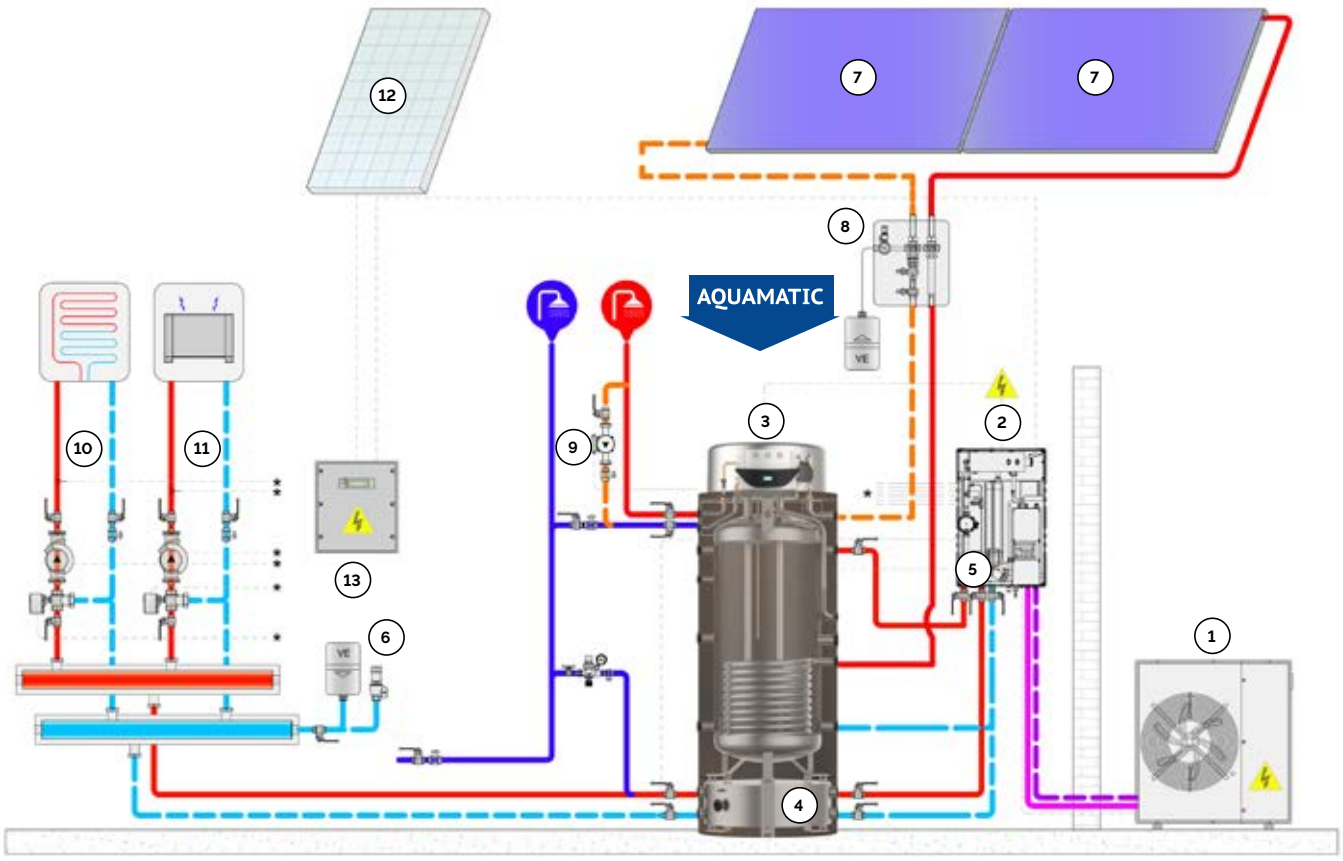


Available accessories see pag. 238

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

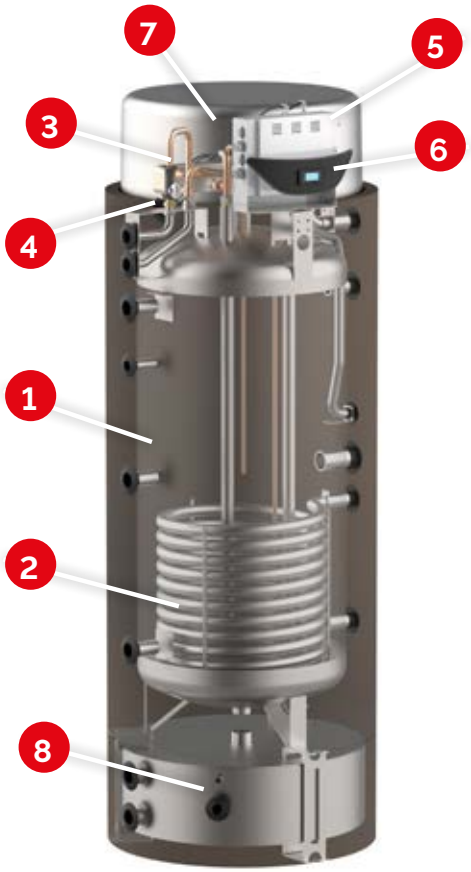
				With vertical packaging	
Model	Capacity l	Code	Price	Dimensions cm	Weight kg
AQUAMATIC	200	842030104X		75x75x140	80
	300	842030105X		75x75x180	94
	500	842030106X		90x90x185	121
AQUAMATIC PLUS	300	842030107X		75x75x180	101
	500	842030108X		90x90x185	136
AQUAMATIC SOLAR	300	842030109X		75x75x180	106
	500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

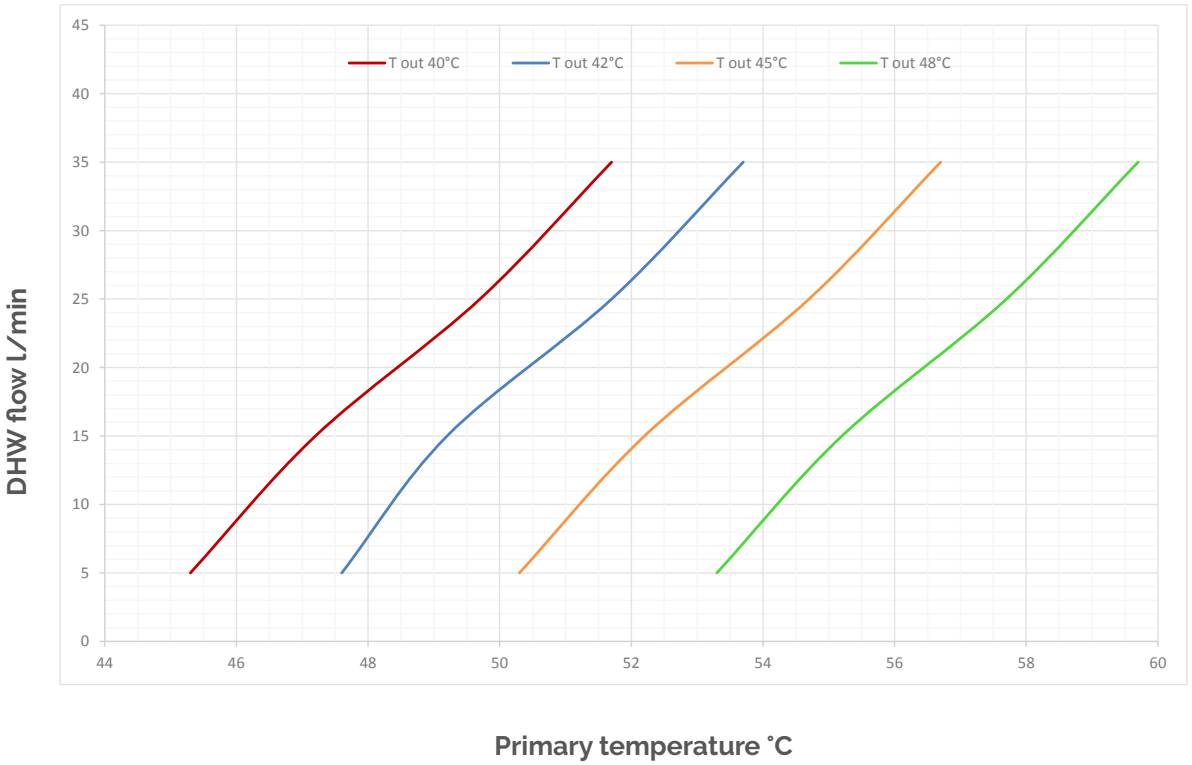
Technical information

		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

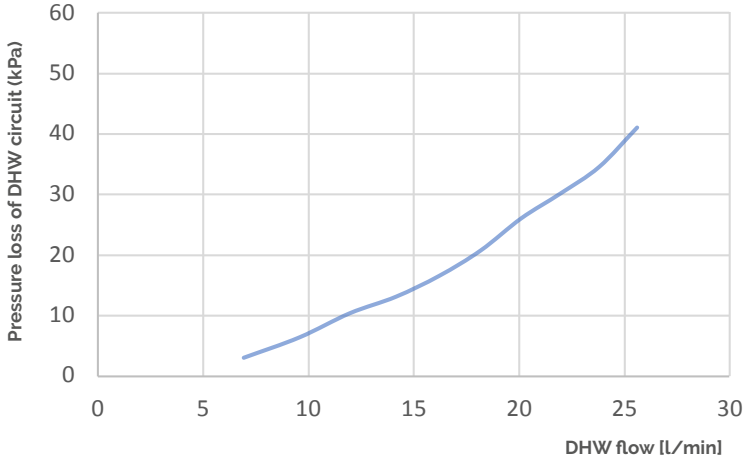
Quantity of domestic water produced in l/m with different storage temperatures and different outlet temperatures



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

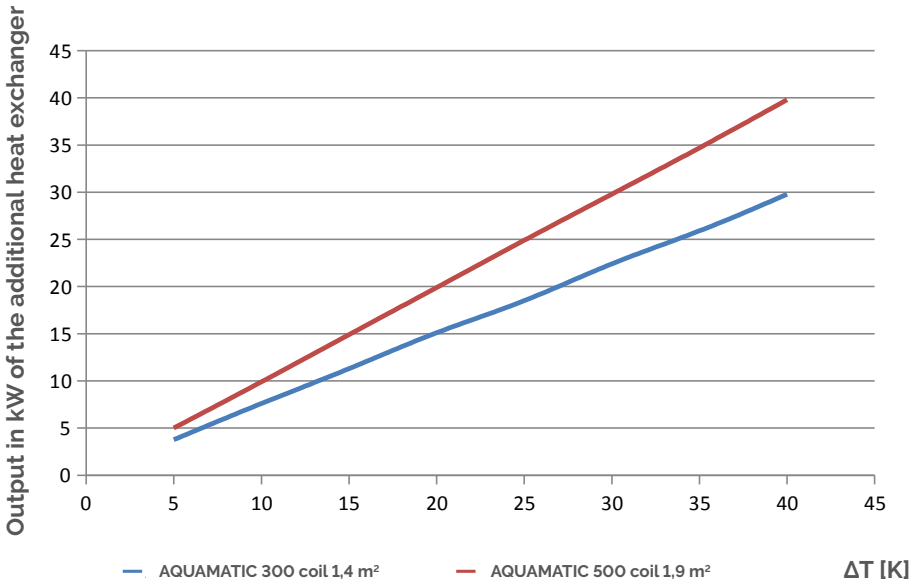
For example, if Taccumulo =52°C
And TDHW =45°C, the AQUAMATIC guarantees a flow of approximately 14 l/min
And TDHW = 42°C, the AQUAMATIC guarantees a flow of approximately 26 l/min

Hydraulic performance



Performance AQUAMATIC

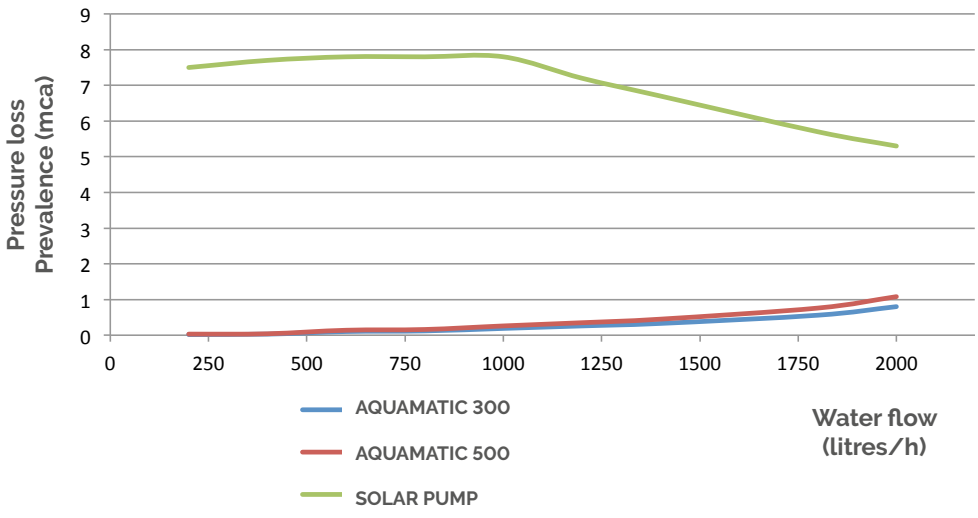
Output in kW of the additional heat exchanger in fucntion of the variation of the value ΔT between the temperature of the integrative source and the storage temperatore.
Only for AQUAMATIC PLUS and AQUAMATIC SOLAR.



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

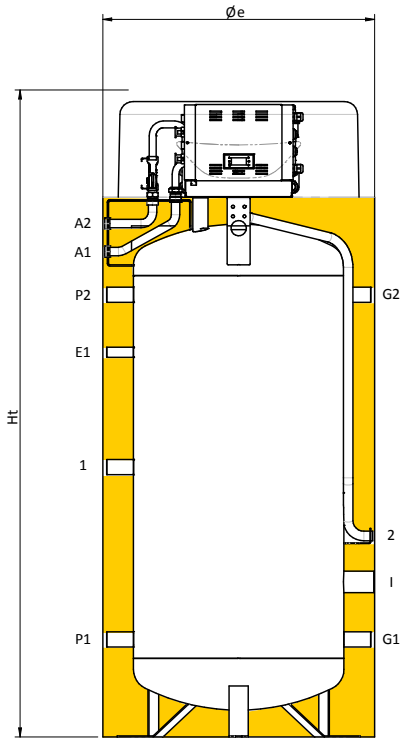
ΔT : temperature difference between the average temperatures in the primary circuit (coil) and secondary circuit (tank).

Pressure loss in integrative coils and characteristic graphic of solar circulator

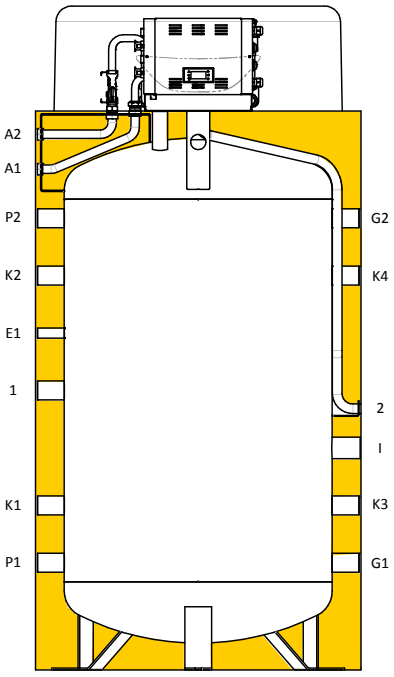


Dimensions Aquamatic

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

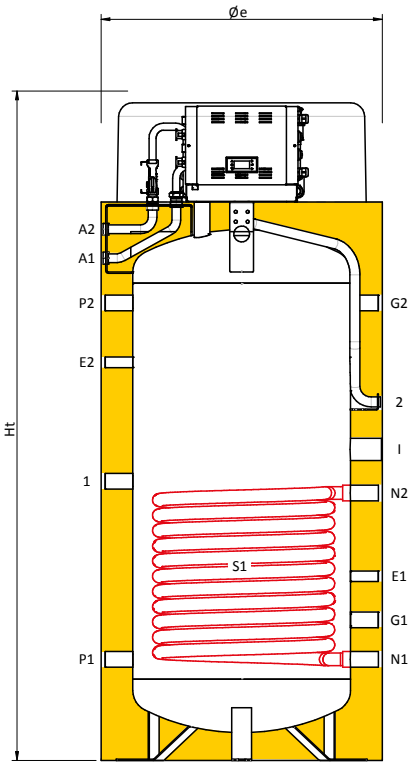
Cap. l	A1 inch	A2 inch	E1 inch	G1 inch	G2 inch	I inch	K1 inch	K2 inch	K3 inch	K4 inch	P1 inch	P2 inch	1 inch	2
200	3/4"	3/4"	1/2"	1"	1"	1"1/2	-	-	-	-	1"	1"	1"	Case Ø20
300	3/4"	3/4"	1/2"	1"	1"	1"1/2	-	-	-	-	1"	1"	1"	Case Ø20
500	3/4"	3/4"	1/2"	1"1/4	1"1/4	1"1/2	1"1/4	1"1/4	1"1/4	1"1/4	1"1/4	1"1/4	1"1/4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

Size chart

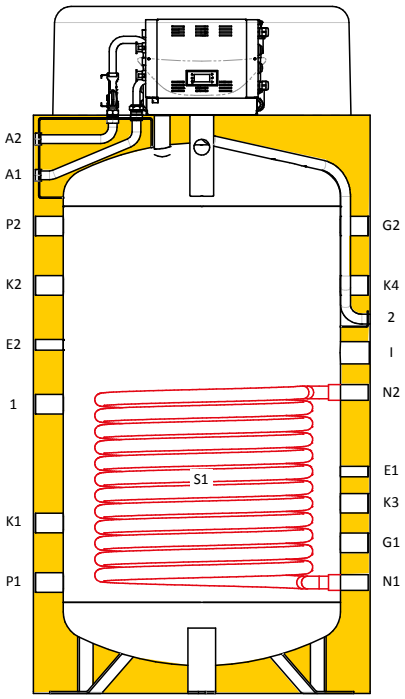
Cap. l	Øe mm	Ht mm	A1 mm	A2 mm	E1 mm	G1 mm	G2 mm	I mm	K1 mm	K2 mm	K3 mm	K4 mm	P1 mm	P2 mm	1 mm	2 mm
200	710	1315	890	965	629	255	780	405	-	-	-	-	255	780	518	525
300	710	1690	1270	1340	1005	255	1155	405	-	-	-	-	255	1155	705	525
500	850	1740	1310	1400	880	280	1180	580	430	1030	430	1030	280	1180	730	683

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

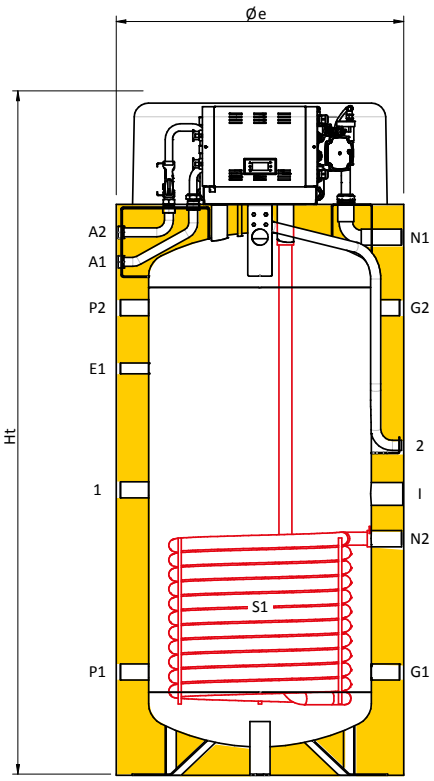
Cap. l	A1 inch	A2 inch	E1 inch	E2 inch	G1 inch	G2 inch	I inch	K1 inch	K2 inch	K3 inch	K4 inch	N1 inch	N2 inch	P1 inch	P2 inch	1 inch	2
300	3/4"	3/4"	1/2"	1/2"	1"	1"	1"1/2	-	-	-	-	1"	1"	1"	1"	1"	Case Ø20
500	3/4"	3/4"	1/2"	1/2"	1"1/4	1"1/4	1"1/2	1"1/4	1"1/4	1"1/4	1"1/4	1"	1"	1"1/4	1"1/4	1"1/4	Case Ø20

Size chart

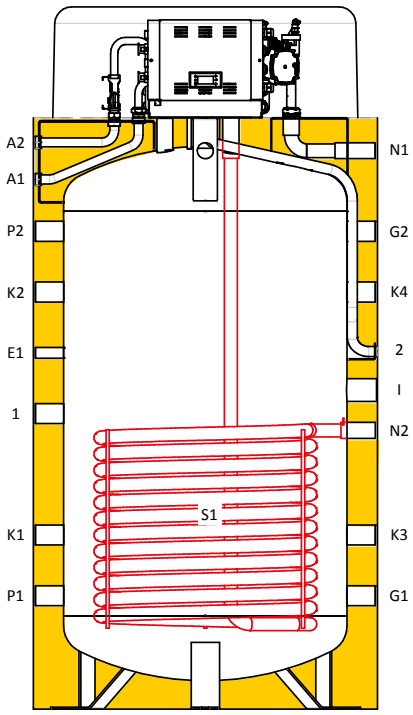
Cap. l	Øe mm	Ht mm	A1 mm	A2 mm	E1 mm	E2 mm	G1 mm	G2 mm	I mm	K1 mm	K2 mm	K3 mm	K4 mm	N1 mm	N2 mm	P1 mm	P2 mm	1 mm	2 mm	S1 m²
300	710	1690	1290	1345	465	1005	355	1155	785	-	-	-	-	255	675	255	1155	705	905	1,4
500	850	1740	1340	1395	560	880	380	1180	860	430	1030	480	1030	280	760	280	1180	730	945	1,9

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

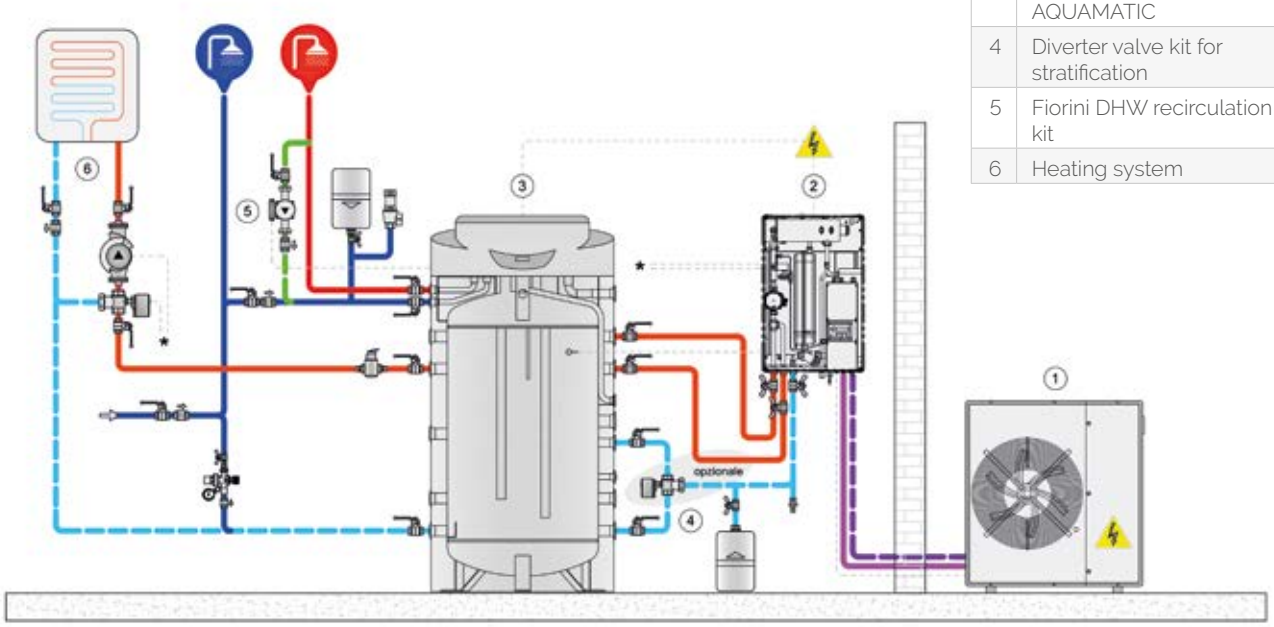
Size chart

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

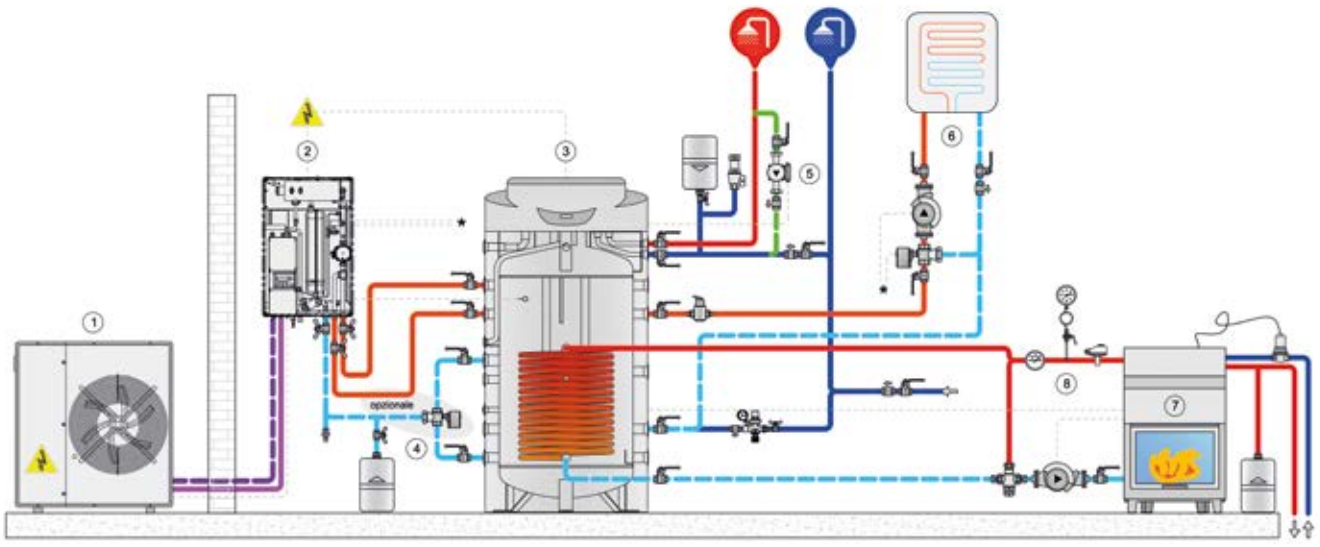


Installation chart AQUAMATIC Plus Example 1 (Heating fireplace / stove)

Legend

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

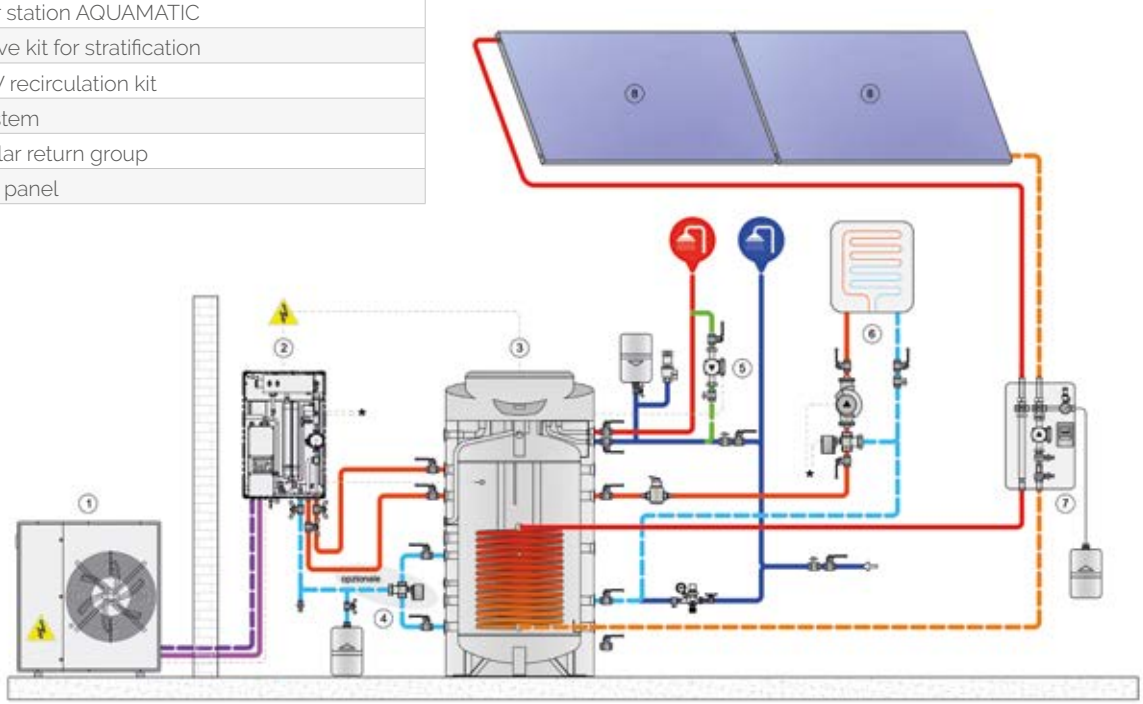
5	Fiorini DHW recirculation kit
6	Heating system
7	Heating fireplace / stove
8	Plant components for biomass generators



Installation chart AQUAMATIC Plus Example 2 (Thermal solar)

Legend

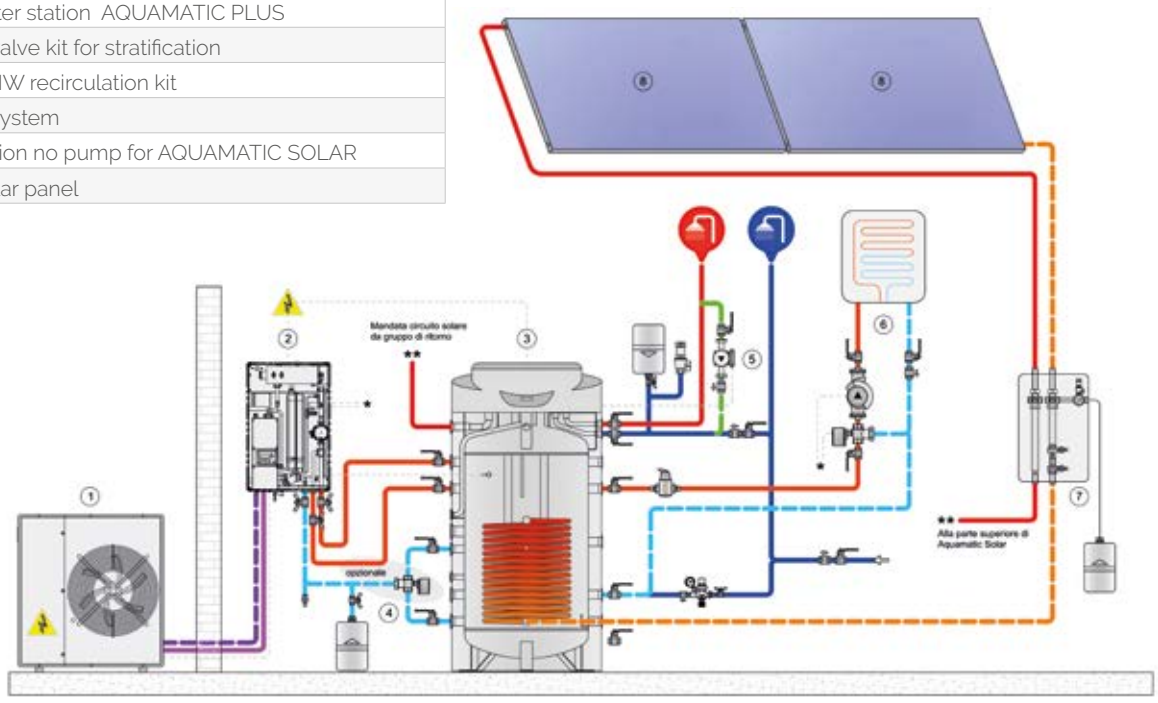
1	Heat pump (outdoor unit)
2	Heat pump (indoor unit)
3	Fresh water station AQUAMATIC
4	Diverter valve kit for stratification
5	Fiorini DHW recirculation kit
6	Heating system
7	Thermal solar return group
8	Fiorini solar panel



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

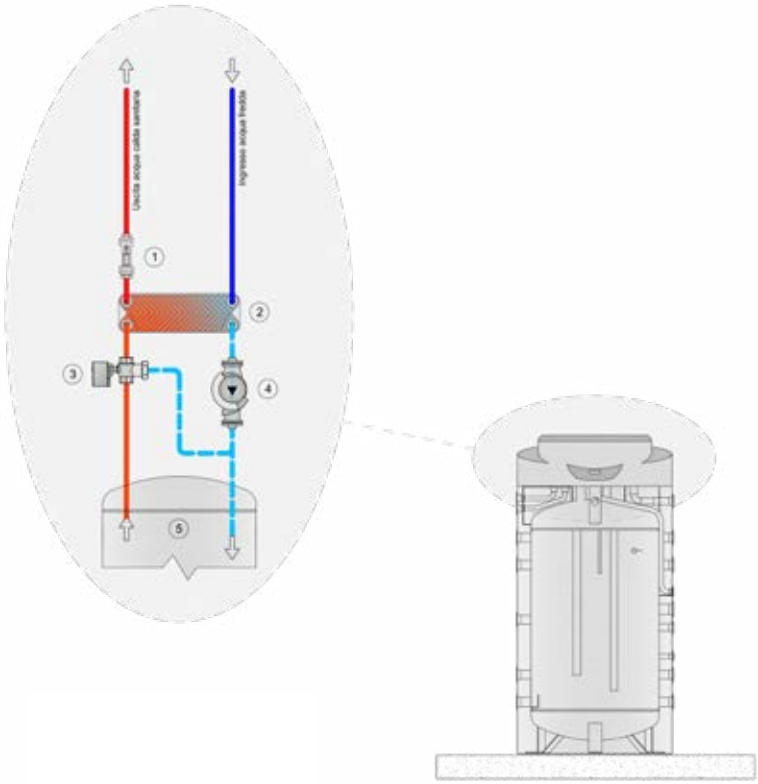
NB The AQUAMATIC has a small channel through the insulation of the tank in order to pass the cable for connecting the resistor to the electronic switchboard.

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

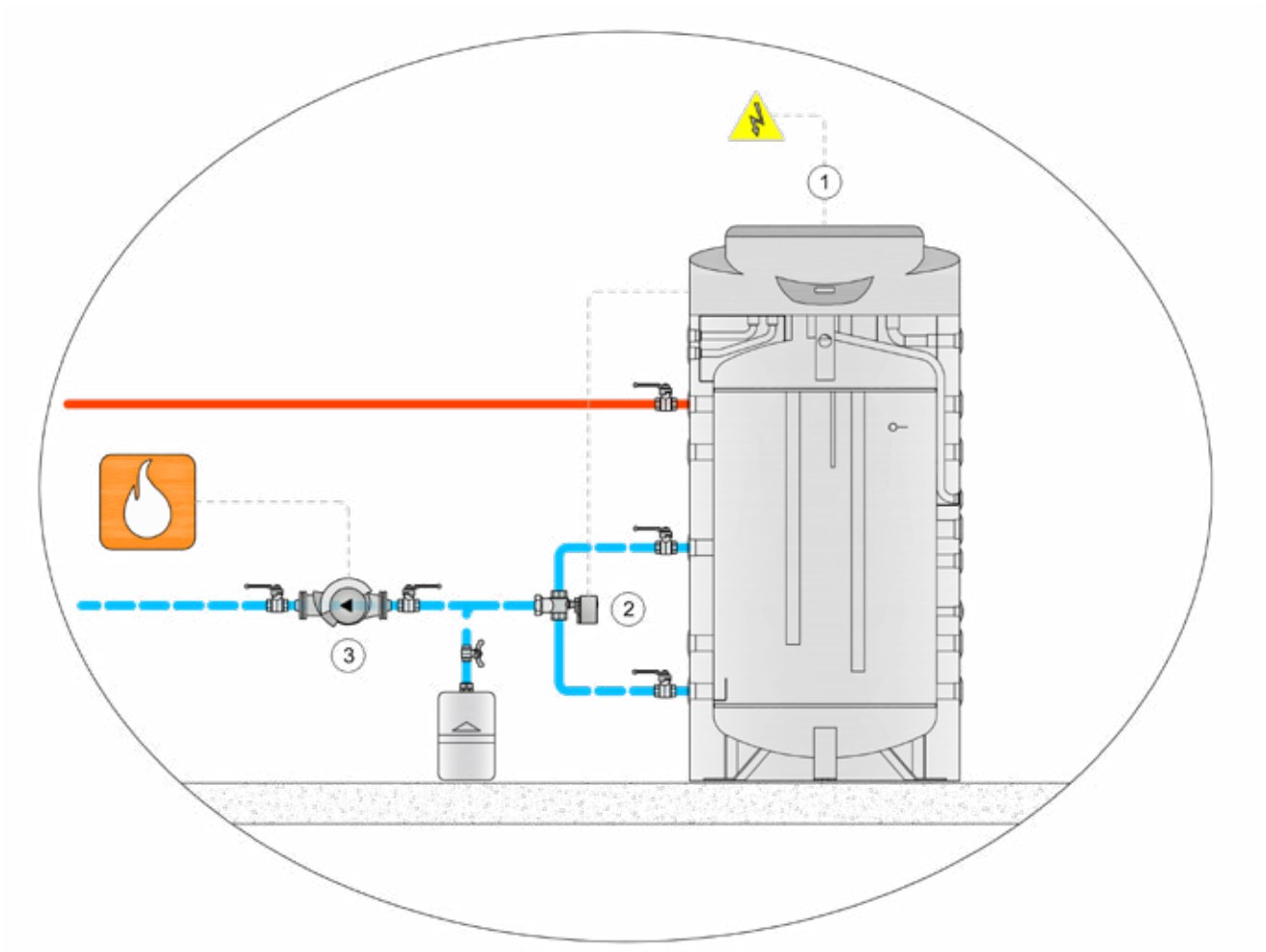
1	Flowmeter
2	Domestic plate heat exchanger
3	Primary mixing valve
4	Pump
5	Tank

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.



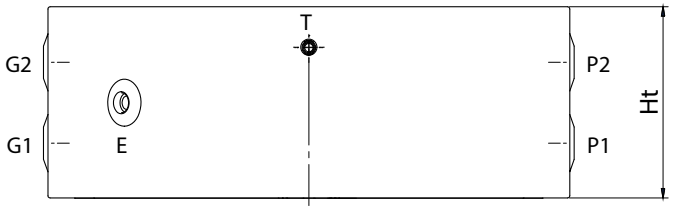
✔ Energetic efficiency
✔ Easy installation
✔ Does not take a lot of space
✔ Same design as the AQUAMATIC

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

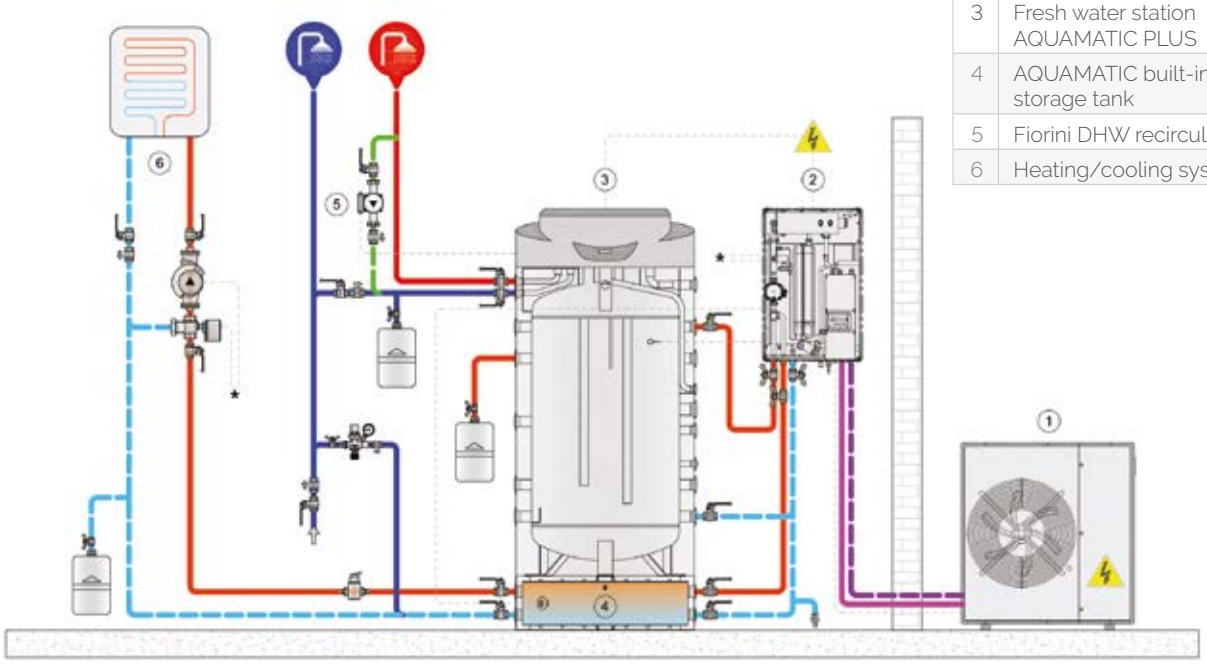
Cod.	cap. l	pairing AQUAMATIC	Øe mm	Ht mm	P1 mm	P2 mm	G1 mm	G2 mm	E mm	T mm	P1 inch	P2 inch	E inch	G1 inch	G2 inch	T inch
817010158X	66	200 l - 300 l	710	260	75	185	75	185	130	205	1"	1"	1/2"	1"	1"	1/4"
817010159X	93	500 l	850	260	75	185	75	185	130	205	1"1/4	1"1/4	1/2"	1"1/4	1"1/4	1"1/4

Installation chart accessory

Accessory Storage with AQUAMATIC (1 source)

Legend

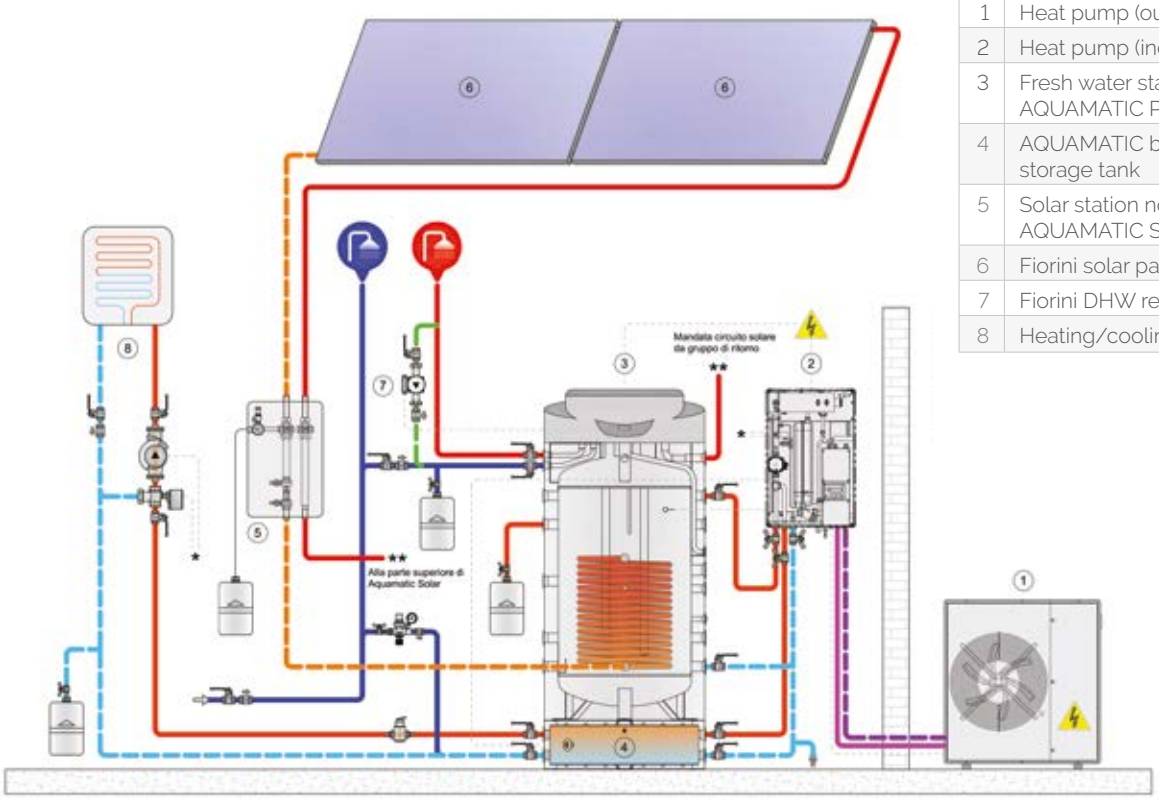
1	Heat pump (outdoor unit)
2	Heat pump (indoor unit)
3	Fresh water station AQUAMATIC PLUS
4	AQUAMATIC built-in-storage tank
5	Fiorini DHW recirculation kit
6	Heating/cooling system



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



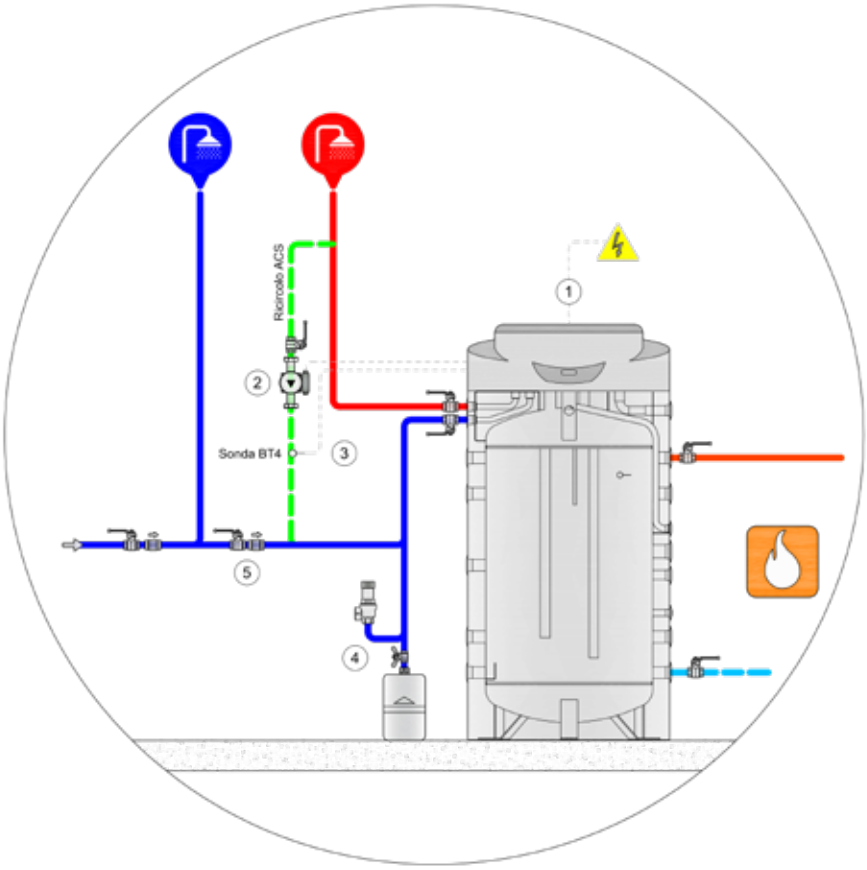
Recirculation kit

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)	



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