



Hot water systems

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Hot water systems

A broad range of options which make it possible to efficiently produce Domestic Hot Water for both domestic and professional use and to manage water for technical use in heating systems.

We have numerous series of products dedicated to the production and storage of hot water. Those products meet people's needs and bring comfort to users, in individual housing, as well as public and private residential structures, the tertiary sector and the industrial sector. Our product lines consist of DHW systems, hot water storage tanks, thermal solar power systems which are designed to efficiently operate in all different applications.

Our products are well-thought-out. We try to come up with new conceptual solutions and to think over the materials we use. In this way we aim for:

- high performance
- a minimum heat loss
- high quality and a long life span

Energy labels

All products for hot water production are provided with an energy label in accordance with the CE directive and the specific regulations for the devices. The label certifies the energy efficiency class which helps the professionals and the users consciously choose the most efficient solution to their requirements. For more information see pag. 10.



Special materials and internal treatment of the tanks

We offer products with a finishing touch adapted to every possible application: high quality stainless steel and glass lining (enamel vitrified at a tempera-

ture of more than 800°C) which ensure a maximum hygiene and life span even when the water temperature is elevated. Moreover there is Bluetech, an innovative and efficient treatment with high elasticity. It is made from thermosetting resins and ensures a 100 % cleanliness of water for domestic use.

Insulation

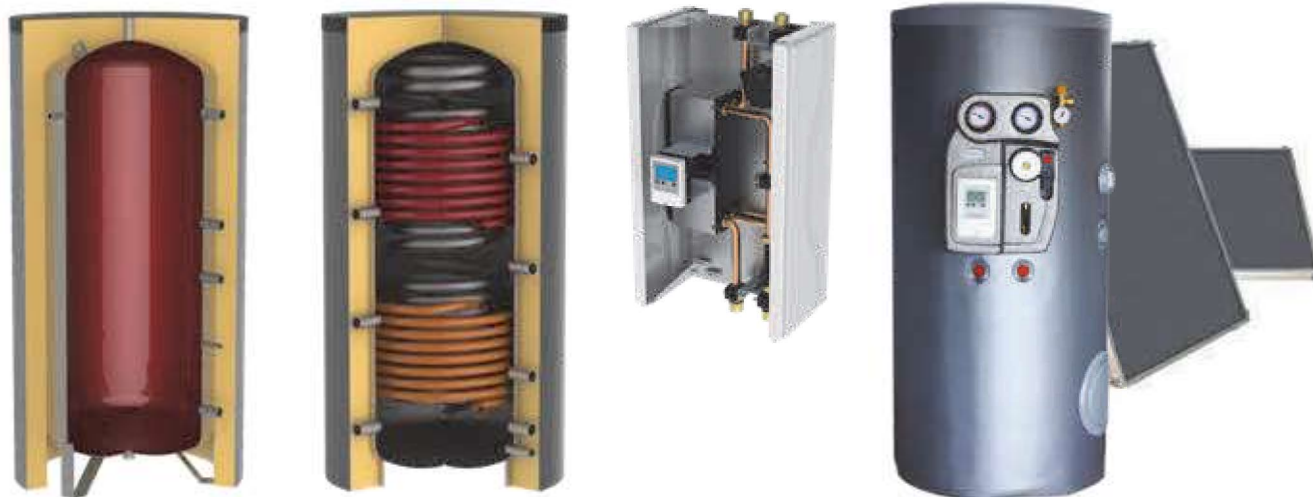
The following types of insulation are available:

- rigid polyurethane foam, high density, thermal insulation
- Thick flexible polyurethane, also for large tanks (up to 10.000 litres) or for special projects
- Other materials, on the client's request

Protective equipment

There are sets with protective equipment which guarantee the safety and correct use of the products, such as protection against overpressure, safety valves, expansion vessels, protection against water hammering, antifreeze protection, cathodic protection against corrosion, etc. If necessary, our clients can solicit the help of the consultancy service provided by our staff during the design and selection phase. They will help you look for the perfect solution to your problem and will send you the information needed to properly and efficiently manage the product and/or the device.

You can find more details in the following part of the brochure.



Inertial tanks for Domestic Hot Water

FLEXY

The FLEXY range consists of inertial tanks for domestic hot water, available in version with or without inspection hole (allowing easy access during inspection and maintenance), in different capacities, from 200 to 10000 litres. They are equipped with rigid or flexible insulation and PVC outer coating, magnesium anode for protection against galvanic currents.

Material: S 235 JR carbon steel

Treatment for internal protection


- up to 1000 Inorganic glass lining in accordance with DIN 4753.3
- from 1500 litres up Bluetech enamelling with thermosetting resins, suitable for domestic hot water

Insulation

Capacity (l)	Type
200, 300	Highly rigid polyurethane foam
from 500 to 1000	Polystyrene Graphite + Polyester Fiber
from 1500 to 5000	Polyester Fiber
from 6000	Flexible polyurethane foam

Operational limits

Capacity (l)	Max. temperature	Max. pressure
up to 1000	95°C	10 bar
from 1500	80°C	6 bar

 **Supplied accessories:** Adjustable feet for sizes up to 500 l, safety valve and thermometer for sizes up to 1000 l, magnesium sacrificial anode for all sizes.















 **Standard accessories:** see pag 274

 **Special versions:** see pag 277

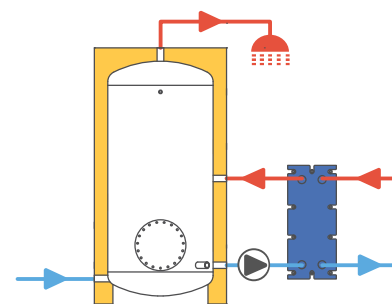


TESTED

*Can be coupled with Boil custom (pag 180)

FLEXY with inspection hole				With vertical packaging		FLEXY without inspection hole				With vertical packaging	
Capacity l	Code*	Price	Energy label	Dimensions cm	Weight kg	Code	Price	Energy label	Dimensions cm	Weight kg	
200	817060015X			75x75x125	90	817060021X			75x75x125	80	
300	817060016X			75x75x150	100	817060022X			75x75x150	90	
500	817060017X			80x80x209	134	817060023X			80x80x209	124	
750	817060018X			99x99x199	260	817060024X			99x99x199	250	
1000	817060019X			99x99x230	296	817060025X			99x99x230	286	
1500	817080112X			123x123x240	229	817080098X			123x123x240	218	
2000	817080099X			132x132x275	280	817080115X			132x132x275	270	
2500	817080100X			147x147x277,5	316	817080116X			147x147x277,5	306	
3000	817080101X			147x147x299	349	817080117X			147x147x299	339	
4000	817080102X			163x163x306	508	817080118X			163x163x306	498	
5000	817080103X			183x183x310	597	817080119X			183x183x310	587	
6000	817080120X			282x203x217,5	746	-					
8000	817080121X			352x203x217,5	882	-					
10000	817080122X			427x203x217,5	1032	-					

Inertial tanks for DHW FLEXY



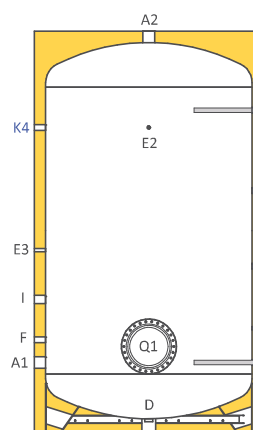
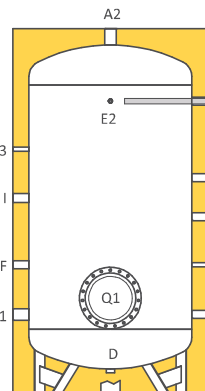
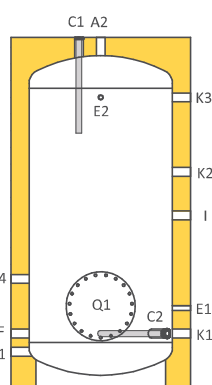
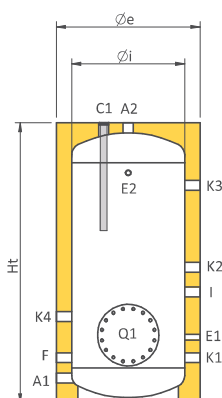
200 ≤ cap. ≤ 300

500 ≤ cap. ≤ 1000

1500 ≤ cap. ≤ 5000

6000 ≤ cap. ≤ 10000

Legend couplings



A1 DHW inlet

A2 DHW outlet

C1 Anode

C2 Anode

D Drain

E1 Probe / Thermometer

E2 Probe / Thermometer

E3 Probe / Thermometer

F Recirculation

I Electrical resistor

K1 Auxiliary

K2 Auxiliary

K3 Auxiliary

K4 Auxiliary

Q1 Inspection hole

Couplings chart

Cap. l	A1 inch	A2 inch	C1 inch	C2 inch	D inch	E1 inch	E2 inch	E3 inch	F inch	I inch	K1 inch	K2 inch	K3 inch	K4 inch	Q1 (Øext/Øint) mm
200	1 1/4	1 1/4	1 1/4	-	-	1/2"	1/2"	-	1 1/4	1 1/2	1 1/4	1 1/4	1 1/4	1 1/4	Ø300/Ø220
300	1 1/4	1 1/4	1 1/4	-	-	1/2"	1/2"	-	1 1/4	1 1/2	1 1/4	1 1/4	1 1/4	1 1/4	Ø300/Ø220
500	1 1/4	1 1/4	1 1/4	1 1/4	-	1/2"	1/2"	-	1 1/4	1 1/2	1 1/4	1 1/4	1 1/4	1 1/4	Ø300/Ø220
750	1 1/4	1 1/4	1 1/4	1 1/4	-	1/2"	1/2"	-	1 1/4	1 1/2	1 1/4	1 1/4	1 1/4	1 1/4	Ø380/Ø300
1000	1 1/4	1 1/4	1 1/4	1 1/4	-	1/2"	1/2"	-	1 1/4	1 1/2	1 1/4	1 1/4	1 1/4	1 1/4	Ø380/Ø300
1500	2"	2"	1 1/4	-	1 1/4	1/2"	1/2"	1/2"	1 1/4	1 1/2	1 1/4	1 1/4	1 1/4	-	Ø380/Ø300
2000	2"	2"	1 1/4	-	1 1/4	1/2"	1/2"	1/2"	1 1/4	1 1/2	1 1/4	1 1/4	1 1/4	-	Ø430/Ø350
2500	2 1/2	2 1/2	1 1/4	-	1 1/4	1/2"	1/2"	1/2"	1 1/4	1 1/2	1 1/4	1 1/4	1 1/4	-	Ø430/Ø350
3000	3"	3"	1 1/4	-	1 1/4	1/2"	1/2"	1/2"	1 1/4	1 1/2	1 1/4	1 1/4	1 1/4	-	Ø430/Ø350
4000	3"	3"	1 1/4	-	1 1/4	1/2"	1/2"	1/2"	1 1/4	1 1/2	1 1/4	1 1/4	1 1/4	-	Ø430/Ø350
5000	3"	3"	1 1/4	-	1 1/4	1/2"	1/2"	1/2"	1 1/4	1 1/2	1 1/4	1 1/4	1 1/4	-	Ø430/Ø350
6000	3"	3"	1 1/4	1 1/4	1 1/4	1/2"	1/2"	1/2"	1 1/4	1 1/2	-	1 1/4	1 1/4	1 1/4	Ø480/Ø400
8000	3"	3"	1 1/4	1 1/4	1 1/4	1/2"	1/2"	1/2"	1 1/4	1 1/2	-	1 1/4	1 1/4	1 1/4	Ø480/Ø400
10000	3"	3"	1 1/4	1 1/4	1 1/4	1/2"	1/2"	1/2"	1 1/4	1 1/2	-	1 1/4	1 1/4	1 1/4	Ø480/Ø400

Size chart

Cap. l	Øe mm	Ht mm	R* mm	A1 mm	C1 mm	C2 mm	D mm	E1 mm	E2 mm	E3 mm	F mm	I mm	K1 mm	K2 mm	K3 mm	K4 mm	Q1** mm
200	700	1100	1305	130	1100	-	-	320	855	-	220	540	130	660	970	420	330
300	700	1340	1515	130	1340	-	-	320	1120	-	220	540	220	660	1060	420	330
500	760	1920	2065	150	1920	250	-	380	1640	-	250	945	250	1090	1640	480	360
750	950	1970	2190	210	1970	310	-	460	1610	-	310	960	310	1150	1610	610	460
1000	950	2280	2470	210	2280	310	-	460	1910	-	310	915	310	1150	1910	610	460
1500	1250	2280	2600	500	1810	-	165	805	1810	1515	805	1215	500	1100	1340	-	600
2000	1350	2600	2930	505	2115	-	155	805	2115	1805	805	1505	505	1105	1345	-	620
2500	1400	2655	3000	565	2150	-	175	865	2150	1850	850	1550	565	1165	1405	-	680
3000	1450	2870	3215	575	2350	-	180	800	2350	2050	850	1750	575	1050	1415	-	690
4000	1600	2940	3350	600	2380	-	160	900	2380	2080	870	1780	600	1200	1440	-	715
5000	1800	2980	3480	610	2385	-	140	910	2160	2085	885	1785	610	1210	1450	-	725
6000	2000	2820	3460	630	2230	630	140	930	2080	1470	880	1230	-	1470	1930	2080	770
8000	2000	3520	4050	630	2830	630	140	930	2680	1610	830	1180	-	1470	2130	2680	770
10000	2000	4270	4720	630	3580	630	140	930	3430	1610	830	1180	-	1470	2880	3430	770

R*: Reversal quota

Q1**: Height from inspection hole center to the ground

Inertial tanks for Domestic Hot Water

FLEXY INOX

The FLEXY INOX range consists of inertial tanks for domestic hot water made of stainless steel which is highly resistant against corrosion. The tanks are available in several capacities from 200 to 5000 litres. They are equipped with very powerful flexible insulation, externally covered in PVC and provided with a magnesium anode for protection against galvanic currents and an inspection flange for easy access during the control or maintenance phase.

Material: AISI 316 stainless steel

Treatment for internal protection: Pickling and passivation

Insulation

Capacity (l)	Type
from 200 to 5000	Polyester Fiber

Operational limits

Max. temperature	Max. pressure
95°C	6 bar









 **Supplied accessories:** Magnesium sacrificial anode for all sizes.

 **Standard accessories:** see pag 274

 **Special versions:** see pag 277



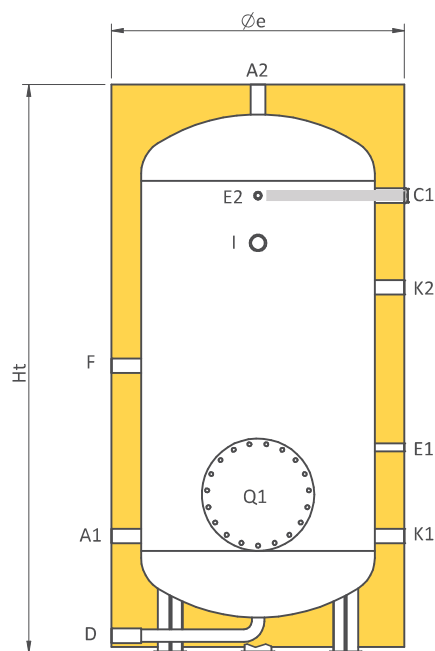
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Cap. l	With inspection hole			With vertical packaging	Without inspection hole			With vertical packaging
	Code*	Price	Energy label	Dimensions cm	Code	Price	Energy label	Dimensions cm
200	817040107X			68x68x159	817040025			68x68x159
300	817040108X			78x78x163	817040026			78x78x163
500	817040109X			83x83x207	817040027			83x83x207
800	817040110X			102x102x204	817040028			102x102x204
1000	817040111X			103x103x231	817040029			103x103x231
1500	817040112X			123x123x232	817040030			123x123x232
2000	817040113X			143x143x240	817040031			143x143x240
2500	817040114X			143x143x265	817040032			143x143x265
3000	817040115X			148x148x292	817040033			148x148x292
4000	817040116X			163x163x300	817040034			163x163x300
5000	817040117X			183x183x303	817040035			183x183x303

*can be coupled with the Boil custom (pag 180)

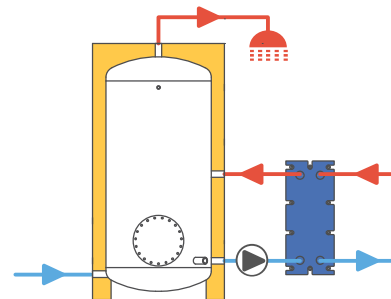
Inertial tanks for Domestic Hot Water

FLEXY INOX



Couplings legend

A1	DHW inlet
A2	DHW outlet
C1	Anode
D	Drain
E1	Probe / Thermometer
E2	Probe / Thermometer
F	Recirculation
I	Electrical resistor
K1	Auxiliary
K2	Auxiliary
Q1	Inspection hole



Couplings chart

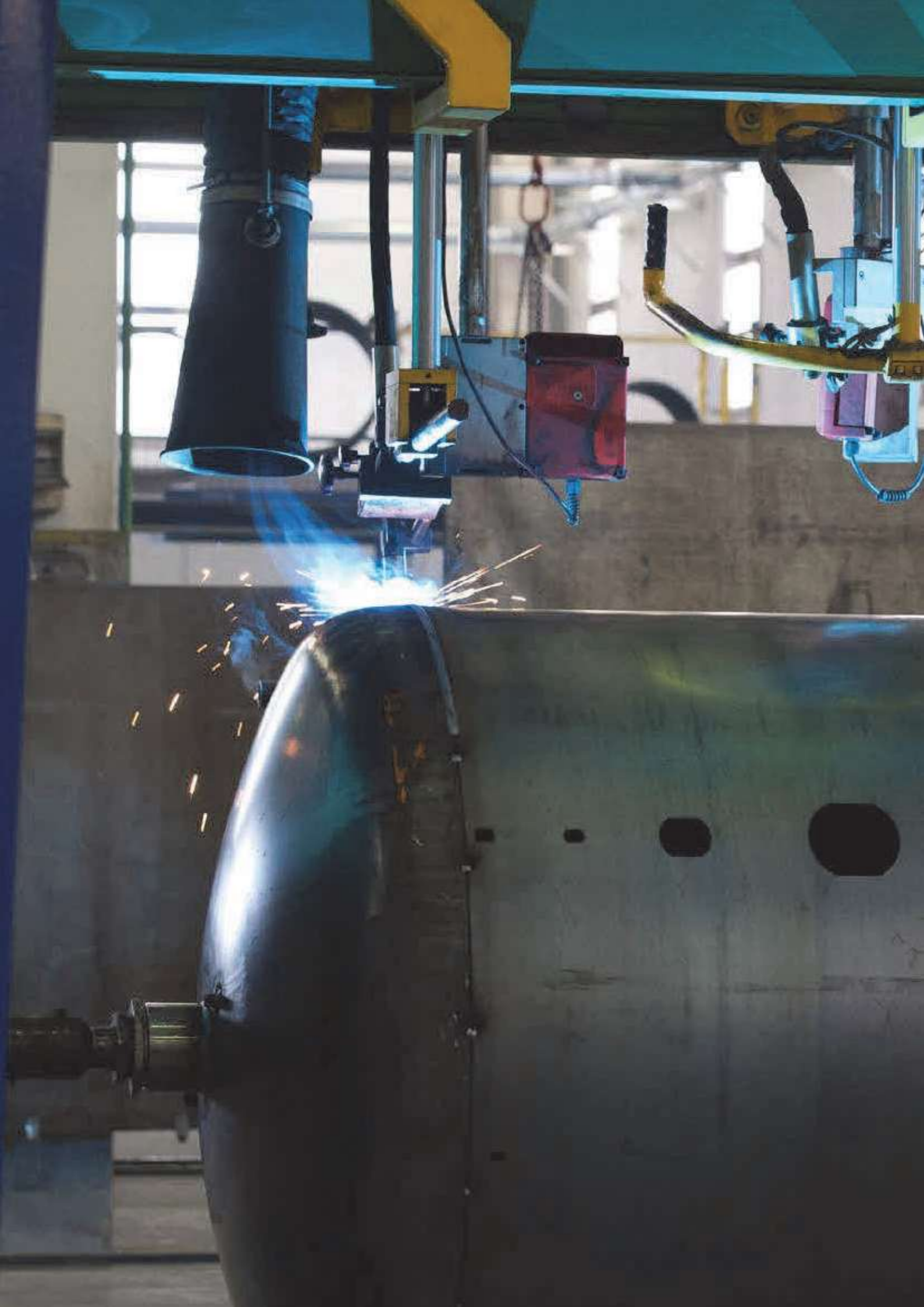
Cap. l	C1 inch	D inch	E1 inch	E2 inch	F inch	A1 inch	A2 inch	I inch	K1 inch	K2 inch	Q1 (Øext/Øint) mm
200	1 1/4	2"	1/2"	1/2"	1 1/4	1 1/4	1 1/4	1 1/2	1 1/4	1 1/4	Ø300/Ø220
300	1 1/4	2"	1/2"	1/2"	1 1/4	1 1/4	1 1/4	1 1/2	1 1/4	1 1/4	Ø300/Ø220
500	1 1/4	2"	1/2"	1/2"	1 1/4	1 1/4	1 1/4	1 1/2	1 1/4	1 1/4	Ø300/Ø220
800	1 1/4	1 1/4	1/2"	1/2"	1 1/4	1 1/4	1 1/4	1 1/2	1 1/4	1 1/4	Ø380/Ø300
1000	1 1/4	1 1/4	1/2"	1/2"	1 1/4	1 1/4	1 1/4	1 1/2	1 1/4	1 1/4	Ø380/Ø300
1500	1 1/4	1 1/4	1/2"	1/2"	1 1/4	2"	2"	1 1/2	1 1/4	1 1/4	Ø380/Ø300
2000	1 1/4	1 1/4	1/2"	1/2"	1 1/4	2"	2"	1 1/2	1 1/4	1 1/4	Ø430/Ø350
2500	1 1/4	1 1/4	1/2"	1/2"	1 1/4	2 1/2	2 1/2	1 1/2	1 1/4	1 1/4	Ø430/Ø350
3000	1 1/4	1 1/4	1/2"	1/2"	1 1/4	3"	3"	1 1/2	1 1/4	1 1/4	Ø430/Ø350
4000	1 1/4	1 1/4	1/2"	1/2"	1 1/4	3"	3"	1 1/2	1 1/4	1 1/4	Ø430/Ø350
5000	1 1/4	1 1/4	1/2"	1/2"	1 1/4	3"	3"	1 1/2	1 1/4	1 1/4	Ø430/Ø350

Size chart

Cap. l	Øe mm	Ht mm	R* mm	A1 mm	C1 mm	E1 mm	E2 mm	F mm	I mm	K1 mm	K2 mm	Q1** mm
200	650	1470	1610	275	1115	575	1115	725	915	275	915	375
300	750	1510	1690	295	1135	595	1135	745	965	295	965	395
500	800	1950	2110	270	1670	570	1670	970	1410	270	1110	370
800	990	1940	2200	395	1545	695	1545	970	1385	395	1235	535
1000	1000	2210	2445	405	1805	705	1805	1105	1445	405	1245	545
1500	1250	2225	2555	425	1815	725	1815	1115	1455	425	1265	555
2000	1450	2305	2725	460	1850	760	1850	1150	1490	460	1300	615
2500	1400	2530	2895	460	2100	760	2100	1275	1600	460	1300	615
3000	1450	2800	3155	475	2365	775	2365	1415	1645	475	1315	630
4000	1600	2880	3295	530	2400	830	2400	1450	1680	530	1370	665
5000	1800	2910	3425	530	2400	830	2400	1450	1680	530	1370	665

R*: reversal quota

Q1**: Height from inspection hole center to the ground



Water heaters

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Glass lined water heater with fixed internal heat exchanger – SMART 1

The Smart 1 range consists of water heaters for the production of domestic hot water with a single fixed heat exchanger, available in several capacities, from 200 to 3000 litres. They are equipped with different type of insulation (see chart below), external PVC coating, a magnesium anode for protection against galvanic currents and an inspection flange to make access in the control and maintenance phase easier.

Material: S 235 JR carbon steel


Treatment for internal protection: The boilers up to 1000l are treated with food grade inorganic glass lining in accordance with DIN 4753.3. The tanks with a capacity between 1500 and 3000 litres are varnished with Bluetech.

Insulation

Capacity (l)	Type
from 200 to 1000	Highly rigid polyurethane foam
from 1500	Polyester Fiber

Operational limits

Capacity (l)	Storage		Primary circuit	
	temp. max.	pressure max.	temp. max.	pressure max.
up to 1000	95°C	10 bar	110°C	12 bar
from 1500 to 3000	80°C	6 bar	110°C	12 bar

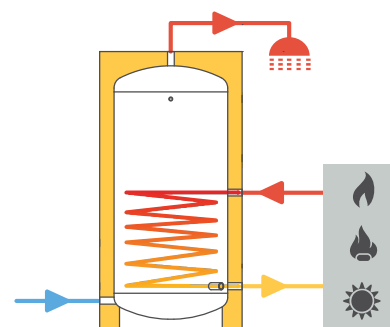
 **Supplied accessories:** Adjustable height feet for sizes up to 500 l, safety valve and thermometer for sizes up to 1000 l, magnesium sacrificial anode for all sizes.

 **Standard accessories:** see pag 274

 **Special versions:** see pag 277

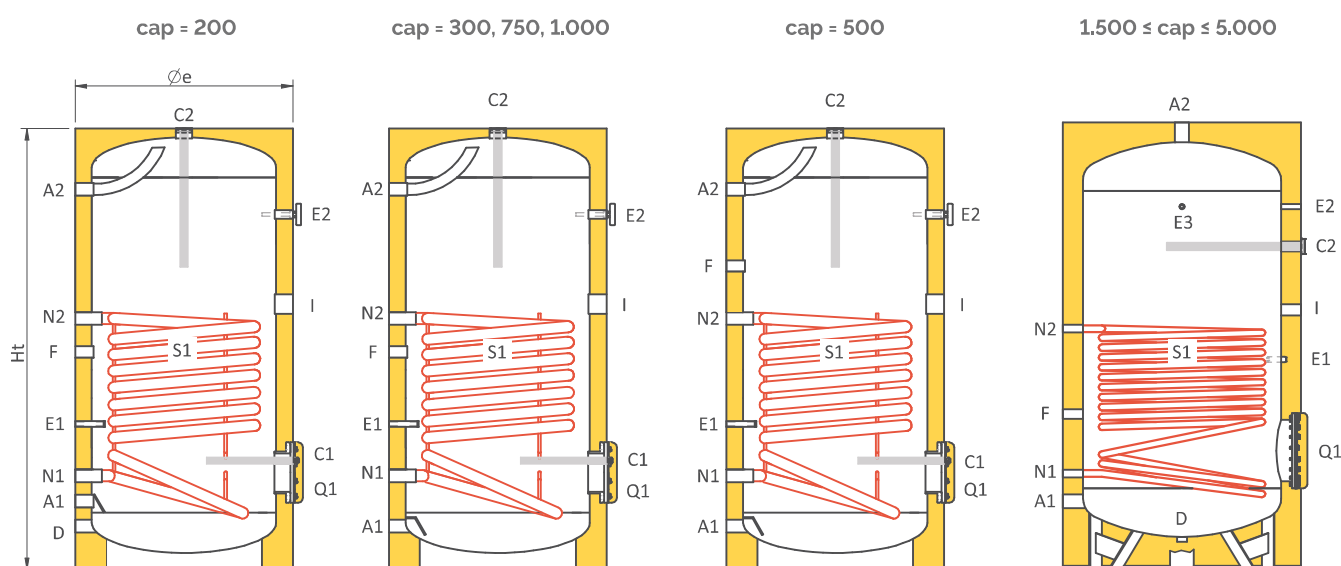


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Capacity l	Code	Price	Energy label	With vertical packaging	
				Dimensions cm	Weight kg
200	819060107X		B	75x75x120	84
300	819060108X		B	75x75x168	122
500	819060110X		C	75x75x204	195
750	819060111X		C	90x90x207	260
1000	819060112X		C	110x110x198	330
1500	819080001X		C	123x123x237,5	255
2000	819080002X		C	132x132x269,5	325
3000	819080005X			147x147x299	411

Glass lined water heater with fixed internal heat exchanger – SMART 1



Couplings legend

A1	DHW inlet	E3	Probe / Thermometer
A2	DHW outlet	F	Recirculation
C1	Anode	I	Electrical resistor
C2	Anode	N1	Exchanger outlet
D	Drain	N2	Exchanger inlet
E1	Probe / Thermometer	Q1	Inspection hole
E2	Probe / Thermometer	S1	Lower exchanger

Couplings chart

Cap. l	A1 inch	A2 inch	C1 inch	C2 inch	D inch	E1 inch	E2 inch	E3 inch	F inch	I inch	N1 inch	N2 inch	Q (Øext/Øint) mm
200	1"	1"	M8	1 1/4	1"	3/8"x90	1/2"	-	3/4"	1 1/2	1"	1"	Ø180/Ø120
300	1"	1"	M8	1 1/4	-	3/8"x90	1/2"	-	3/4"	1 1/2	1"	1"	Ø180/Ø120
500	1"	1"	M8	1 1/4	-	3/8"x125	1/2"	-	3/4"	1 1/2	1"	1"	Ø180/Ø120
750	1 1/2	1 1/2	M8	2"	-	3/8"x140	1/2"	-	1 1/4	1 1/2	1"	1"	Ø280/Ø205
1000	1 1/2	1 1/2	M8	2"	-	3/8"x160	1/2"	-	1 1/4	1 1/2	1"	1"	Ø280/Ø205
1500	2"	2"	-	1 1/4	1 1/4	1/2"	1/2"	1/2"	1 1/4	1 1/2	1"	1"	Ø380/Ø300
2000	2"	2"	-	1 1/4	1 1/4	1/2"	1/2"	1/2"	1 1/4	1 1/2	1"	1"	Ø380/Ø300
3000	3"	3"	-	1 1/4	1 1/4	1/2"	1/2"	1/2"	1 1/4	1 1/2	1"	1"	Ø380/Ø300

Size chart

Cap. l	Øe mm	Ht mm	R* mm	A1 mm	A2 mm	D mm	E1 mm	E2 mm	E3 mm	F mm	I mm	N1 mm	N2 mm	Q1** mm
200	670	1100	1290	210	865	130	445	795	-	680	540	290	790	290
300	670	1615	1750	130	1355	-	435	1295	-	650	805	280	750	290
500	750	1950	2090	180	1650	-	530	1570	-	1320	1030	320	970	330
750	855	2050	2225	215	1715	-	575	1725	-	925	1110	375	1045	445
1000	1055	1960	2230	247	1567	-	587	1577	-	577	1047	447	997	477
1500	1250	2280	2605	345	-	165	1060	1830	1830	785	1310	485	1215	600
2000	1350	2600	2930	345	-	155	1165	2150	2150	815	1495	490	1325	605
3000	1450	2870	3220	400	-	180	1375	2410	2410	875	1625	550	1540	665

R*: reversal quote

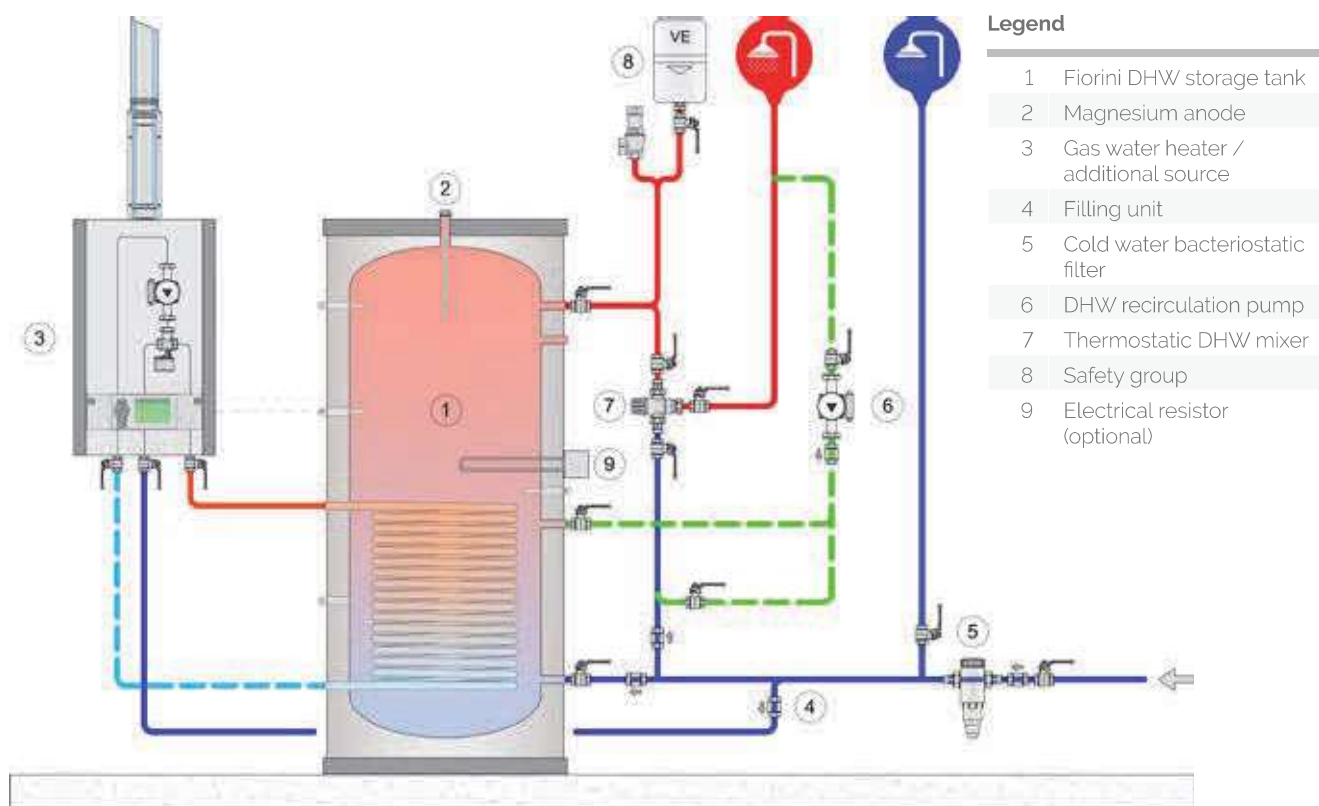
Q1**: Height from inspection hole center to the ground

Technical information for SMART 1 series

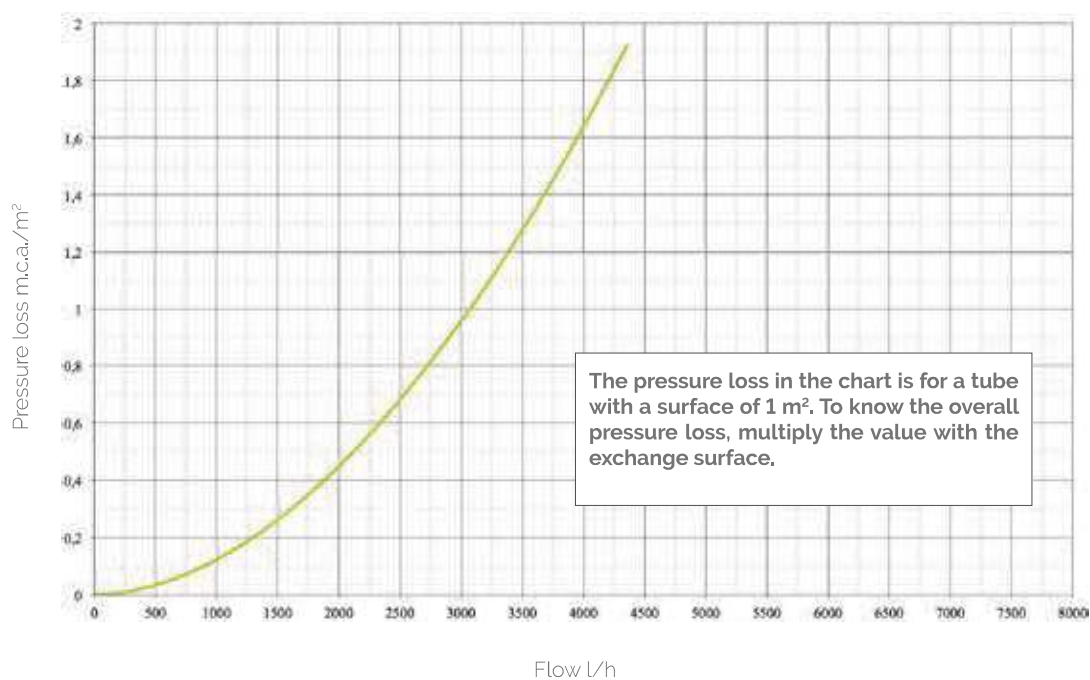
Capacity	Ti	DHW production TiACS = 10°C						Exchanger	
		TuACS= 45°C		TuACS = 60°C		Ta = 50°C TuACS = 45°C	Ta = 60°C TuACS = 45°C	Surface area	Nominal flow
		L/h (a)	kW (b)	L/h (c)	kW (d)	L/10 min. (e)	L/10 min. (f)	m²	mc/h
200	70	810	33	395	23	347	390	1,4	3
	80	1081	44	602	35	392	435		
	90	1253	51	739	43	421	464		
300	70	810	33	395	23	454	517	1,4	3
	80	1081	44	602	35	499	563		
	90	1253	51	739	43	527	591		
500	70	1179	48	584	34	728	834	2	3
	80	1572	64	877	51	793	900		
	90	1842	75	1083	63	838	945		
750	70	1400	57	688	40	1031	1190	2,4	3
	80	1867	76	1032	60	1109	1268		
	90	2186	89	1290	75	1162	1321		
1000	70	1572	64	774	45	1325	1538	2,7	3
	80	2113	86	1169	68	1415	1628		
	90	2481	101	1462	85	1477	1690		
1500	70	2137	87	1049	61	1951	2271	3,7	4
	80	2874	117	1599	93	2074	2393		
	90	3390	138	1995	116	2160	2479		
2000	70	2506	102	1221	71	2545	2970	4,3	4
	80	3341	136	1840	107	2684	3110		
	90	3931	160	2287	133	2782	3208		
3000	70	3022	123	1479	86	3695	4333	5,2	4
	80	4029	164	2236	130	3862	4501		
	90	4717	192	2786	162	3977	4615		

- a continuous DHW flow with TuACS= 45°C
- b power of the exchanger with TuACS=45°C
- c continuous DHW flow with TuACS= 60°C
- d power of the exchanger with TuACS=60°C
- e amount of DHW at 45°C in the first 20 min. with a storage temperature of 50°C
- f amount of DHW at 45°C in the first 10 min. with a storage temperature of 60°C
- Exchanger capacity: 7.10 Lt/mq

Technical information for SMART 1 series



Pressure loss fixed heat exchanger



Glass lined water heater with two fixed internal heat exchangers – SMART 2

The Smart 2 range consists of Water heaters for the production of domestic hot water with a double fixed heat exchanger, available in several capacities (from 200 up to 3000 litres). They are equipped with different type of insulation (see chart below), external PVC coating, a magnesium anode for protection against galvanic currents, an inspection flange for easy access during the control and maintenance phase.

Material: S 235 JR carbon steel


Treatment for internal protection: The boilers with a capacity of up to 1000 l are treated with food grade inorganic glass lining in accordance with DIN 4753.3, those with a capacity of 1500 to 3000 l with Bluetech.

Insulation

Capacity (l)	Type
from 200 to 1000	Highly rigid polyurethane foam
from 1500	Polyester Fiber

Operational limits

Capacity (l)	Storage		Primary circuit	
	temp. max.	pressure max.	temp. max.	pressure max.
up to 1000	95°C	10 bar	110°C	12 bar
from 1500 to 3000	80°C	6 bar	110°C	12 bar

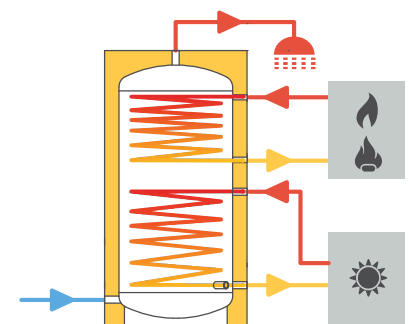
 **Supplied accessories:** Adjustable height feet for sizes up to 500 l, safety valve and thermometer for sizes up to 1000 l, magnesium sacrificial anode for all sizes.








 **Standard accessories:** see pag 274

 **Special versions:** see pag 277

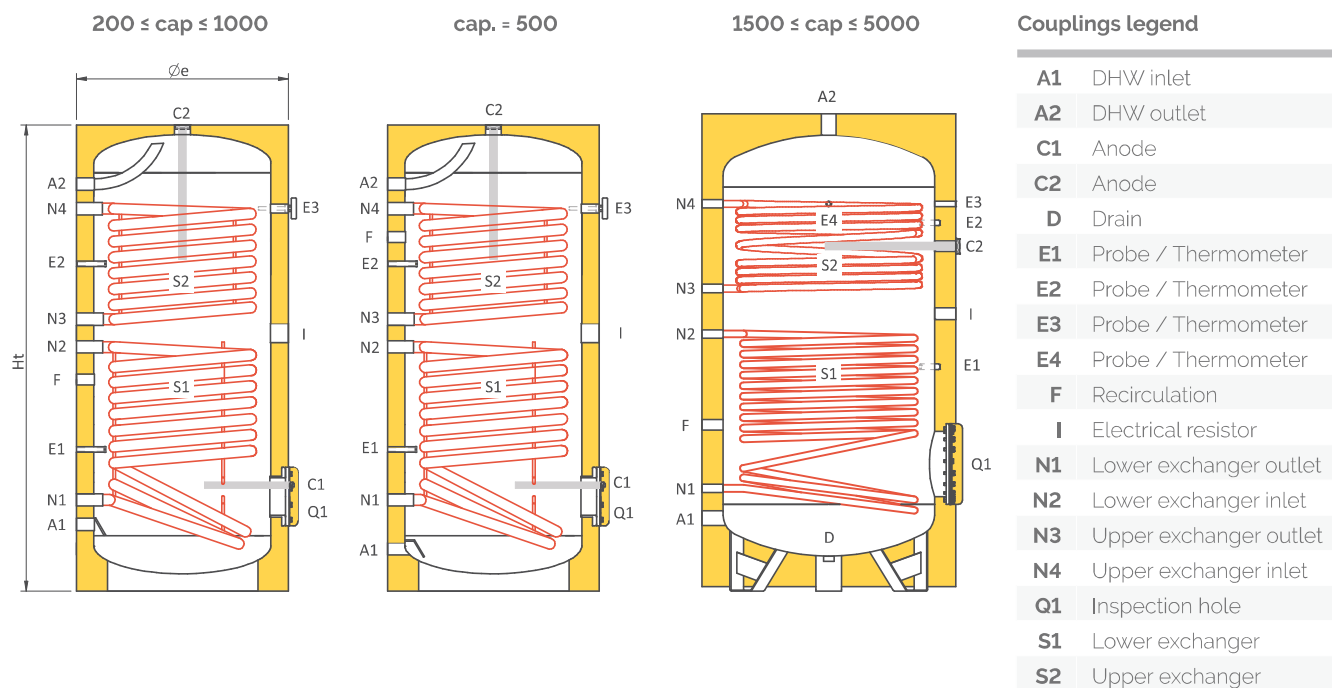


TESTED



Capacity l	Code	Price	Energy label	With vertical packaging	
				Dimensions cm	Weight kg
200	819060114X			75x75x120	98
300	819060115X			75x75x168	133
500	819060117X			75x75x204	215
750	819060118X			90x90x207	296
1000	819060119X			110x110x198	360
1500	819080003X			123x123x237,5	281
2000	819080004X			132x132x269,5	366
3000	819080006X			147x147x299	454

Glass lined water heater with two fixed internal heat exchangers – SMART 2



Couplings chart

Cap. l	A1 inch	A2 inch	C1 inch	C2 inch	D inch	E1 inch	E2 inch	E3 inch	E4 inch	F inch	I inch	N1 inch	N2 inch	N3 inch	N4 inch	Q1 (Øext/Øint) mm
200	1"	1"	M8	1 1/4	-	3/8"x90	3/8"x90	1/2"	-	3/4"	1 1/2	1"	1"	1"	1"	Ø180/120
300	1"	1"	M8	1 1/4	-	3/8"x90	3/8"x90	1/2"	-	3/4"	1 1/2	1"	1"	1"	1"	Ø180/Ø120
500	1"	1"	M8	1 1/4	-	3/8"x125	3/8"x125	1/2"	-	3/4"	1 1/2	1"	1"	1"	1"	Ø180/Ø120
750	1 1/2	1 1/2	M8	2"	-	3/8"x140	3/8"x140	1/2"	-	1 1/4	1 1/2	1"	1"	1"	1"	Ø280/Ø205
1000	1 1/2	1 1/2	M8	2"	-	3/8"x160	3/8"x160	1/2"	-	1 1/4	1 1/2	1"	1"	1"	1"	Ø280/Ø205
1500	2"	2"	-	1 1/4	1 1/4	1/2"	1/2"	1/2"	1/2"	1 1/4	1 1/2	1"	1"	1"	1"	Ø380/Ø300
2000	2"	2"	-	1 1/4	1 1/4	1/2"	1/2"	1/2"	1/2"	1 1/4	1 1/2	1"	1"	1"	1"	Ø380/Ø300
3000	3"	3"	-	1 1/4	1 1/4	1/2"	1/2"	1/2"	1/2"	1 1/4	1 1/2	1"	1"	1"	1"	Ø380/Ø300

Size chart

Cap. l	Øe mm	Ht mm	R* mm	A1 mm	A2 mm	D mm	E1 mm	E2 mm	E3 mm	F mm	I mm	N1 mm	N2 mm	N3 mm	N4 mm	Q1 mm
200	670	1130	1290	130	975	-	345	780	825	450	630	210	580	685	895	290
300	670	1615	1750	130	1355	-	435	1030	1295	650	805	280	750	860	1200	290
500	750	1950	2090	180	1650	-	530	1200	1570	1320	1030	320	970	1090	1439	329
750	855	2050	2225	215	1715	-	575	1365	1725	925	1110	375	1045	1175	1555	445
1000	1055	1960	2230	247	1567	-	587	1247	1577	877	1047	447	997	1097	1437	477
1500	1250	2280	2605	345	-	165	1060	1740	1830	785	1310	485	1215	1430	1830	600
2000	1350	2600	2930	345	-	155	1165	2065	2150	815	1495	480	1315	1690	2150	605
3000	1450	2870	3220	400	-	180	1375	2225	2410	875	1625	550	1540	1680	2410	665

R*: reversal quota

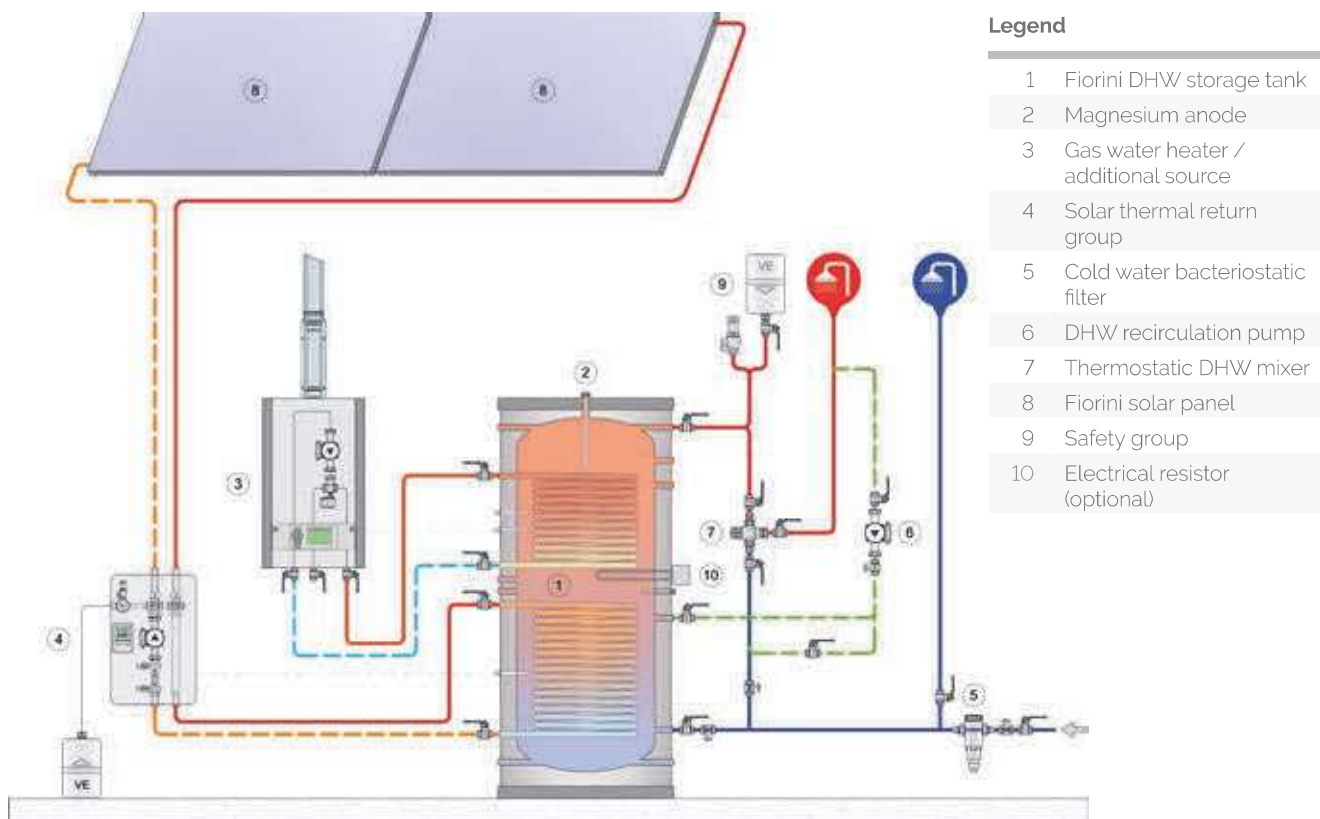
Q1*: Height from inspection hole center to the ground

Technical information for SMART 2 series

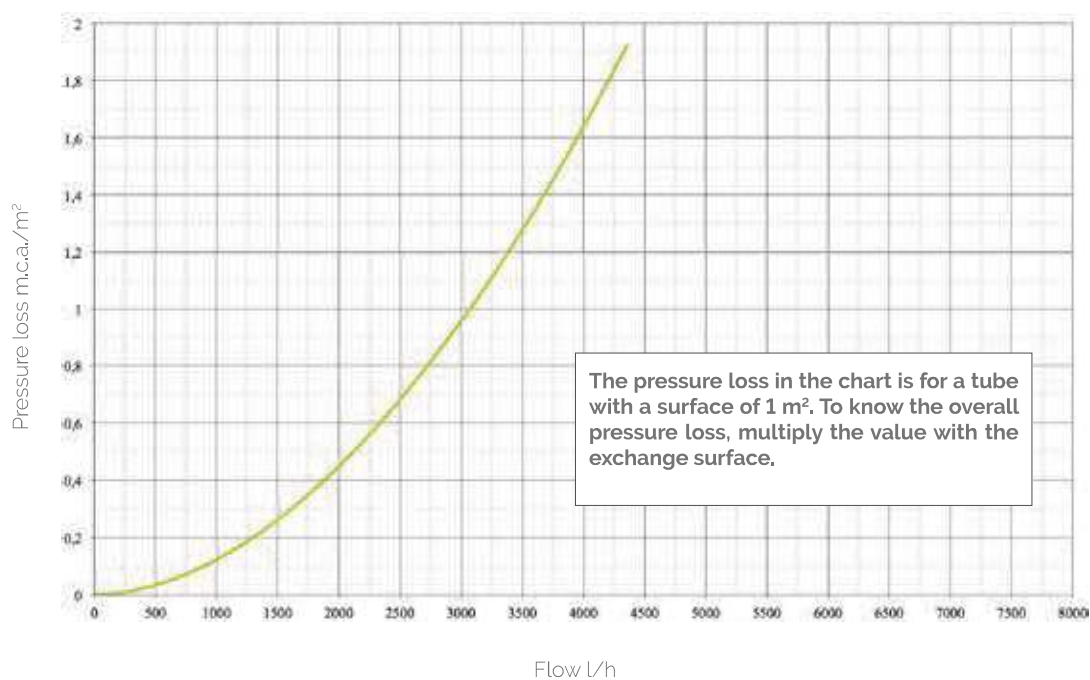
Capacity	Ti	DHW production TiACS = 10°C						Upper Exchanger	Lower Exchanger	Nominal flow
		TuACS= 45°C		TuACS = 60°C		Ta = 50°C TuACS = 45°C	Ta = 60°C TuACS = 45°C	Surface area	Surface area	
		L/h (a)	kW (b)	L/h (c)	kW (d)	L/10 min. (e)	L/10 min. (f)	m²	m²	mc/h
200	70	417	17	206	12	282	324	0,7	1	3
	80	540	22	292	17	302	345			
	90	614	25	361	21	315	357			
300	70	638	26	309	18	425	489	1,1	1,4	3
	80	860	35	481	28	462	526			
	90	1007	41	584	34	486	550			
400	70	638	26	309	18	531	616	1,1	1,8	3
	80	860	35	481	28	568	653			
	90	1007	41	584	34	593	678			
500	70	638	26	309	18	638	744	1,1	2	3
	80	860	35	481	28	675	781			
	90	1007	41	584	34	699	806			
750	70	688	28	344	20	912	1072	1,2	2,4	3
	80	933	38	516	30	953	1112			
	90	1081	44	636	37	978	1137			
1000	70	884	36	430	25	1211	1423	1,5	2,7	3
	80	1179	48	653	38	1260	1473			
	90	1376	56	808	47	1293	1505			
1500	70	1326	54	653	38	1816	2135	2,3	3,7	6,0
	80	1793	73	980	57	1894	2213			
	90	2113	86	1238	72	1947	2267			
2000	70	1744	71	860	50	2418	2843	3	4,3	8,0
	80	2334	95	1290	75	2516	2942			
	90	2727	111	1599	93	2582	3007			
3000	70	2211	90	1083	63	3559	4198	3,8	5,2	8,0
	80	2948	120	1634	95	3682	4321			
	90	3440	140	2029	118	3764	4403			

- a continuous DHW flow with TuACS= 45°C
- b power of the exchanger with TuACS=45°C
- c continuous DHW flow with TuACS= 60°C
- d power of the exchanger with TuACS=60°C
- e amount of DHW at 45°C in the first 10 min. with a storage temperature of 50°C
- f amount of DHW at 45°C in the first 10 min. with a storage temperature of 60°C
- Exchanger capacity: 7.10 Lt/mq

Technical information for SMART 2 series



Pressure loss fixed heat exchanger



Glass lined water heater with a solar power station – SMART 2 SOLAR KIT

Water heater for the production of domestic hot water with a double fixed heat exchanger and a solar power station S2 SOLAR 30 - 25/6. The capacity is 300L. The water heater is equipped with very thick high-density rigid polyurethane insulation, external PVC coating, a magnesium anode for protection against galvanic currents, an inspection flange for easier access during the inspection and maintenance phase.

Material: S 235 JR carbon steel


Treatment for internal protection: Food grade inorganic glass lining according to DIN 4753.3

Insulation


Capacity (l)	Type
300	Highly rigid polyurethane foam

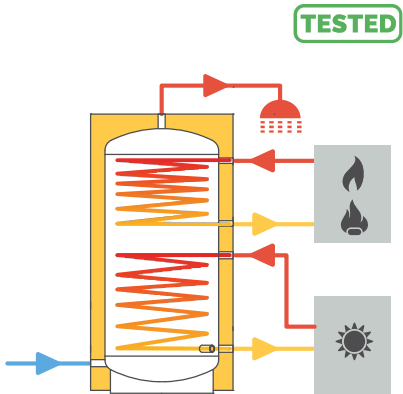
Operational limits

Storage		Primary circuit	
max. temperature	max. pressure	max. temperature	max. pressure
95°C	10 bar	110°C	12 bar

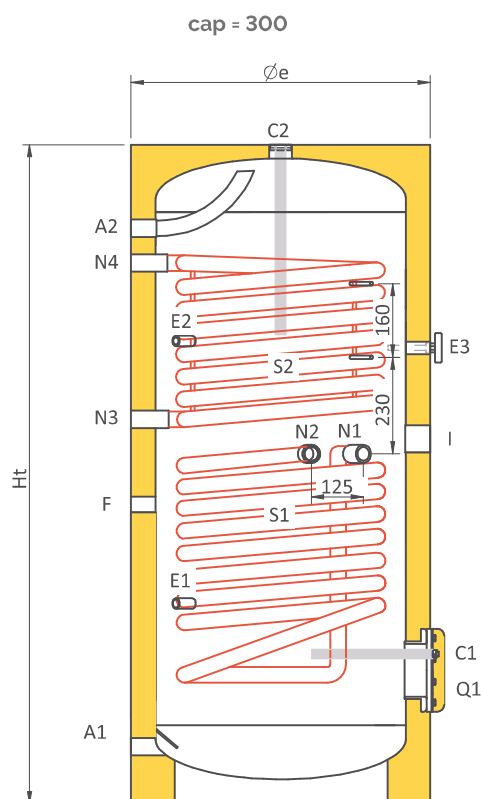
 **Supplied accessories:** Adjustable height feet, safety valve and thermometer, magnesium sacrificial anode.

 **Standard accessories:** see pag 274

Capacity l	Code.	Price	Energy label
300	838110066X		



Glass lined water heater with a solar power station – SMART 2 SOLAR KIT



Couplings legend

A1	DHW inlet
A2	DHW outlet
C1	Anode
C2	Anode
E1	Probe / Thermometer
E2	Probe / Thermometer
E3	Probe / Thermometer
F	Recirculation
I	Electrical resistor
N1	Lower exchanger outlet
N2	Lower exchanger inlet
N3	Upper exchanger outlet
N4	Upper exchanger inlet
Q1	Inspection hole
S1	Lower exchanger
S2	Upper exchanger

Couplings chart

Cap. l	A1 inch	A2 inch	C1 inch	C2 inch	D inch	E1 inch	E2 inch	E3 inch	F inch	I inch	N1 inch	N2 inch	N3 inch	N4 inch	Q1 (Øext/Øint) mm
300	1"	1"	M8	1 1/4"	1"	3/8"x150	3/8"x150	1/2"	3/4"	1 1/2"	1"	1"	1"	1"	Ø180/Ø120

Size chart

Cap. l	Øe mm	Ht mm	R* mm	A1 mm	A2 mm	D mm	E1 mm	E2 mm	E3 mm	F mm	I mm	N1 mm	N2 mm	N3 mm	N4 mm	Q1** mm
300	670	1615	1750	210	1365	130	385	1005	950	600	770	700	700	835	1175	290

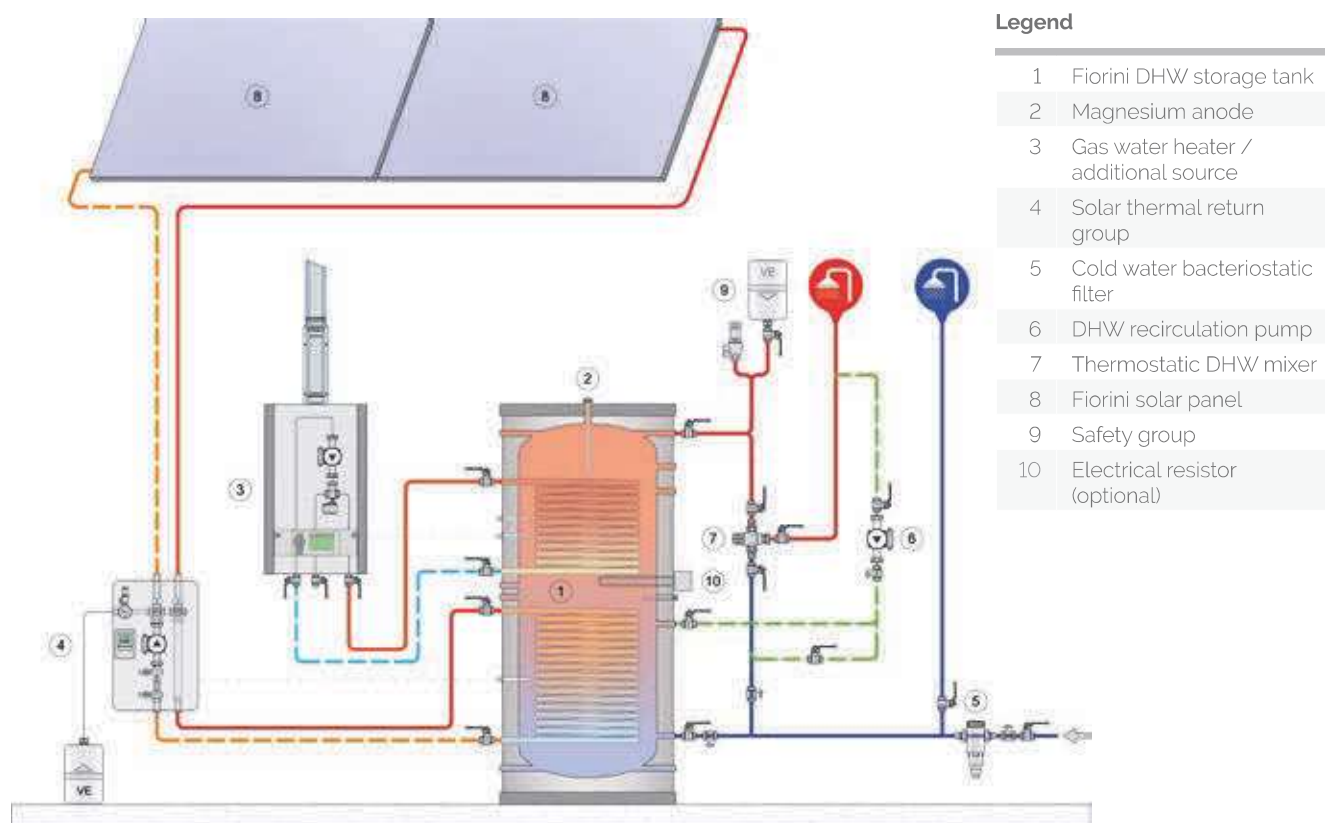
R*: reversal quota

Q1**: Height from inspection hole center to the ground

Technical information for SMART 2 SOLAR KIT series

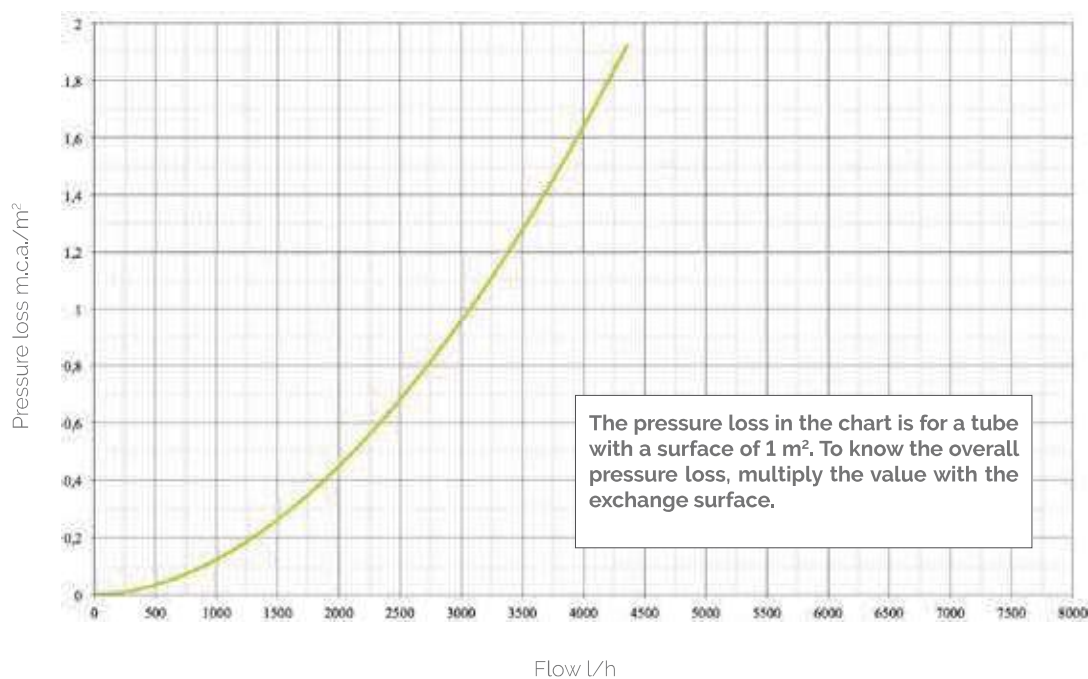
Capacity	Ti	DHW production TiACS = 10°C						Upper Exchanger	Lower Exchanger	Nominal flow
		TuACS= 45°C		TuACS = 60°C		Ta = 50°C TuACS = 45°C	Ta = 60°C TuACS = 45°C	Surface area	Surface area	
	°C	L/h (a)	kW (b)	L/h (c)	kW (d)	L/10 min. (e)	L/10 min. (f)	m²	m²	mc/h
300	70	638	26	309	18	425	489	1,1	1,4	3
	80	860	35	481	28	462	526			
	90	1007	41	584	34	486	550			

- a continuous DHW flow with TuACS= 45°C
- b power of the exchanger with TuACS=45°C
- c continuous DHW flow with TuACS= 60°C
- d power of the exchanger with TuACS=60°C
- e amount of DHW at 45°C in the first 10 min. with a storage temperature of 50°C
- f amount of DHW at 45°C in the first 10 min. with a storage temperature of 60°C
- Exchanger capacity: 7,10 Lt/mq



Technical information for SMART 2 SOLAR KIT series

Pressure loss fixed heat exchanger



S2 SOLAR 30 solar unit

The S2 SOLAR 30 solar unit is the ideal option for small and medium-sized installations of which the components are tested and pre-assembled to guarantee the quality of the performance and the easy installation. The electronic control unit of the solar unit MTDC is an integral part of the kit and comes cabled and with a probe for measuring the temperature. The kit is insulated in polystyrene.

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Glass lined water heater with a fixed heat exchanger for Heat pumps – SMART HP

The HP range consists of water heaters for the production of domestic hot water with a double spiral single heat exchanger with a large surface, to be connected with a heat pump. The heaters are available in several capacities, from 300 to 1000 l and are insulated with very thick high density rigid polyurethane, externally covered with PVC and provided with a magnesium anode to protect against galvanic currents and an inspection flange for easy access during the inspection and maintenance phase.

Material: S 235 JR carbon steel


Treatment for internal protection: Food grade inorganic glass lining according to DIN 4753.3

Insulation

Capacity (l)	Type
from 300 to 1000	Highly rigid polyurethane foam

Operational limits

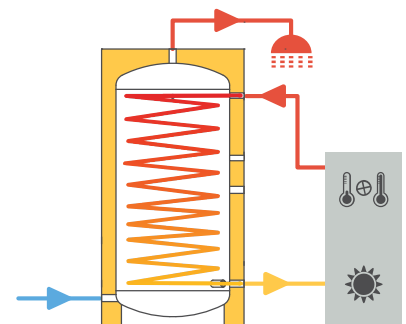
Storage		Primary circuit	
max. temperature	max. pressure	max. temperature	max. pressure
95°C	10 bar	110°C	12 bar





 **Supplied accessories:** Adjustable height feet, safety valve and thermometer, magnesium sacrificial anode.

 **Standard accessories:** see pag 274

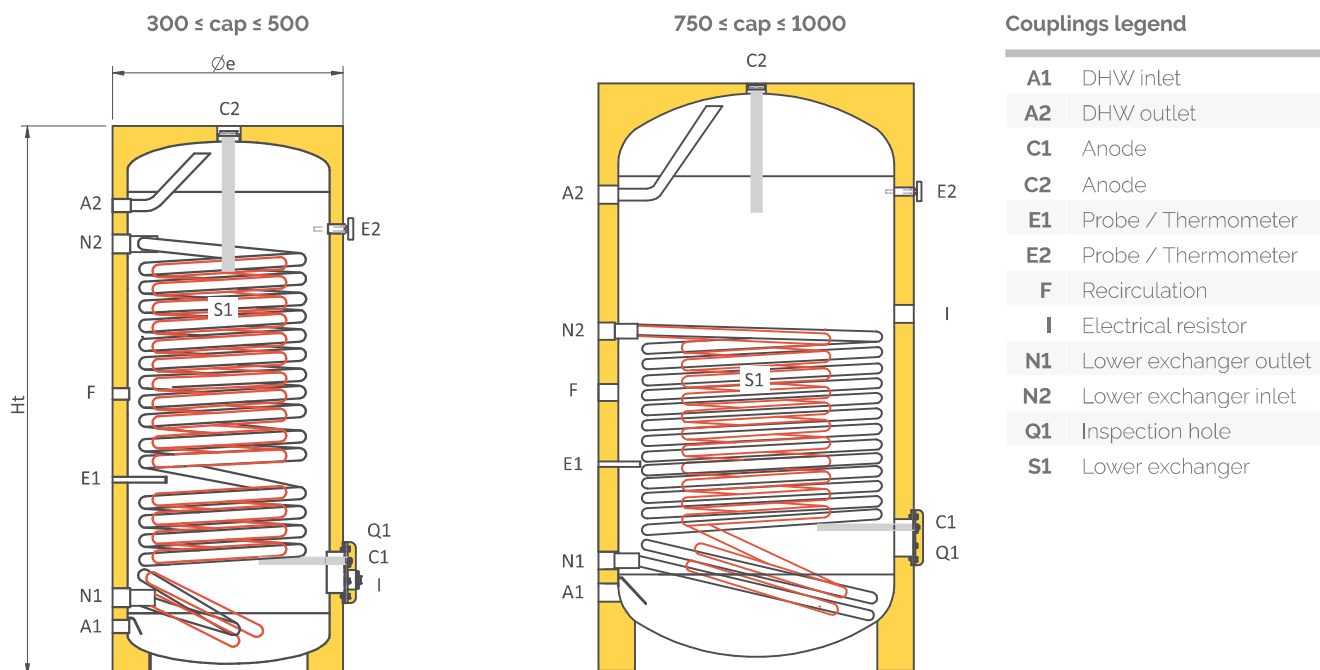


TESTED



Capacity l	Code	Price	Energy label	With vertical packaging	
				Dimensions cm	Weight kg
300	819060121X			75x75x168	177
500	819060123X			75x75x204	239
750	819060124X			90x90x207	318
1000	819060125X			110x110x198	409

Glass lined water heater with a fixed heat exchanger for Heat pumps – SMART HP



Couplings chart

Cap. l	A1 inch	A2 inch	C1 mm	C2 inch	E1 inch	E2 mm	F inch	I inch	N1 inch	N2 inch	Q1 (Øext/Øint) mm
300	1"	1"	M8	1 1/4	3/8"x90	1/2"	3/4"	1 1/2	1 1/4	1 1/4	Ø180/Ø120
500	1"	1"	M8	1 1/4	3/8"x120	1/2"	3/4"	1 1/2	1 1/4	1 1/4	Ø180/Ø120
750	1 1/2	1 1/2	M8	2"	3/8"x140	1/2"	1 1/4	1 1/2	1 1/4	1 1/4	Ø280/Ø205
1000	1 1/2	1 1/2	M8	2"	3/8"x160	1/2"	1 1/4	1 1/2	1 1/4	1 1/4	Ø280/Ø205

Size chart

Cap. l	Øe mm	Ht mm	R* mm	A1 mm	A2 mm	E1 mm	E2 mm	F mm	I mm	N1 mm	N2 mm	Q1** mm
300	670	1615	1750	130	1355	550	1295	765	-	220	1035	290
500	750	1950	2090	180	1650	610	1580	870	-	265	1415	340
750	855	2050	2225	215	1715	755	1725	1175	1425	395	1355	445
1000	1055	1960	2230	247	1567	747	1577	1077	1277	447	1197	497

R*: reversal quota

Q1**: Height from inspection hole center to the ground

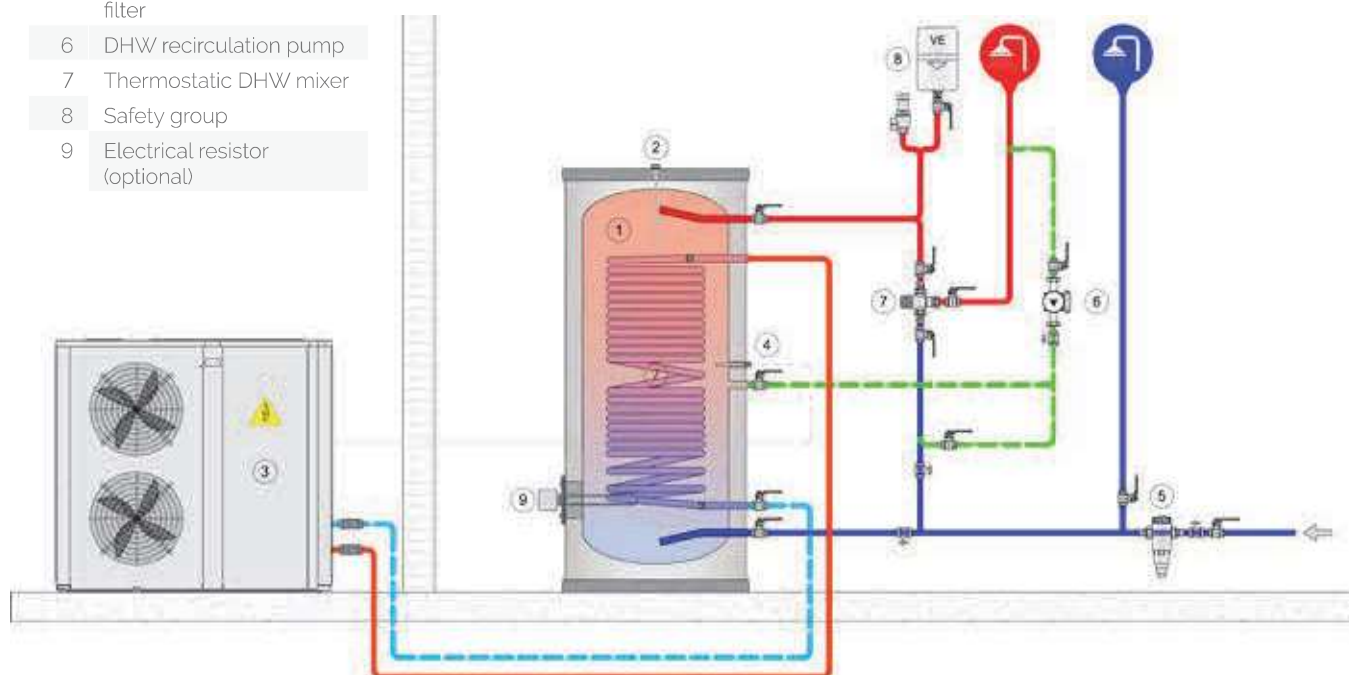
Technical information for SMART HP series

Capacity	Ti	DHW production TiDHW = 10°C			Exchanger	
		TuDHW= 45°C		Ta = 50°C TuDHW = 45°C	Surface area	Nominal flow
		L/h (a)	kW (b)	L/10 min. (e)		
L	°C				m²	mc/h
300	50	688	28	433	3,8	4,0
	80	2236	91	691		
500	50	958	39	691	6	4,0
	80	2432	99	937		
750	50	982	40	961	6,5	4,0
	80	3390	138	1362		
1000	50	982	40	1227	6,5	4,0
	80	3390	138	1628		

- a continuous DHW flow with TuDHW= 45°C
- b power of the exchanger with TuACS=45°C
- e amount of DHW at 45°C in the first 10 min. with a storage temperature of 50°C
- Exchanger capacity: 7.10 Lt/mq

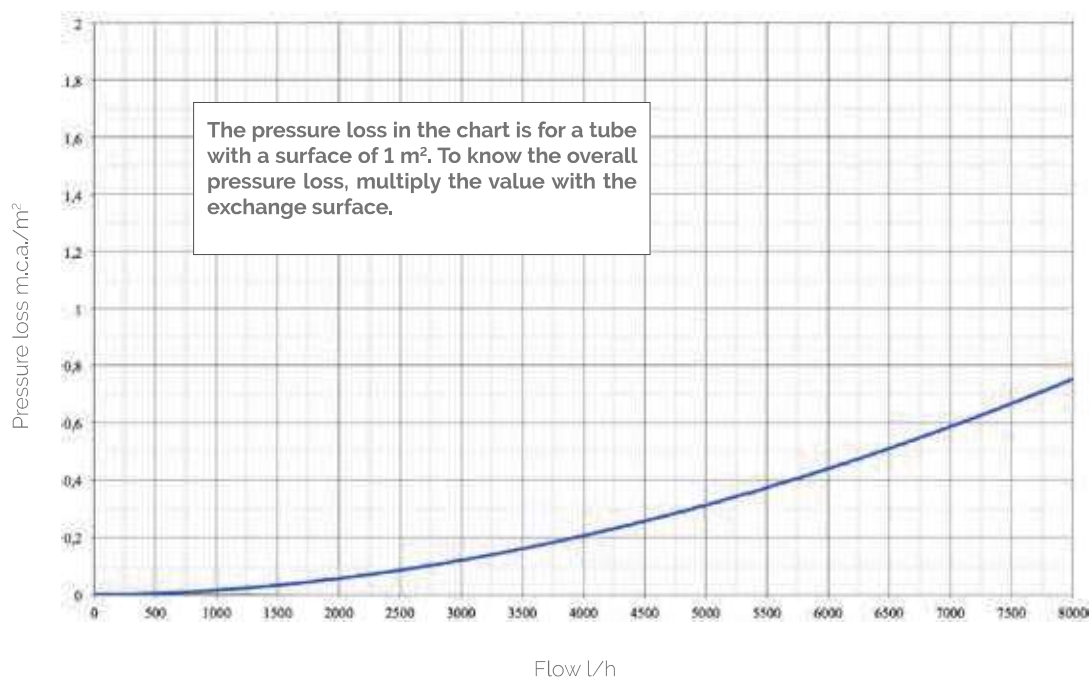
Legend

- 1 Fiorini DHW storage tank
- 2 Magnesium anode
- 3 Heat pump / additional source
- 4 DHW temperature probe
- 5 Cold water bacteriostatic filter
- 6 DHW recirculation pump
- 7 Thermostatic DHW mixer
- 8 Safety group
- 9 Electrical resistor (optional)



Technical information for SMART HP series

Pressure loss fixed heat exchanger



Glass lined water heater with fixed double heat exchanger for Heat pumps – SMART HP 2

The HP 2 range consists of water heaters for the production of domestic hot water with a double fixed heat exchangers, one simple and one with double spiral with a large surface, to be coupled with a heat pump together with additional sources (solar, gas water heater). The heaters are available in the capacities of 300 and 500 l and are insulated with very thick high density rigid polyurethane, externally covered with PVC and provided with a magnesium anode to protect against galvanic currents and an inspection flange for easy access during the inspection and maintenance phase.

Material: S 235 JR carbon steel


Treatment for internal protection: Food grade inorganic glass lining according to DIN 4753.3

Insulation



Capacity (l)	Type
300, 500	Highly rigid polyurethane foam

Operational limits

Storage		Primary circuit	
max. temperature	max. pressure	max. temperature	max. pressure
95°C	10 bar	110°C	12 bar

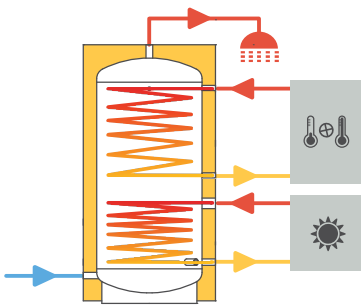
 **Supplied accessories:** Adjustable height feet, safety valve and thermometer, magnesium sacrificial anode.

 **Standard accessories:** see pag 274

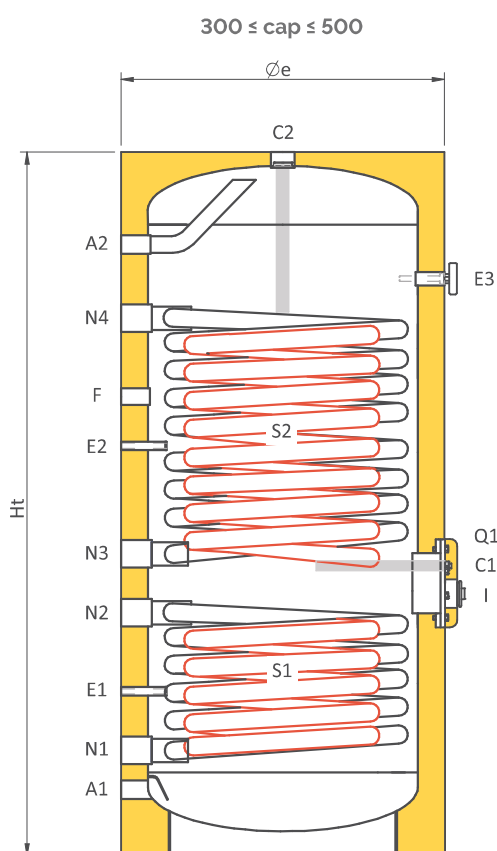
Capacity l	Code	Price	Energy label	With vertical packaging	
				Dimensions cm	Weight kg
300	819060154X			75x75x168	160
500	819060156X			75x75x204	285



TESTED



Glass lined water heater with fixed double heat exchanger for Heat pumps – SMART HP 2



Couplings legend

A1	DHW inlet
A2	DHW outlet
C1	Anode
C2	Anode
E1	Probe / Thermometer
E2	Probe / Thermometer
E3	Probe / Thermometer
F	Recirculation
I	Electrical resistor
N1	Lower exchanger outlet
N2	Lower exchanger inlet
N3	Upper exchanger outlet
N4	Upper exchanger inlet
Q1	Inspection hole
S1	Lower exchanger
S2	Upper exchanger

Couplings chart

Cap. l	A1 inch	A2 inch	C1 inch	C2 inch	E1 inch x mm	E2 inch x mm	E3 inch	F inch	I inch	N1 inch	N2 inch	N3 inch	N4 inch	Q1 (Øext/Øint) mm
300	1"	1"	M8	1 1/4	3/8"x90	3/8"x90	1/2"	3/4"	1 1/2	1 1/4	1 1/4	1 1/4	1 1/4	Ø180/Ø120
500	1"	1"	M8	1 1/4	3/8"x120	3/8"x120	1/2"	3/4"	1 1/2	1 1/4	1 1/4	1 1/4	1 1/4	Ø180/Ø120

Size chart

Cap. l	Øe mm	Ht mm	R* mm	A1 mm	A2 mm	E1 mm	E2 mm	E3 mm	F mm	N1 mm	N2 mm	N3 mm	N4 mm	Q1** mm
300	670	1615	1750	130	1355	335	835	1295	935	220	495	615	1095	555
500	750	1950	2090	180	1730	410	960	1600	1265	265	645	755	1645	700

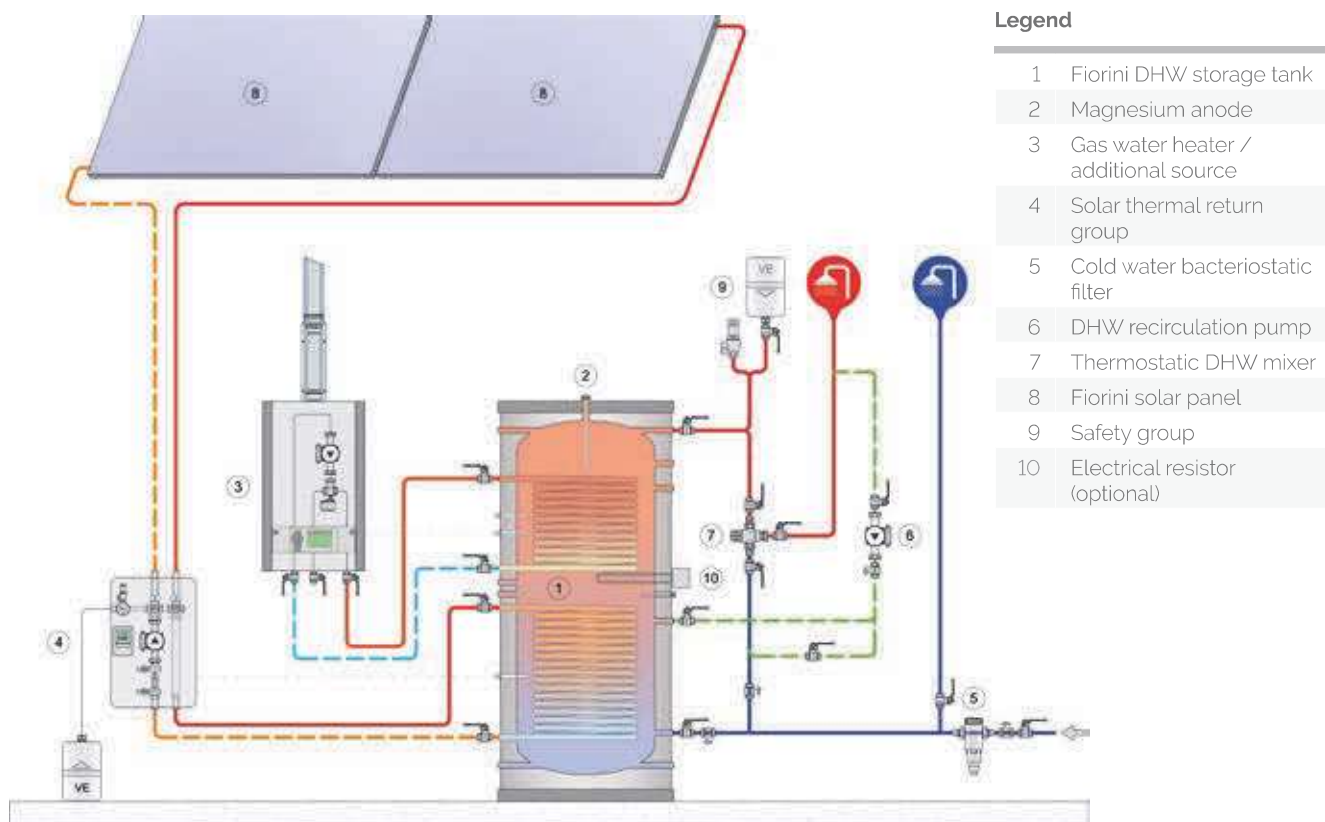
R*: reversal quota

Q1**: Height from inspection hole center to the ground

Technical information for SMART HP 2 series

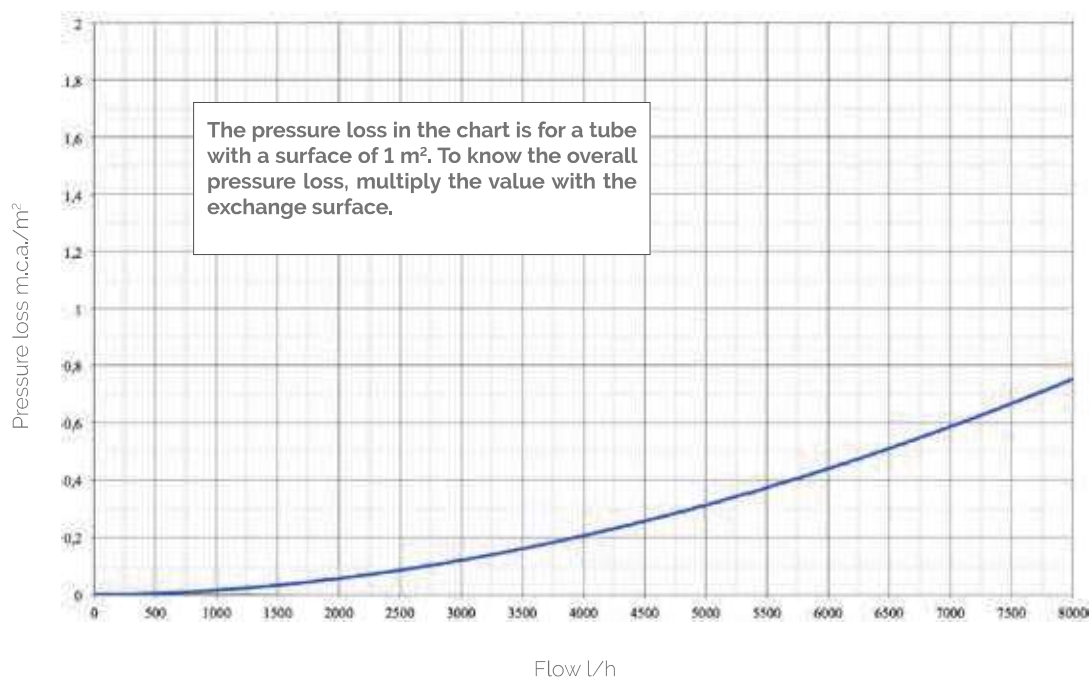
Capacity	DHW production $T_{iACS} = 10^{\circ}\text{C}$				Exchanger		Nominal flow
	T_i	$T_{uACS} = 45^{\circ}\text{C}$		$T_a = 50^{\circ}\text{C}$ $T_{uACS} = 45^{\circ}\text{C}$	Upper exchanger surface	Lower exchanger surface	
		L/h (a)	kW (b)	L/10 min. (e)	m^2	m^2	
300	50	553	22,5	435	2,2	1	1,0
	80	1501	61,1	593			2,6
500	50	860	35	715	4,8	1,8	1,5
	80	2334	95	960			4,1

- a continuous DHW flow with $T_{uDHW} = 45^{\circ}\text{C}$
- e amount of DHW at 45°C in the first 10 min. with a storage temperature of 50°C
- Exchanger capacity: 7,10 Lt/mq



Technical information for SMART HP 2 series

Pressure loss fixed heat exchanger



Stainless steel water heater with fixed heat exchanger - SMART INOX 1

The SMART INOX 1 range consists of water heaters for the production of sanitary hot water with a single fixed heat exchanger. They are available in several capacities, from 200 up to 3000 litres and have different insulation with respect to capacity (see chart below) and coated externally in PVC and equipped with a magnesium anode for the protection against galvanic currents, an inspection flange for the easy access during the inspection and maintenance phase.

Material: AISI 316 stainless steel

Treatment for internal protection: Pickling and passivation

Insulation

Capacity (l)	Type
from 200 to 3,000	Polyester Fiber

Operational limits

Storage		Primary circuit	
max. temperature	max. pressure	max. temperature	max. pressure
95°C	6 bar	95°C	16 bar

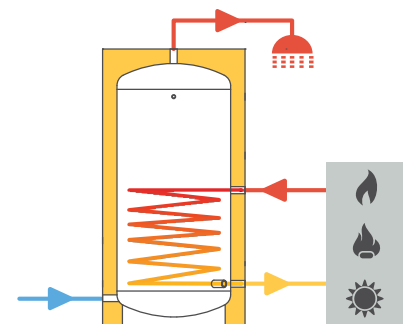
 **Supplied accessories:** Magnesium sacrificial anode for all sizes.








 **Standard accessories:** see pag 274

 **Special versions:** see pag 277

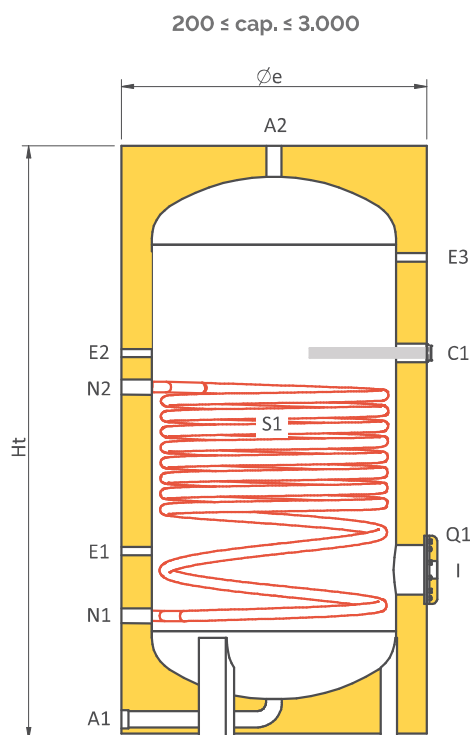


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Capacity l	Code	Price	Energy label	With vertical packaging Dimensions cm
200	819040060X			70x70x165
300	819040061X			80x80x168
500	819040063X			90x90x210
800	819040064X			105x105x209
1000	819040065X			105x105x235
1500	819040066X			130x130x237
2000	819040067X			160x160x245
2500	819040089X			160x160x299
3000	819040090X			160x160x299

Stainless steel water heater with fixed heat exchanger - SMART INOX 1



Couplings legend

A1	DHW inlet
A2	DHW outlet
C1	Anode
E1	Probe / Thermometer
E2	Probe / Thermometer
E3	Probe / Thermometer
I	Electrical resistor
N1	Exchanger outlet
N2	Exchanger inlet
Q1	Inspection hole
S1	Lower exchanger (see pag. 166)

Couplings chart

Cap. l	A1 inch	A2 inch	C1 inch	E1 inch	E2 inch	E3 inch	I inch	N1 inch	N2 inch	Q1 (Øext/Øint) mm
200	1"	1"	1 1/4"	1/2"	1/2"	1/2"	1 1/2"	3/4"	3/4"	Ø220/Ø130
300	1"	1"	1 1/4"	1/2"	1/2"	1/2"	1 1/2"	1"	1"	Ø220/Ø130
500	1"	1"	1 1/4"	1/2"	1/2"	1/2"	1 1/2"	1"	1"	Ø220/Ø130
800	1 1/4"	1 1/4"	1 1/4"	1/2"	1/2"	1/2"	1 1/2"	1 1/4"	1 1/4"	Ø220/Ø130
1000	1 1/4"	1 1/4"	1 1/4"	1/2"	1/2"	1/2"	1 1/2"	1 1/4"	1 1/4"	Ø220/Ø130
1500	1 1/2"	1 1/2"	1 1/4"	1/2"	1/2"	1/2"	1 1/2"	1 1/4"	1 1/4"	Ø300/Ø220
2000	1 1/2"	1 1/2"	1 1/4"	1/2"	1/2"	1/2"	1 1/2"	1 1/4"	1 1/4"	Ø300/Ø220
2500	1 1/2"	1 1/2"	1 1/4"	1/2"	1/2"	1/2"	1 1/2"	1 1/4"	1 1/4"	Ø300/Ø220
3000	1 1/2"	1 1/2"	1 1/4"	1/2"	1/2"	1/2"	1 1/2"	1 1/4"	1 1/4"	Ø300/Ø220

Size chart

Cap. l	Øe mm	Ht mm	R* mm	C1 mm	E1 mm	E2 mm	E3 mm	I mm	N1 mm	N2 mm	Q1 mm
200	650	1470	1610	870	425	870	1195	385	265	770	385
300	750	1510	1690	965	445	965	1215	405	285	790	405
500	800	1950	2110	1060	420	1050	1685	380	260	885	380
800	990	1920	2165	1185	545	1185	1555	505	395	1005	505
1000	1000	2190	2410	1335	555	1335	1815	515	405	1155	515
1500	1250	2225	2555	1315	565	1295	1815	545	415	1115	545
2000	1450	2305	2725	1300	600	600	1850	580	450	1145	580
2500	1400	2530	2895	1450	600	600	2100	580	450	1300	580
3000	1450	2800	3155	1645	615	1345	2365	595	465	1265	595

R*: reversal quota

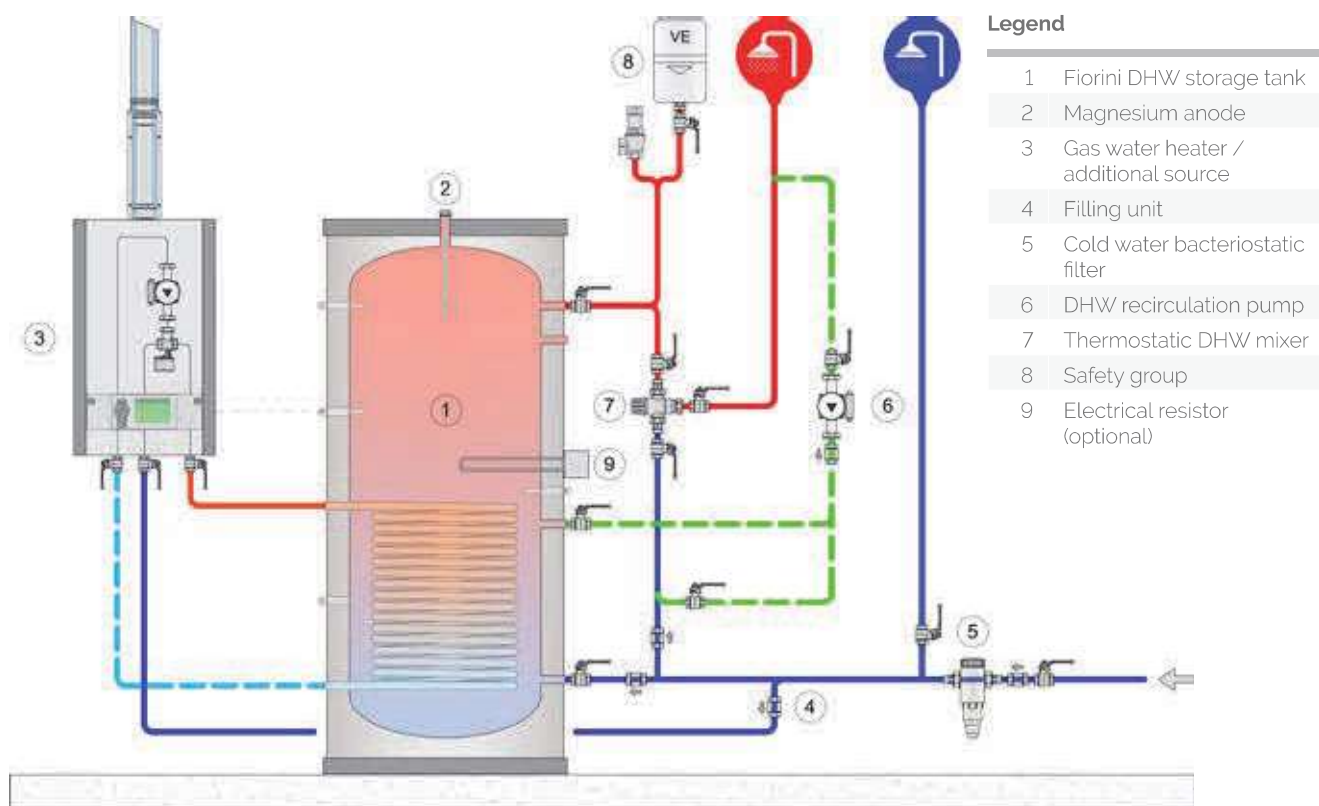
Q**: Height from inspection hole center to the ground

Technical information for SMART INOX 1 series

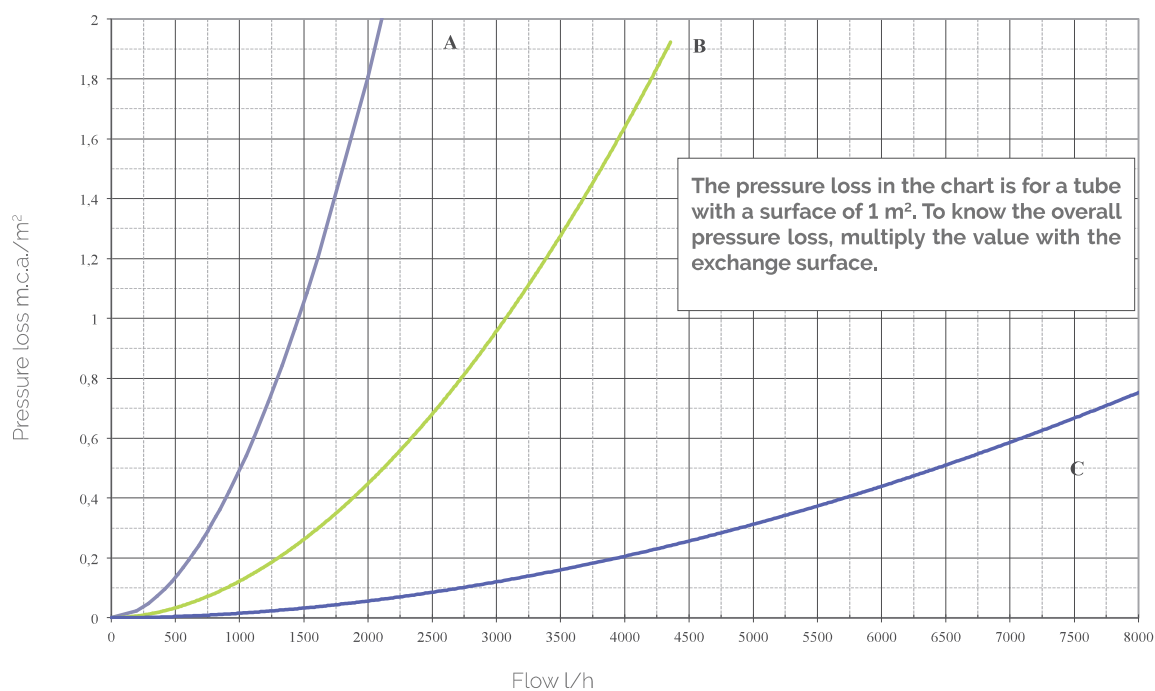
DHW production TiDHW = 10°C								Exchanger	
Capacity	Ti	TuDHW = 45°C		TuDHW = 60°C		Ta = 50°C TuDHW = 45°C	Ta = 60°C TuDHW = 45°C	Surface area	Nominal flow
L	°C	L/h (a)	kW (b)	L/h (c)	kW (d)	L/10 min. (e)	L/10 min. (f)	m²	mc/h
200	70	565	23	275	16	306	349	1,0	3,0
	80	761	31	430	25	339	382		
	90	884	36	516	30	360	402		
300	70	737	30	361	21	441	505	1,3	3,0
	80	982	40	550	32	482	546		
	90	1154	47	670	39	511	575		
500	70	1105	45	550	32	716	822	1,9	3,0
	80	1474	60	825	48	777	883		
	90	1744	71	1014	59	822	928		
600	70	1105	45	533	31	822	950	1,9	3,0
	80	1474	60	808	47	883	1011		
	90	1720	70	1014	59	924	1052		
800	70	1400	57	688	40	1084	1254	2,4	4,0
	80	1867	76	1032	60	1162	1332		
	90	2186	89	1290	75	1215	1385		
1000	70	1842	75	911	53	1370	1583	3,2	6,0
	80	2481	101	1376	80	1477	1690		
	90	2924	119	1720	100	1551	1763		
1500	70	2309	94	1135	66	1980	2299	4,0	6,0
	80	3120	127	1720	100	2115	2434		
	90	3661	149	2150	125	2205	2525		
2000	70	2801	114	1376	80	2594	3020	4,8	8,0
	80	3734	152	2064	120	2749	3175		
	90	4373	178	2562	149	2856	3282		
2500	70	3292	134	1634	95	3208	3740	5,6	8,0
	80	4398	179	2442	142	3392	3924		
	90	5160	210	3027	176	3519	4051		
3000	70	3734	152	1823	106	3813	4452	6,4	8,0
	80	4963	202	2752	160	4018	4656		
	90	5823	237	3440	200	4161	4800		

- a continuous DHW flow with TuDHW= 45°C
- b exchanger power with TuDHW=45°C
- c continuous DHW flow with TuDHW= 60°C
- d exchanger power with TuDHW=60°C
- e amount of DHW at 45°C in the first 10 min. with a storage temperature of 50°C
- f amount of DHW at 45°C in the first 10 min. with a storage temperature of 60°C
- Exchanger capacity: 7.10 Lt/mq

Technical information for SMART INOX 1 series



Pressure loss fixed heat exchanger



A) 200 l tank B) 300 - 600 l tank C) 800 - 3000 l tank

Stainless steel water heater with fixed heat exchanger - SMART INOX 2

The SMART INOX 2 range consists of water heaters for the production of domestic hot water with a double fixed heat exchanger. They are available in several capacities, from 200 up to 3000 litres and have different insulation with respect to capacity (see chart below) and coated externally in PVC and equipped with a magnesium anode for the protection against galvanic currents, an inspection flange for the easy access during the inspection and maintenance phase.

Material: AISI 316 stainless steel

Treatment for internal protection: Pickling and passivation

Insulation

Capacity (l)	Type
from 200 to 3,000	Polyester Fiber

Operational limits

Storage		Primary circuit	
max. temperature	max. pressure	max. temperature	max. pressure
95°C	6 bar	95°C	16 bar



Supplied accessories: Magnesium sacrificial anode for all sizes.



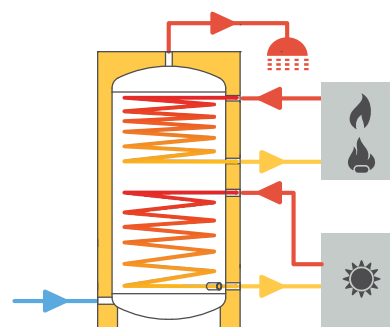
Standard accessories: see pag 274



Special versions: see pag 277



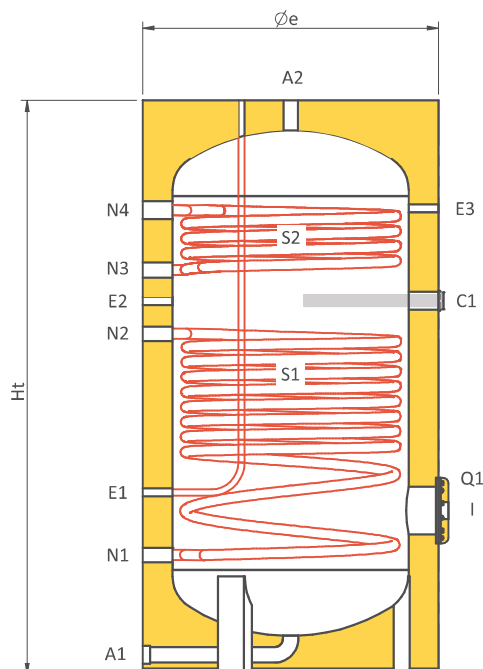
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Capacity l	Code	Price	Energy label	With vertical packaging Dimensions cm
200	819040068X		B	70x70x165
300	819040069X		C	80x80x168
500	819040071X		C	90x90x210
800	819040072X		C	105x105x209
1000	819040073X		C	105x105x235
1500	819040074X		C	130x130x237
2000	819040075X		C	160x160x245
2500	819040102X			160x160x299
3000	819040103X			160x160x299

Stainless steel water heater with fixed heat exchanger - SMART INOX 2

200 ≤ cap. ≤ 3.000



Couplings legend

A1	DHW inlet
A2	DHW outlet
C1	Anode
E1	Probe / Thermometer
E2	Probe / Thermometer
E3	Probe / Thermometer
F	Recirculation
I	Electrical resistor
N1	Lower exchanger outlet
N2	Lower exchanger inlet
N3	Upper exchanger outlet
N4	Upper exchanger inlet
Q1	Inspection hole
S1	Lower exchanger
S2	Upper exchanger

Couplings chart

Cap. l	A1 inch	A2 inch	C1 inch	E1 mm	E2 inch	E3 inch	I inch	N1 inch	N2 inch	N3 inch	N4 inch	Q1 (Øext/Øint) mm
200	1"	1"	1 1/4"	Ø21,3	1/2"	1/2"	1 1/2"	3/4"	3/4"	3/4"	3/4"	Ø220/Ø130
300	1"	1"	1 1/4"	Ø21,3	1/2"	1/2"	1 1/2"	1"	1"	1"	1"	Ø220/Ø130
500	1"	1"	1 1/4"	Ø21,3	1/2"	1/2"	1 1/2"	1"	1"	1"	1"	Ø220/Ø130
800	1 1/4"	1 1/4"	1 1/4"	Ø21,3	1/2"	1/2"	1 1/2"	1 1/4"	1 1/4"	1 1/4"	1 1/4"	Ø220/Ø130
1000	1 1/4"	1 1/4"	1 1/4"	Ø21,3	1/2"	1/2"	1 1/2"	1 1/4"	1 1/4"	1 1/4"	1 1/4"	Ø220/Ø130
1500	1 1/2"	1 1/2"	1 1/4"	Ø21,3	1/2"	1/2"	1 1/2"	1 1/4"	1 1/4"	1 1/4"	1 1/4"	Ø300/Ø220
2000	1 1/2"	1 1/2"	1 1/4"	Ø21,3	1/2"	1/2"	1 1/2"	1 1/4"	1 1/4"	1 1/4"	1 1/4"	Ø300/Ø220
2500	1 1/2"	1 1/2"	1 1/4"	Ø21,3	1/2"	1/2"	1 1/2"	1 1/4"	1 1/4"	1 1/4"	1 1/4"	Ø300/Ø220
3000	1 1/2"	1 1/2"	1 1/4"	Ø21,3	1/2"	1/2"	1 1/2"	1 1/4"	1 1/4"	1 1/4"	1 1/4"	Ø300/Ø220

Size chart

Cap. l	Øe mm	Ht mm	R' mm	C1 mm	E1 mm	E2 mm	E3 mm	I mm	N1 mm	N2 mm	N3 mm	N4 mm	Q1** mm
200	650	1470	1610	870	425	870	1195	385	265	770	990	1170	385
300	750	1510	1690	965	445	965	1215	405	285	790	1040	1190	405
500	800	1950	2110	1060	420	1050	1685	380	260	885	1445	1670	380
800	990	1940	2200	1185	545	1185	1555	505	395	1005	1360	1540	505
1000	1000	2210	2445	1335	555	1335	1815	515	405	1155	1560	1800	515
1500	1250	2225	2545	1315	565	1295	1815	545	415	1115	1505	1765	545
2000	1450	2305	2715	1300	600	1300	1850	580	450	1145	1560	1820	580
2500	1400	2530	2930	1450	600	1450	2100	580	450	1300	1750	2050	580
3000	1450	2800	3190	1645	615	1345	2365	595	465	1265	2060	2365	595

R*: reversal quota

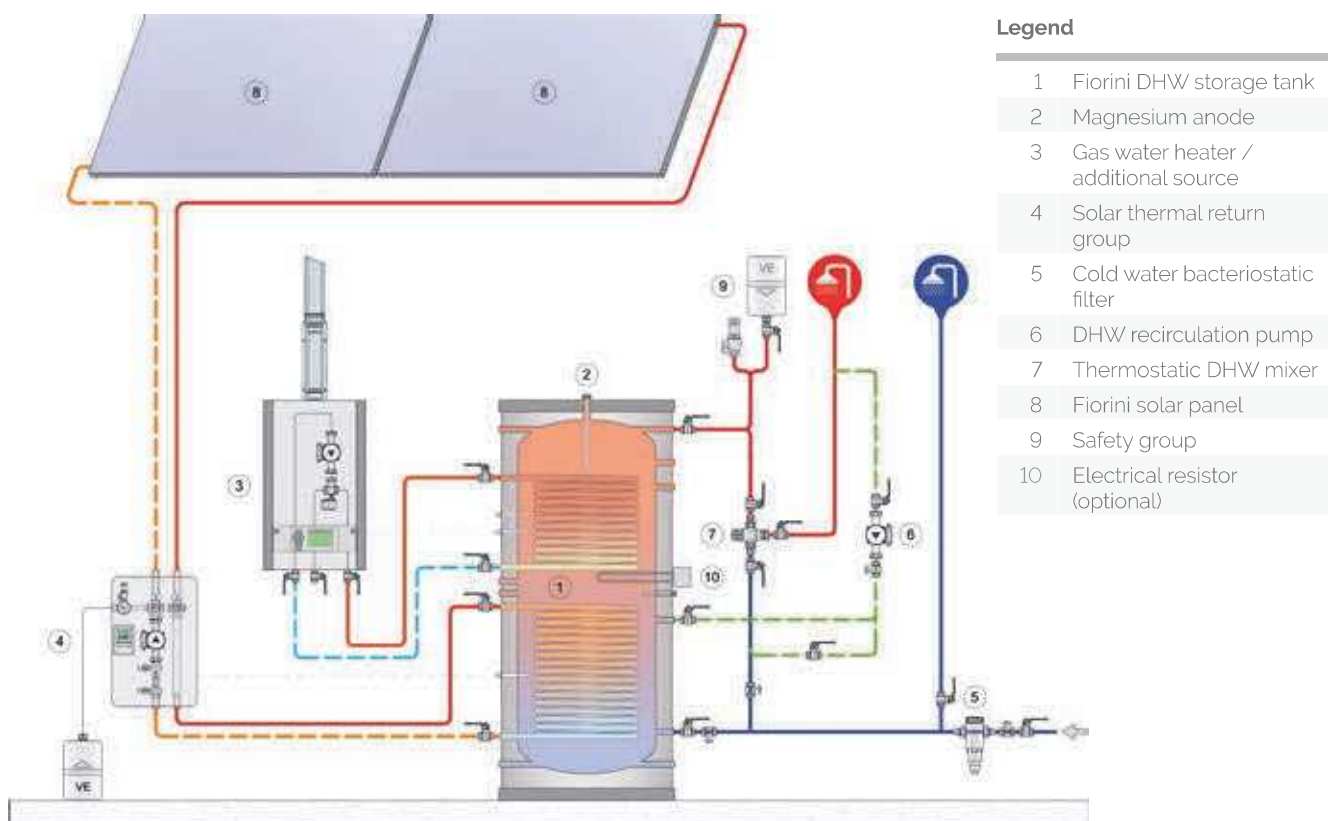
Q1**: Height from inspection hole center to the ground

Technical information for SMART INOX 2 series

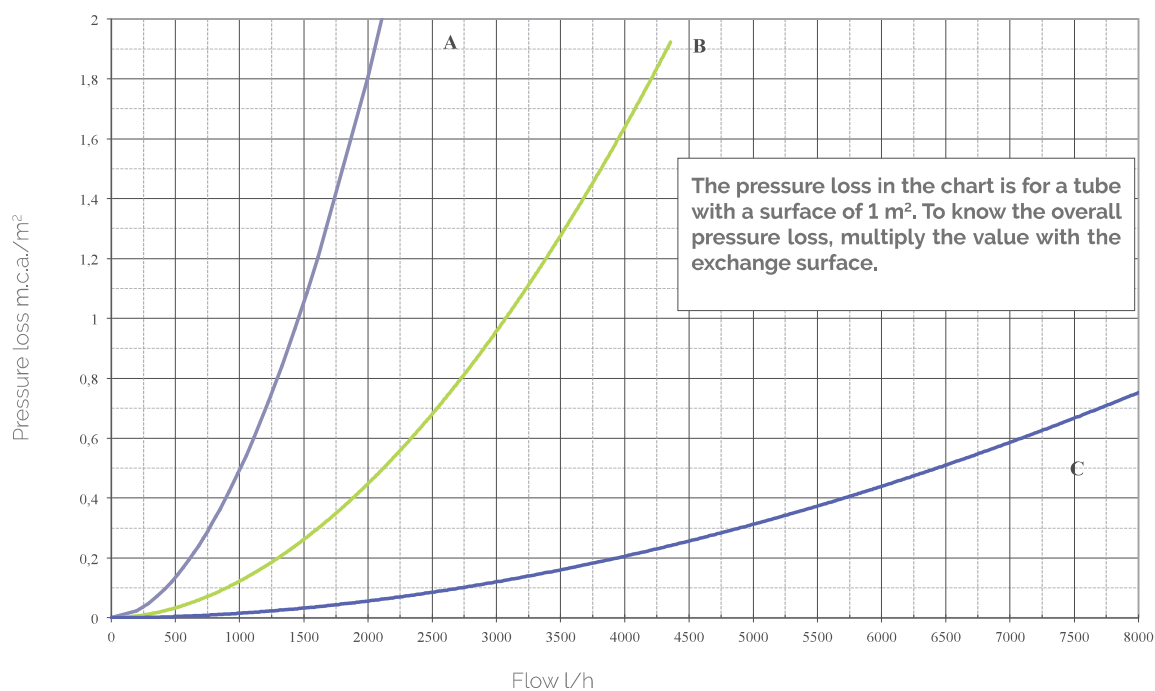
Capacity	Ti	DHW production TiDHW = 10°C						Upper exchanger	Lower exchanger	Nominal flow
		TuDHW= 45°C		TuDHW = 60°C		Ta = 50°C TuDHW = 45°C	Ta = 60°C TuDHW = 45°C	Surface area	Surface area	
		L/h (a)	kW (b)	L/h (c)	kW (d)	L/10 min. (e)	L/10 min. (f)	m²	m²	mc/h
200	70	270	11	137	8	257	300	0,5	1,0	3,0
	80	368	15	206	12	274	316			
	90	442	18	258	15	286	328			
300	70	344	14	154	9	376	440	0,6	1,3	3,0
	80	442	18	258	15	392	456			
	90	516	21	309	18	405	468			
500	70	589	24	292	17	630	736	1,0	1,9	3,0
	80	786	32	430	25	662	769			
	90	909	37	533	31	683	789			
600	70	565	23	275	16	732	860	1,0	1,9	3,0
	80	761	31	430	25	765	892			
	90	909	37	533	31	789	917			
800	70	688	28	344	20	965	1135	1,2	2,4	4,0
	80	933	38	516	30	1006	1176			
	90	1081	44	636	37	1031	1201			
1000	70	688	28	344	20	1178	1391	1,2	3,2	6,0
	80	933	38	516	30	1219	1432			
	90	1081	44	636	37	1243	1456			
1500	70	909	37	447	26	1747	2066	1,6	4,0	6,0
	80	1228	50	688	40	1800	2119			
	90	1449	59	860	50	1837	2156			
2000	70	1154	47	567	33	2319	2745	2,0	4,8	8,0
	80	1548	63	860	50	2385	2811			
	90	1818	74	1066	62	2430	2856			
2500	70	1400	57	688	40	2892	3424	2,4	5,6	8,0
	80	1867	76	1049	61	2970	3502			
	90	2211	90	1290	75	3028	3559			
3000	70	1400	57	688	40	3424	4063	2,4	6,4	8,0
	80	1867	76	1032	60	3502	4140			
	90	2186	89	1290	75	3555	4194			

- a continuous DHW flow with TuDHW= 45°C
- b exchanger power with TuDHW=45°C
- c continuous DHW flow with TuDHW= 60°C
- d exchanger power with TuDHW=60°C
- e amount of DHW at 45°C in the first 10 min. with a storage temperature of 50°C
- f amount of DHW at 45°C in the first 10 min. with a storage temperature of 60°C
- Exchanger capacity: 7.10 Lt/mq

Technical information for SMART INOX 2 series



Pressure loss fixed heat exchanger



A) 200 l tank B) 300 - 600 l tank C) 800 - 3000 l tank

Enamelled interspace tanks

The interspace tanks are intended for the production of domestic hot water. The heat exchange takes place through the outer mantle of the tank to which a cavity adheres, in which water from the boiler flows. The high exchange area ensures:

- efficient operation,
- high power exchanged,
- uniform distribution of the temperature of the sanitary water,
- reduced heat dispersion from the sanitary water.

The tank can be installed on the wall in a horizontal or vertical position.



Material: S235 JR steel

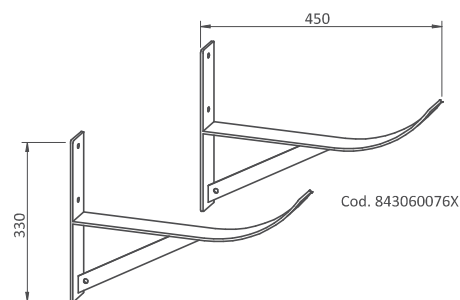
Mounting brackets NOT included

Insulation

Capacity (l)	Type
100, 140	Highly rigid polyurethane foam

Limite di utilizzo

Capacity l	Storage		Interspace	
	Temperature max.	Pressure max.	Temperature max.	Pressure max.
100	95°C	6 bar	99°C	2 bar
140	95°C	10 bar	99°C	2 bar

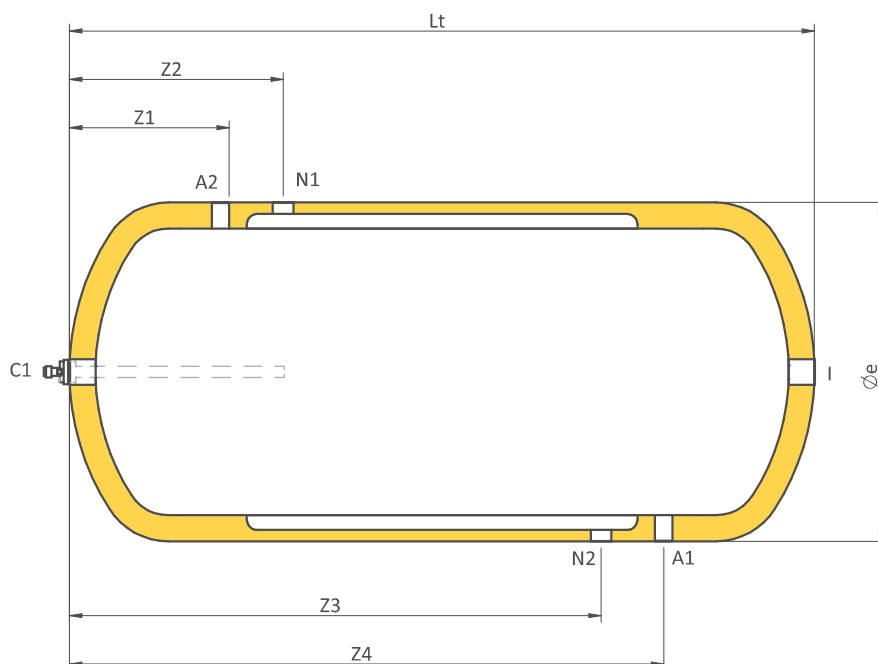
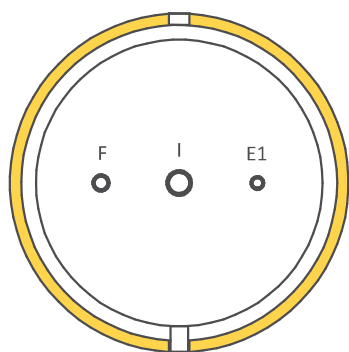


Assembly brackets required
(NOT INCLUDED - to be ordered separately)

Cod.	Price
843090076X	

Cap. l	Cod.	Price	Energy class	Weight kg
100	836060001X			47
140	836060002X			65

Enamelled interspace tanks



Couplings legend

A1	DHW inlet
A2	DHW outlet
C1	Anode
E1	Probe / Thermometer
F	Recirculation
I	Electrical resistor
N1	Exchanger outlet
N2	Exchanger inlet

Couplings chart

Cap. l	A1 inch	A2 inch	C1 inch	C2 mm	E1 inch	F inch	I inch	N1 inch	N2 inch
100	3/4"	3/4"	1 1/4"	1 1/4"	1/2"	3/4"	1 1/4"	1"	1"
140	3/4"	3/4"	1 1/4"	1 1/4"	1/2"	3/4"	1 1/4"	1"	1"

Size chart

Cap. l	Øe mm	Lt mm	Z1 mm	Z2 mm	Z3 mm	Z4 mm
100	670	1100	170	265	710	815
140	670	1590	170	265	965	1070

Water heater with tube heat exchanger – BOIL

The BOIL range consists of water heaters with a tube heat exchanger for the production of domestic hot water. There are several capacities, from 200 up to 5000 litres. They are equipped, depending on the capacity, insulation (see chart below), an external cover in PVC and a magnesium anode for the protection against galvanic currents.

Materials

The boilers are made from high quality materials such as:

- Tank: carbon steel S 235 JR
- Tube heat exchanger: galvanized stainless steel AISI 304
- Exchanger head: galvanized carbon steel S 235 JR

Internal protective treatment


- up to 1000 litres inorganic **glass lining**, according to DIN 4753.3
- from 1500 litres **Bluetech enamelling** with thermosetting resins, suitable for DHW

Insulation

Capacity (l)	Type
200, 300	Highly rigid polyurethane foam
from 500 to 1000	Polystyrene Graphite + Polyester Fiber
from 1500	Polyester Fiber


Operational limits

Capacity l	Storage		Primary circuit	
	max. temperature	max. pressure	max. temperature	max. pressure
up to 1000	95°C	10 bar	110°C	12 bar
from 1500	80°C	6 bar	110°C	12 bar

 **Supplied accessories:** Adjustable height feet for sizes up to 500 l, safety valve and thermometer for sizes up to 1000 l, magnesium sacrificial anode for all sizes.

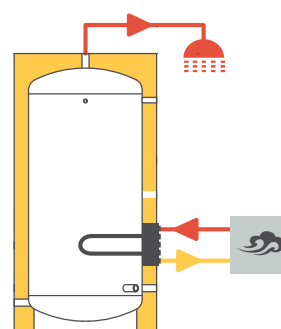
 **Standard accessories:** see pag 274

 **Special versions:** see pag 277

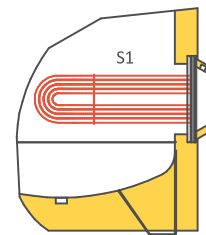
Capacity l	Code	Price	Energy label	With vertical packaging	
				Dimensions cm	Weight kg
200	818060068X			75x75x125	101
300	818060069X			75x75x150	113
500	818060070X			80x80x209	148
750	818060071X			99x99x199	283
1000	818060072X			99x99x230	322
1500	818080375X			123x123x240	262
2000	818080361X			132x132x275	324
2500	818080362X			147x147x277,5	368
3000	818080363X			147x147x299	409
4000	818080364X			163x163x306	582
5000	818080365X			183x183x310	687



TESTED



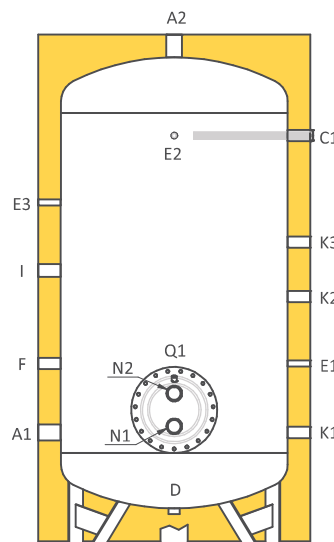
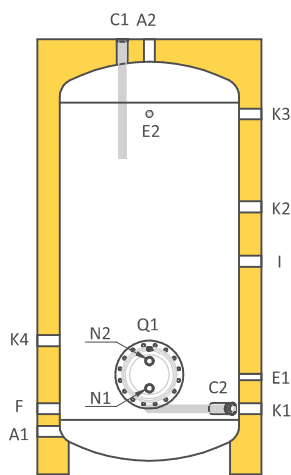
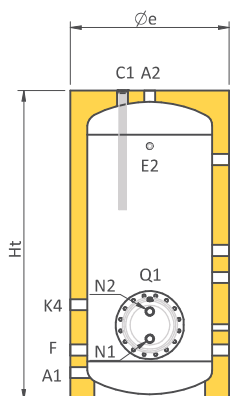
Water heater with tube heat exchanger – BOIL



200 ≤ cap. ≤ 300

500 ≤ cap. ≤ 1.000

1.500 ≤ cap. ≤ 5.000



Couplings legend

A1	DHW inlet
A2	DHW outlet
C1	Anode
C2	Anode
D	Drain
E1	Probe / Thermometer
E2	Probe / Thermometer
E3	Probe / Thermometer
F	Recirculation
I	Electrical resistor
K1	Auxiliary
K2	Auxiliary
K3	Auxiliary
K4	Auxiliary
N1	Lower exchanger outlet
N2	Lower exchanger inlet
Q1	Inspection hole
S1	Lower exchanger

Couplings chart

Cap. l	A1 inch	A2 inch	C1 inch	C2 inch	D inch	E1 inch	E2 inch	E3 inch	F inch	I inch	K1 inch	K2 inch	K3 inch	K4 inch	N1 inch	N2 inch	Q1 (Øext/Øint) mm
200	1 1/4	1 1/4	1 1/4	-	-	1/2"	1/2"	-	1 1/4	1 1/2	1 1/4	1 1/4	1 1/4	1 1/4	1"	1"	Ø300/Ø220
300	1 1/4	1 1/4	1 1/4	-	-	1/2"	1/2"	-	1 1/4	1 1/2	1 1/4	1 1/4	1 1/4	1 1/4	1"	1"	Ø300/Ø220
500	1 1/4	1 1/4	1 1/4	1 1/4	-	1/2"	1/2"	-	1 1/4	1 1/2	1 1/4	1 1/4	1 1/4	1 1/4	1"	1"	Ø300/Ø220
750	1 1/4	1 1/4	1 1/4	1 1/4	-	1/2"	1/2"	-	1 1/4	1 1/2	1 1/4	1 1/4	1 1/4	1 1/4	2"	2"	Ø380/Ø300
1000	1 1/4	1 1/4	1 1/4	1 1/4	-	1/2"	1/2"	-	1 1/4	1 1/2	1 1/4	1 1/4	1 1/4	1 1/4	2"	2"	Ø380/Ø300
1500	2"	2"	1 1/4	-	1 1/4	1/2"	1/2"	1/2"	1 1/4	1 1/2	1 1/4	1 1/4	1 1/4	-	2"	2"	Ø380/Ø300
2000	2"	2"	1 1/4	-	1 1/4	1/2"	1/2"	1/2"	1 1/4	1 1/2	1 1/4	1 1/4	1 1/4	-	2"	2"	Ø430/Ø350
2500	2 1/2	2 1/2	1 1/4	-	1 1/4	1/2"	1/2"	1/2"	1 1/4	1 1/2	1 1/4	1 1/4	1 1/4	-	2"	2"	Ø430/Ø350
3000	3"	3"	1 1/4	-	1 1/4	1/2"	1/2"	1/2"	1 1/4	1 1/2	1 1/4	1 1/4	1 1/4	-	2"	2"	Ø430/Ø350
4000	3"	3"	1 1/4	-	1 1/4	1/2"	1/2"	1/2"	1 1/4	1 1/2	1 1/4	1 1/4	1 1/4	-	2"	2"	Ø430/Ø350
5000	3"	3"	1 1/4	-	1 1/4	1/2"	1/2"	1/2"	1 1/4	1 1/2	1 1/4	1 1/4	1 1/4	-	2"	2"	Ø430/Ø350

Size chart

Cap. l	Øe mm	Ht mm	R* mm	A1 mm	C1 mm	C2 mm	D mm	E1 mm	E2 mm	E3 mm	F mm	I mm	K1 mm	K2 mm	K3 mm	K4 mm	N1 mm	N2 mm	Q1** mm
200	700	1100	1305	130	1100	-	-	320	855	-	220	540	130	660	970	420	270	390	330
300	700	1340	1515	130	1340	-	-	320	1120	-	220	540	220	660	1060	420	370	390	330
500	760	1920	2065	150	1920	250	-	380	1640	-	250	945	250	1090	1640	480	330	450	360
750	950	1970	2190	210	1970	310	-	460	1610	-	310	960	310	1150	1610	610	387,5	532,5	460
1000	950	2280	2470	210	2280	310	-	460	1910	-	310	915	310	1150	1910	610	387,5	532,5	460
1500	1250	2280	2600	500	1810	-	165	805	1810	1515	805	1215	500	1100	1340	-	527,5	672,5	600
2000	1350	2600	2930	505	2115	-	155	805	2115	1805	805	1505	505	1105	1345	-	525	715	620
2500	1400	2655	3000	565	2150	-	175	865	2150	1850	850	1550	565	1165	1405	-	585	775	680
3000	1450	2870	3215	575	2350	-	180	800	2350	2050	850	1750	575	1050	1415	-	595	785	690
4000	1600	2940	3350	600	2380	-	160	900	2380	2080	870	1780	600	1200	1440	-	620	810	715
5000	1800	2980	3480	610	2385	-	140	910	2385	2085	885	1785	610	1210	1450	-	630	820	725

R*: reversal quota

Q1**: Height from inspection hole center to the ground

Water heater with tube heat exchanger

BOIL INOX

The BOIL INOX range consists of water heaters with tube heat exchanger for the production of domestic hot water. They are available in several capacities, from 200 up to 5000 litres and equipped with different type of insulation (see chart below), external cover in PVC and a magnesium anode for protection against galvanic currents.

Materials

The boilers are made from high quality materials such as:

- Tank: AISI 316 stainless steel
- Tube heat exchanger: AISI 316 stainless steel
- Exchanger head: galvanized carbon steel S235 JR

Treatment for internal protection: Pickling and passivation

Insulation

Capacity (l)	Type
from 200 to 5000	Polyester Fiber

Operational limits

Storage		Primary circuit	
max. temperature	max. pressure	max. temperature	max. pressure
95°C	6 bar	110°C	12 bar

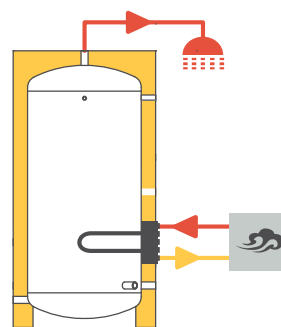
 **Supplied accessories:** Magnesium sacrificial anode for all sizes.








 **Standard accessories:** see pag 274

 **Special versions:** see pag 277



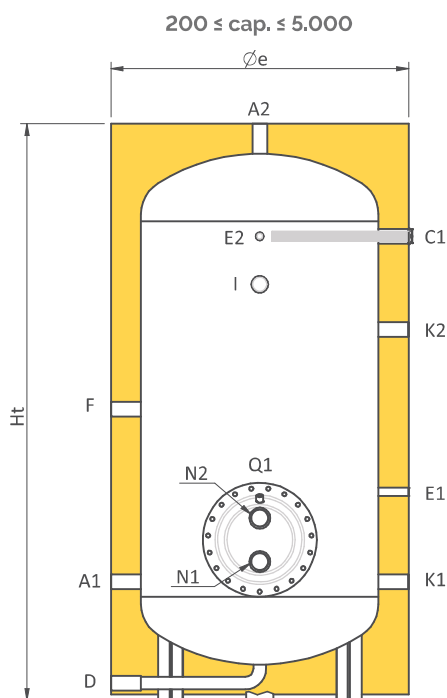
TESTED



Capacity l	Code	Price	Energy label	With vertical packaging Dimensions cm
200	818040067X			68x68x159
300	818040068X			78x78x163
500	818040069X			83x83x207
800	818040070X			102x102x204
1000	818040071X			103x103x231
1500	818040072X			123x123x232
2000	818040073X			143x143x240
2500	818040074X			143x143x265
3000	818040075X			148x148x292
4000	818040076X			163x163x300
5000	818040077X			183x183x303

Water heater with tube heat exchanger

BOIL INOX



Couplings legend

A1	DHW inlet
A2	DHW outlet
C1	Anode
D	Drain
E1	Probe / Thermometer
E2	Probe / Thermometer
F	Recirculation
I	Electrical resistor
K1	Auxiliary
K2	Auxiliary
N1	Lower exchanger outlet
N2	Lower exchanger inlet
Q1	Inspection hole
S1	Lower exchanger

Couplings chart

Cap. l	A1 inch	A2 inch	C1 inch	D inch	E1 inch	E2 inch	F inch	I inch	K1 inch	K2 inch	N1 inch	N2 inch	Q1 (Øext/Øint) mm
200	1"	1"	1 1/4"	1"	1/2"	1/2"	1"	1 1/2"	1 1/4"	1 1/4"	1"	1"	Ø300/Ø220
300	1"	1"	1 1/4"	1"	1/2"	1/2"	1"	1 1/2"	1 1/4"	1 1/4"	1"	1"	Ø300/Ø220
500	1"	1"	1 1/4"	1"	1/2"	1/2"	1"	1 1/2"	1 1/4"	1 1/4"	1"	1"	Ø300/Ø220
800	1 1/4"	1 1/4"	1 1/4"	1 1/4"	1/2"	1/2"	1 1/4"	1 1/2"	1 1/4"	1 1/4"	2"	2"	Ø380/Ø300
1000	1 1/4"	1 1/4"	1 1/4"	1 1/4"	1/2"	1/2"	1 1/4"	1 1/2"	1 1/4"	1 1/4"	2"	2"	Ø380/Ø300
1500	1 1/2"	1 1/2"	1 1/4"	1 1/2"	1/2"	1/2"	1 1/4"	1 1/2"	1 1/4"	1 1/4"	2"	2"	Ø380/Ø300
2000	2"	2"	1 1/4"	2"	1/2"	1/2"	1 1/4"	1 1/2"	1 1/4"	1 1/4"	2"	2"	Ø430/Ø350
2500	2"	2"	1 1/4"	2"	1/2"	1/2"	1 1/4"	1 1/2"	1 1/4"	1 1/4"	2"	2"	Ø430/Ø350
3000	2"	2"	1 1/4"	2"	1/2"	1/2"	1 1/4"	1 1/2"	1 1/4"	1 1/4"	2"	2"	Ø430/Ø350
4000	2 1/2"	2 1/2"	1 1/4"	2 1/2"	1/2"	1/2"	1 1/4"	1 1/2"	1 1/4"	1 1/4"	2"	2"	Ø430/Ø350
5000	2 1/2"	2 1/2"	1 1/4"	2 1/2"	1/2"	1/2"	1 1/4"	1 1/2"	1 1/4"	1 1/4"	2"	2"	Ø430/Ø350

Size chart

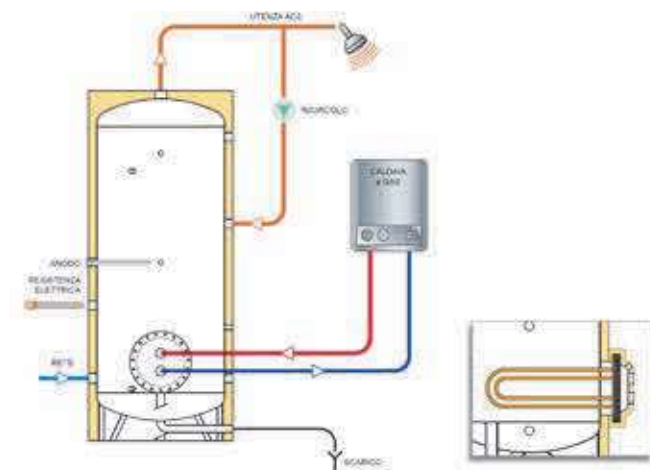
Cap. l	Øe mm	Ht mm	R* mm	A1 mm	C1 mm	E1 mm	E2 mm	F mm	I mm	K1 mm	K2 mm	N1 mm	N2 mm	Q1** mm
200	650	1470	1610	275	1115	575	1115	725	915	275	915	315	435	375
300	750	1510	1690	295	1135	595	1135	745	965	295	965	335	455	395
500	800	1950	2110	270	1670	570	1670	970	1410	270	1110	310	430	370
800	1030	1940	2200	395	1545	695	1545	970	1385	395	1235	462,5	607,5	535
1000	1040	2210	2445	405	1805	705	1805	1105	1445	405	1245	472,5	617,5	545
1500	1250	2225	2555	425	1815	725	1815	1115	1455	425	1265	482,5	627,5	555
2000	1450	2305	2725	460	1850	760	1850	1150	1490	460	1300	520	710	615
2500	1400	2530	2895	460	2100	760	2100	1275	1600	460	1300	520	710	615
3000	1450	2800	3155	475	2365	775	2365	1415	1645	475	1315	535	725	630
4000	1600	2880	3295	530	2400	830	2400	1450	1680	530	1370	570	760	665
5000	1800	2910	3425	530	2400	830	2400	1450	1680	530	1370	570	760	665

R*: reversal quota

Q1**: Height from inspection hole center to the ground

Technical information for BOIL and BOIL INOX series

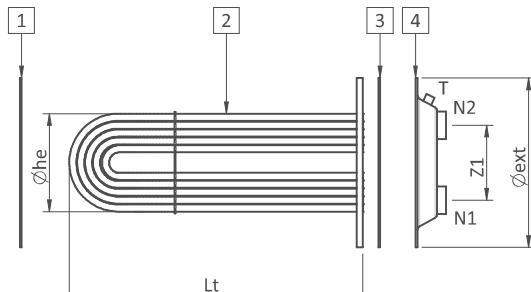
DHW production TiDHW = 10°C								Exchanger		
Capacity	Ti	TuDHW= 45°C		TuDHW = 60°C		Ta = 50°C TuDHW = 45°C	Ta = 60°C TuDHW = 45°C	Surface area	Capacity	Nominal flow
l	°C	L/h (a)	kW (b)	L/h (c)	kW (d)	L/10 min. (e)	L/10 min. (f)	m²	l	mc/h
200	70	241	9,8	119	4,9	258	315	0,5	2	0,5
	80	300	12,2	169	6,9	266	323			0,6
	90	362	14,7	214	8,7	273	330			0,7
300	70	364	14,8	181	7,4	384	470	0,75	2,8	0,7
	80	453	18,4	252	10,3	395	480			0,8
	90	544	22,1	322	13,1	405	491			1
500	70	482	19,6	240	9,8	620	763	1	3,6	0,9
	80	602	24,5	336	13,7	632	775			1,1
	90	580	23,6	343	14	644	787			1,1
800	70	723	29,4	358	14,6	983	1212	1,5	5,9	1,3
	80	902	36,7	506	20,6	1001	1229			1,6
	90	1084	44,1	642	26,2	1018	1247			1,9
1000	70	964	39,2	480	19,6	1224	1510	2	7,2	1,7
	80	1204	49	675	27,5	1245	1531			2,2
	90	1445	58,8	857	34,9	1266	1552			2,6
1500	70	1445	58,8	728	29,7	1837	2266	3	10,9	2,6
	80	1806	73,5	1020	41,6	1869	2297			3,2
	90	2168	88,2	1292	52,6	1899	2328			3,8
2000	70	1927	78,4	976	39,8	2421	2992	4	14,7	3,4
	80	2408	98	1368	55,7	2454	3026			4,3
	90	2890	117,6	1731	70,5	2488	3059			5,1
2500	70	2408	98	1232	50,2	3014	3728	5	18,5	4,3
	80	3010	122,5	1722	70,1	3053	3767			5,3
	90	3612	147	2178	88,7	3091	3805			6,4
3000	70	2890	117,6	1478	60,2	3577	4434	6	22	5,1
	80	3612	147	2066	84,1	3614	4471			6,4
	90	4335	176,4	2613	106,4	3650	4507			7,6
4000	70	3853	156,8	2020	82,3	4775	5918	8	30,1	6,8
	80	4816	196	2802	114,1	4824	5967			8,5
	90	5780	235,2	3530	143,7	4872	6015			10,2
5000	70	4816	196	2978	121,2	5938	7366	10	36,4	8,5
	80	6020	245	4099	166,9	5990	7419			10,6
	90	7224	294	5138	209,2	6042	7470			12,7



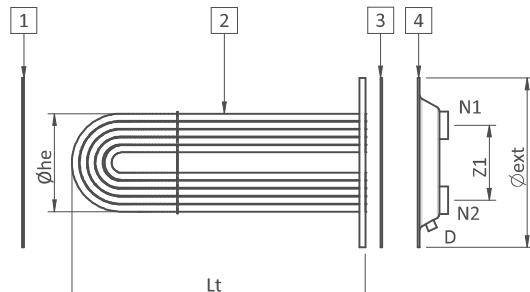
- a continuous DHW flow with TuDHW= 45°C
- b exchanger power with TuDHW=45°C
- c continuous DHW flow with TuDHW= 60°C
- d exchanger power with TuDHW=60°C
- e amount of DHW at 45°C in the first 10 min, with a storage temperature of 50°C
- f amount of DHW at 45°C in the first 10 min, with a storage temperature of 60°C
- Exchanger capacity: 7,10 Lt/mq

Technical information for BOIL and BOIL INOX series

Water only



Steam only

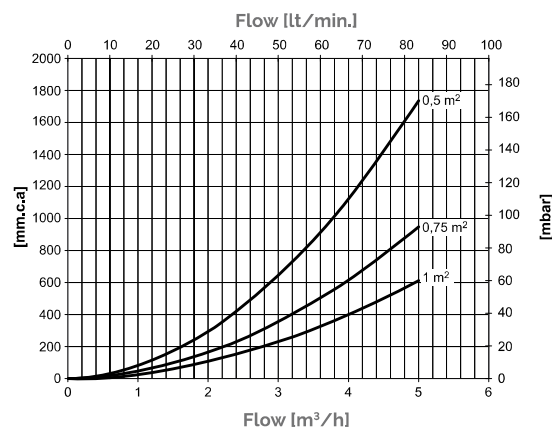


Couplings legend

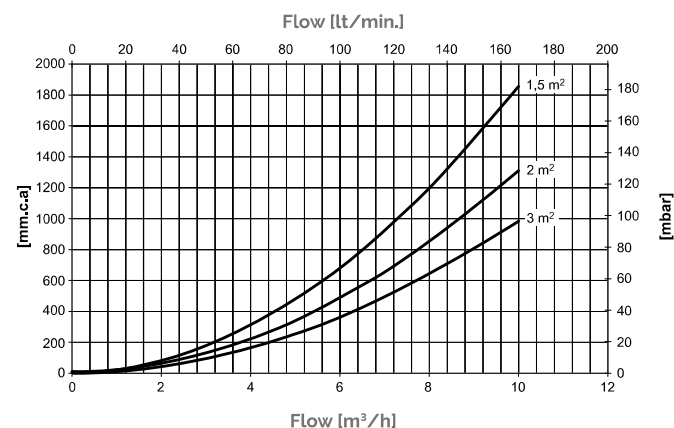
D	Drain
N1	Exchanger inlet/outlet
N2	Exchanger inlet/outlet
T	Vent
1	Gasket without cross-beam
2	Bundle tube heat exchangers
3	Gasket with cross-beam
4	Head

Pressure loss tube heat exchanger

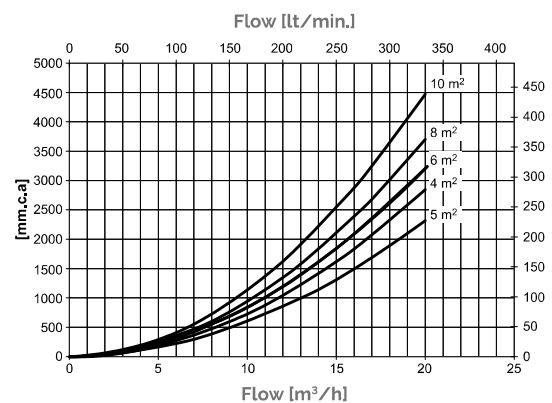
Exchanger surface 0,5 - 1 m²



Exchanger surface 1,5 - 3 m²



Exchanger surface 5 - 10 m²



Technical information tube heat exchanger

Surf. m²	Power* kW	Lt mm	Øext mm	Øhe mm	N1 inch	N2 inch	Z1 mm	Volume l	dp mca
0,5	12,2	460	300	166	1"	1"	120	1,84	0,65
0,75	18,4	445	300	202	1"	1"	120	2,44	0,65
1	24,5	475	300	202	1"	1"	120	3,23	0,7
1,5	36,7	600	380	270	2"	2"	145	5,36	0,75
2	49	600	380	270	2"	2"	145	6,51	0,8
3	73,5	720	380	278	2"	2"	145	9,8	0,9
4	98	750	430	316	2"	2"	190	13,2	1
5	122,5	780	430	324	2"	2"	190	16,68	1,1
6	147	895	430	324	2"	2"	190	19,2	1,2
8	196	1250	430	324	2"	2"	190	27	1,3
10	245	1510	430	324	2"	2"	190	32,7	1,4

Customized water heater with removable exchanger

The concept of the Boil custom range has been introduced to give the user the possibility of composing their own system for domestic hot water production by coupling it with several types of storage tanks and exchangers. This enables the conception of flexible solutions for every type of storage tank, volume or power of the exchanger.



The option with one hole makes it possible to couple the storage tanks listed below with a tube heat exchanger or an exchanger with copper spiral. The following pages discuss the possible combinations.

Storage tanks with one inspection hole. Available options:

FLEXY glass lined version (see pag. 138)

FLEXY INOX version in AISI 316 stainless steel (see pag. 140)



FLEXY



FLEXY INOX

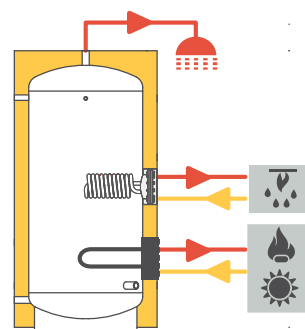
❖ how to compose a Boil custom

- 1) take the code of the Flexy storage tank with inspection hole
 2. Add the code of the exchanger
- You can choose between the following:
- Tube heat exchanger (see pag. 183)
 - Exchanger with copper spiral (see pag. 184)

BOIL CUSTOM CODE =
Storage tank code +
exchanger code

Customized water heater with removable exchanger

The concept of the Boil custom range has been introduced to give the user the possibility of composing their own system for domestic hot water production by coupling it with several types of storage tanks and exchangers. This enables the conception of flexible solutions for every type of storage tank, volume or power of the exchanger.



TESTED

Features

Material S 235 JR carbon steel

Internal protective treatment:

Bluetech enamelling with thermosetting resins, suited for domestic water

Supplied accessories: magnesium sacrificial anode for all sizes.

Standard accessories: see pag 274

Special versions: see pag 277

Operational limits

max. temperature	max. pressure
80°C	6 bar

Insulation

Capacity (l)	Type
from 200 to 5000	Polyester Fiber

The option with two inspection holes makes it possible to couple the storage tank with:

- ✓ Two tube heat exchangers
- ✓ Two exchangers with a copper spiral
- ✓ A tube heat exchanger and an exchanger with a copper spiral
- ✓ One of the two heat exchangers and a blind plate that guarantees an easy inspection.

Codes and prices of the tanks with two inspection holes

With vertical packaging					
Capacity l	Code	Price	Energy label	Dimensions cm	Weight kg
200	817080134X		B	68x68x155,5	55
300	817080135X		A	78x78x164	80
500	817080136X		B	88x88x192,5	105
750	817080191X		C	99x99x199	160
1000	817080138X		D	99x99x230	180
1500	817080139X		C	123x123x237,5	230
2000	817080140X		C	132x132x269,5	280
2500	817080141X			147x147x277,5	315
3000	817080142X			147x147x299	350
4000	817080143X			163x163x306	505
5000	817080144X			183x183x310	595

❖ how to compose a Boil custom

1) take the code of the storage tank with two inspection holes

2) add the code of the exchanger

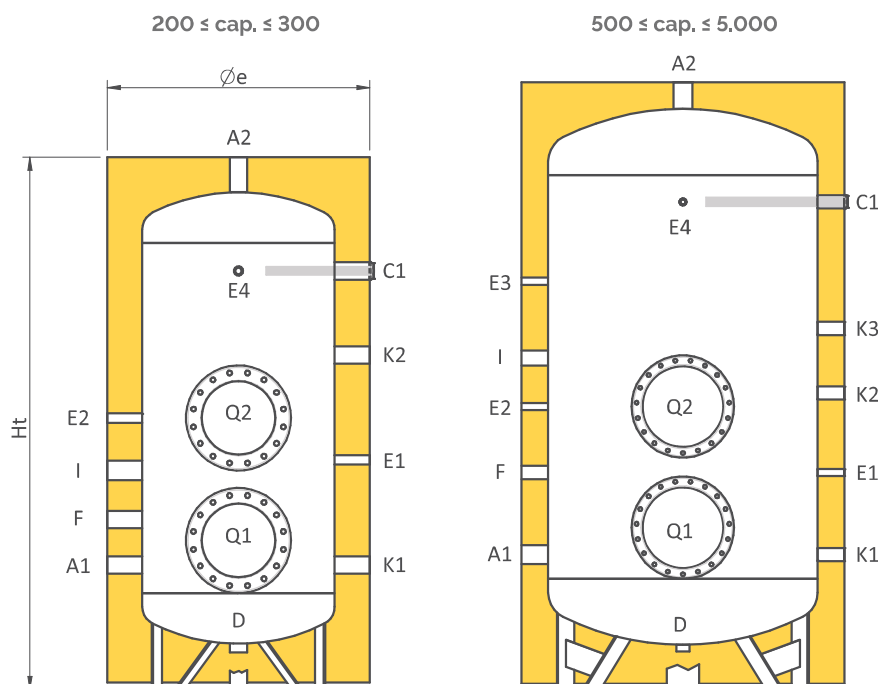
You can choose between

- tube heat exchanger (see pag. 183)

- heat exchanger with a copper spiral (see pag. 184)

Boil custom 2 inspection holes code =
code of storage tank +
code of exchanger

Customized water heater with removable exchanger – BOIL Custom – 2 inspection holes



Couplings legend

A1	DHW inlet
A2	DHW outlet
C1	Anode
D	Drain
E1	Probe / Thermometer
E2	Probe / Thermometer
E3	Probe / Thermometer
E4	Probe / Thermometer
F	Recirculation
I	Electrical resistor
K1	Auxiliary
K2	Auxiliary
K3	Auxiliary
Q1	Inspection hole
Q2	Inspection hole

Couplings chart

Cap. l	A1 inch	A2 inch	C1 inch	D inch	E1 inch	E2 inch	E3 inch	E4 inch	F inch	I inch	K1 inch	K2 inch	K3 inch	Q1 - Q2 (Øext/Øint) mm
200	1 1/4	1 1/4	1 1/4	1 1/4	1/2"	1/2"	-	1/2"	1 1/4	1 1/2	1 1/4	1 1/4	-	Ø300/Ø220
300	1 1/4	1 1/4	1 1/4	1 1/4	1/2"	1/2"	-	1/2"	1 1/4	1 1/2	1 1/4	1 1/4	-	Ø300/Ø220
500	1 1/4	1 1/4	1 1/4	1 1/4	1/2"	1/2"	1/2"	1/2"	1 1/4	1 1/2	1 1/4	1 1/4	1 1/4	Ø300/Ø220
750	1 1/2	1 1/2	1 1/4	1 1/4	1/2"	1/2"	1/2"	1/2"	1 1/4	1 1/2	1 1/4	1 1/4	1 1/4	Ø380/Ø300
1000	1 1/2	1 1/2	1 1/4	1 1/4	1/2"	1/2"	1/2"	1/2"	1 1/4	1 1/2	1 1/4	1 1/4	1 1/4	Ø380/Ø300
1500	2"	2"	1 1/4	1 1/4	1/2"	1/2"	1/2"	1/2"	1 1/4	1 1/2	1 1/4	1 1/4	1 1/4	Ø380/Ø300
2000	2"	2"	1 1/4	1 1/4	1/2"	1/2"	1/2"	1/2"	1 1/4	1 1/2	1 1/4	1 1/4	1 1/4	Ø430/Ø350
2500	2 1/2	2 1/2	1 1/4	1 1/4	1/2"	1/2"	1/2"	1/2"	1 1/4	1 1/2	1 1/4	1 1/4	1 1/4	Ø430/Ø350
3000	3"	3"	1 1/4	1 1/4	1/2"	1/2"	1/2"	1/2"	1 1/4	1 1/2	1 1/4	1 1/4	1 1/4	Ø430/Ø350
4000	3"	3"	1 1/4	1 1/4	1/2"	1/2"	1/2"	1/2"	1 1/4	1 1/2	1 1/4	1 1/4	1 1/4	Ø430/Ø350
5000	3"	3"	1 1/4	1 1/4	1/2"	1/2"	1/2"	1/2"	1 1/4	1 1/2	1 1/4	1 1/4	1 1/4	Ø430/Ø350

Size chart

Cap. l	Øe mm	Ht mm	R* mm	A1 mm	C1 mm	D mm	E1 mm	E2 mm	E3 mm	E4 mm	F mm	I mm	K1 mm	K2 mm	K3 mm	Q1** mm	Q2** mm
200	650	1435	1580	310	1150	125	620	730	-	1150	440	555	310	930	-	380	730
300	750	1520	1695	355	1195	130	655	775	-	1195	485	625	355	955	-	425	775
500	850	1805	2000	375	1445	135	675	795	1145	1445	675	960	375	975	1215	445	795
750	990	1840	2090	390	1470	130	710	980	1360	1470	710	1160	390	1010	1230	500	980
1000	1050	2120	2370	415	1675	120	715	985	1445	1675	745	1175	415	1015	1255	515	985
1500	1250	2280	2605	500	1810	165	805	1050	1515	1810	805	1230	500	1100	1340	600	1050
2000	1350	2600	2930	505	2115	155	805	1150	1805	2115	805	1505	505	1105	1345	620	1150
2500	1400	2655	3005	565	2150	175	865	1210	1850	1850	850	1550	565	1165	1405	680	1210
3000	1450	2870	3220	575	2350	180	800	1220	2050	2050	850	1750	575	1050	1415	690	1220
4000	1600	2940	3350	600	2380	160	900	1245	2080	2080	870	1780	600	1200	1440	715	1245
5000	1800	2980	3485	610	2385	140	910	1255	2085	2085	885	1785	610	1210	1450	725	1255

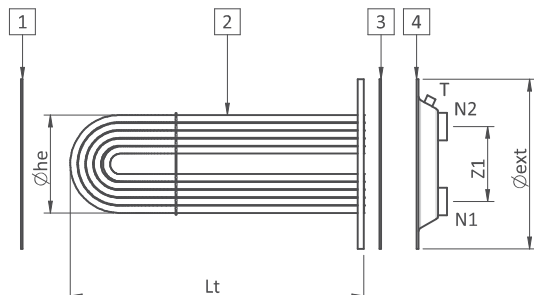
R*: reversal quota

**for the 200 and 300 L tanks, the anode is placed in the G2 coupling.

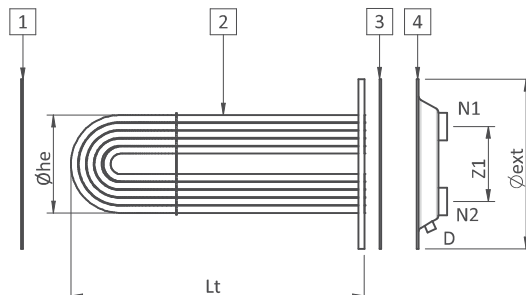
Q1 **/Q2 **: Height from inspection hole center to the ground

Bundle tube heat exchanger

Water only

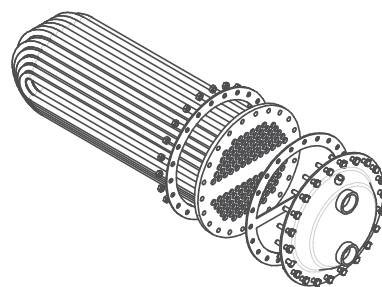


Steam only



Couplings legend

D	Drain
N1	Exchanger inlet/outlet
N2	Exchanger inlet/outlet
T	Vent
1	Gasket without cross-beam
2	Bundle tube heat exchangers
3	Gasket with cross-beam
4	Head



Technical information tube heat exchanger

Surf. m ²	Power* kW	Lt mm	Øext mm	Øhe mm	N1 inch	N2 inch	Z1 mm	Volume l	dp mca
0,5	12,2	460	300	166	1"	1"	120	1,84	0,65
0,75	18,4	445	300	202	1"	1"	120	2,44	0,65
1	24,5	475	300	202	1"	1"	120	3,23	0,7
1,5	36,7	600	380	270	2"	2"	145	5,36	0,75
2	49	600	380	270	2"	2"	145	6,51	0,8
3	73,5	720	380	278	2"	2"	145	9,8	0,9
4	98	750	430	316	2"	2"	190	13,2	1
5	122,5	780	430	324	2"	2"	190	16,68	1,1
6	147	895	430	324	2"	2"	190	19,2	1,2
8	196	1250	430	324	2"	2"	190	27	1,3
10	245	1510	430	324	2"	2"	190	32,7	1,4

Compatibility between (1) the tube heat exchanger and (4) the storage tank

Cap. l	Surface m²										
	0,5	0,75	1	1,5	2	3	4	5	6	8	10
200	✓	✓	✓								
300	✓	✓	✓								
500	✓	✓	✓								
800				✓	✓	✓					
1000				✓	✓	✓					
1500				✓	✓	✓					
2000							✓	✓	✓		
2500							✓	✓	✓		
3000							✓	✓	✓	✓	
4000							✓	✓	✓	✓	
5000							✓	✓	✓	✓	✓

Performance calculated with primary 80°C and domestic water 10-45°C

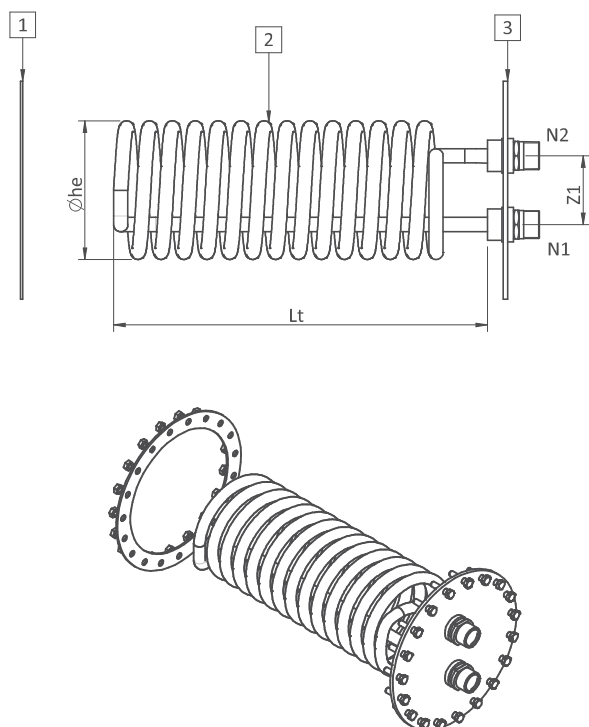
✓ Combination is possible

surf. m ²	Version 1 Stainless steel AISI 304		Version 2 Stainless steel AISI 316		Version with steam P ≤ 6 bar			Version with steam P ≤ 12 bar		
	Code	Price	Code	Price	Code	Price	cat. P.E.D.	Code	Price	cat. P.E.D.
0,5	821030379X		821030393X		821030285X		Art.4 par.3	821030405X		Cat. I
0,75	821030380X		821030394X		821030286X		Art.4 par.3	821030406X		Cat. I
1	821030381X		821030395X		821030287X		Art.4 par.3	821030407X		Cat. I
1,5	821030382X		821030396X		821030288X		Cat. I	821030408X		Cat. I
2	821030383X		821030397X		821030289X		Cat. I	821030409X		Cat. I
3	821030385X		821030399X		821030291X		Cat. I	821030411X		Cat. I
4	821030386X		821030400X		821030292X		Cat. I	821030412X		Cat. II
5	821030387X		821030401X		821030293X		Cat. I	821030413X		Cat. II
6	821030388X		821030402X		821030294X		Cat. I	821030414X		Cat. II
8	821030389X		821030403X		821030296X		Cat. I	821030416X		Cat. II
10	821030390X		821030404X		821030418X		Cat. II	821030418X		Cat. II

Version 1: AISI 304 stainless steel tube heat exchanger, assembled on a varnished plate with galvanised head

Version 2 and version with steam: AISI 306 stainless steel tube heat exchanger on a AISI 304 steel plate and AISI 304 steel head

Copper spiral coil



Compatibility chart for copper spiral coil and storage tank

Capacity l	Surface m ²							
	0,82	1,38	1,53	2,27	3,1	4,54	5,26	6,34
200	✓	✓	✓					
300	✓	✓	✓					
500	✓	✓	✓	✓	✓			
800	✓	✓	✓	✓	✓	✓	✓	✓
1000	✓	✓	✓	✓	✓	✓	✓	✓
1500	✓	✓	✓	✓	✓	✓	✓	✓
2000	✓	✓	✓	✓	✓	✓	✓	✓
2500	✓	✓	✓	✓	✓	✓	✓	✓
3000	✓	✓	✓	✓	✓	✓	✓	✓
4000	✓	✓	✓	✓	✓	✓	✓	✓
5000	✓	✓	✓	✓	✓	✓	✓	✓

✓ Combination is possible

Couplings legend

N1	Ingresso/uscita scambiatore
N2	Ingresso/uscita scambiatore
1	Guarnizione S/T (senza traverso)
2	Serpentino rame alettato
3	Piastra di montaggio

Technical information copper spiral coil

Surf. m ²	Lt mm	Øhe mm	Z1 mm	N1 inch	N2 inch	Type of coil	Internal volume l	Dp kPa	Thermal eff. (°) kW
0,82	380	160	75	3/4"	3/4"	Single coil	0,7	25	15
1,38	420	170	75	3/4"	3/4"	Single coil	1,2	30	21,6
1,53	450	170	75	3/4"	3/4"	Single coil	1,4	35	24
2,27	570	170	75	3/4"	3/4"	Single coil	2	35	27
3,1	550	180	90	1 1/4"	1 1/4"	Double coil	2,7	26	35
4,54	570	242	120	1 1/4"	1 1/4"	Double coil	3,9	35	55
5,26	660	242	120	1 1/4"	1 1/4"	Double coil	4,5	35	57,5
6,34	780	242	120	1 1/4"	1 1/4"	Double coil	5,5	35	61,5

*Performance calculated with the following temperatures: primary 80°C and domestic water 10-45°C

Surface area m ²	Assembled on a plate ø 300		Assembled on a plate ø 380		Assembled on a plate ø 430	
	Code	Price	Code	Price	Code	Price
0,82	821040017		821040254X		821040259X	
1,38	821040019		821040255X		821040260X	
1,53	821040020		821040256X		821040261X	
2,27	821040252X		821040021		821040262X	
3,1	821040253X		821040022		821040263X	
4,54	-		821040023		821040027	
5,26	-		821040257X		821040024	
6,34	-		821040258X		821040025	

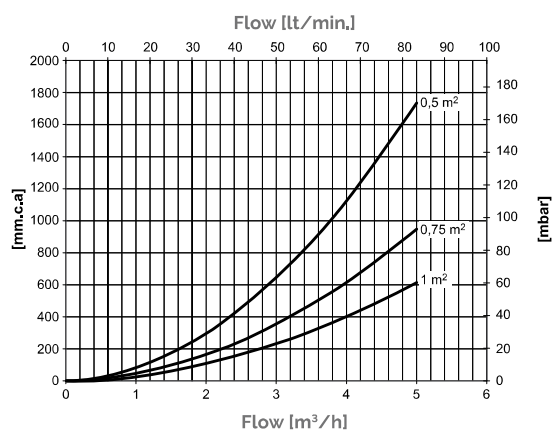
The copper coils are supplied with plates, bolts, nuts and gaskets

Customized water heater with removable heat exchanger – BOIL custom

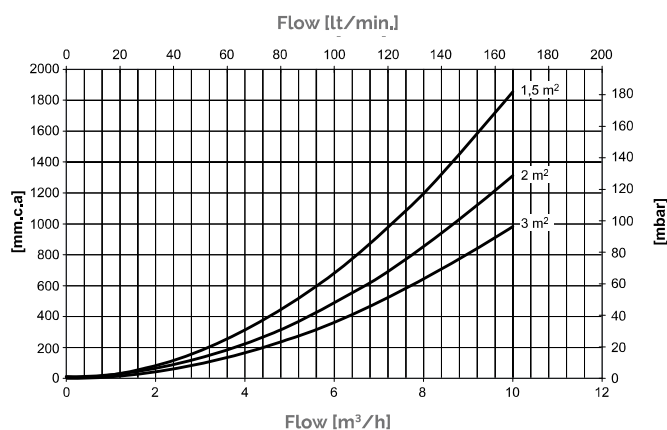
Curve: pressure loss

Pressure loss tube heat exchanger

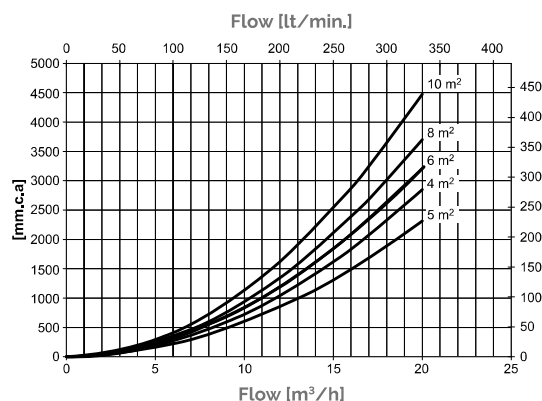
Exchanger surface 0,5 - 1 m²



Exchanger surface 1,5 - 3 m²

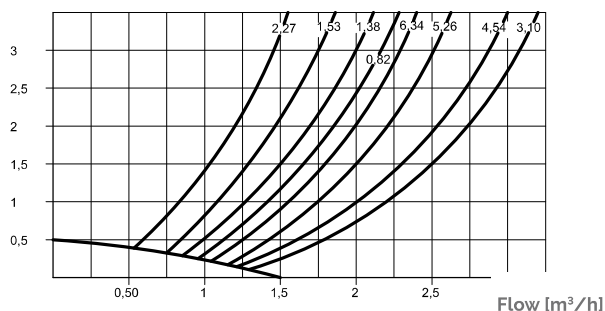


Exchanger surface 5 - 10 m²



Pressure loss copper spiral coil

Pressure loss (mca)





Fast Heaters for DHW

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■ Indirect Water Heater pag. 142

■ Fast Heaters for DHW pag. 186



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■ Fresh Water Stations for DHW pag. 200

■ Hot Water Storage Tanks pag. 238

■ Thermal Solar Systems pag. 252

■ Accessories and Insights pag. 272

Fast heater

Kit AFK

The AFK kit consists of a high efficiency inspectable plate heat exchange unit, fittings and circulation pump. The systems for the rapid production of domestic hot water combine an AFK Kit with an storage tank chosen freely within the FLEXY and BOIL ranges. The possibility of combining AFK kits with storage tanks of any type and volume, allows you to create a wide range of solutions for the rapid production of domestic hot water ideal for small and medium-sized installations (homes, restaurants, hotels, sports centers, etc.) . Compared to traditional fixed coil storage systems, the advantages of combining the storage with an external plate heat exchanger are:

- ✓ use a lower capacity tank with the same DHW supplied, therefore drastically reduce the overall dimensions;
- ✓ optimize the combination of boiler power (or heat generator) and heat exchanger performance,
- ✓ decrease the DHW replenishment time

Standard accessories: SLC control unit see pag 274 - The regulation is entrusted to the electronic SLC regulator which, using the pre-set hydraulic schemes, allows to optimize and monitor the functioning of the system.

HOW TO COMPOSE THE AFK SYSTEM

To compose the desired AFK system it is necessary to identify:

1. the AFK kit code of the required power (see next page)
2. the code of the tank to be combined (see sections FLEXY and BOIL page 138 and page 140)
3. select any accessories from those available

AFK kits consist of:

- ✓ K042 inspectable plate heat exchanger available in configurations with different plate numbers depending on the power it must be exchanged
- ✓ High efficiency recirculation pump
- ✓ Chrome-plated brass fittings
- ✓ Thermostat

EXCHANGER AND ACCUMULATION

The heat exchange element, the heat exchanger K042, consists of corrugated plates in stainless steel AISI 316, enclosed in a containment frame in carbon steel painted with epoxy powders and bolted with a galvanized steel linkage. The plates are separated by gaskets in NBR (or EPDM on request). The body material of the tank, the internal protective treatments and the possible insulation are indicated in the relevant sections of this catalog, FLEXY and BOIL.



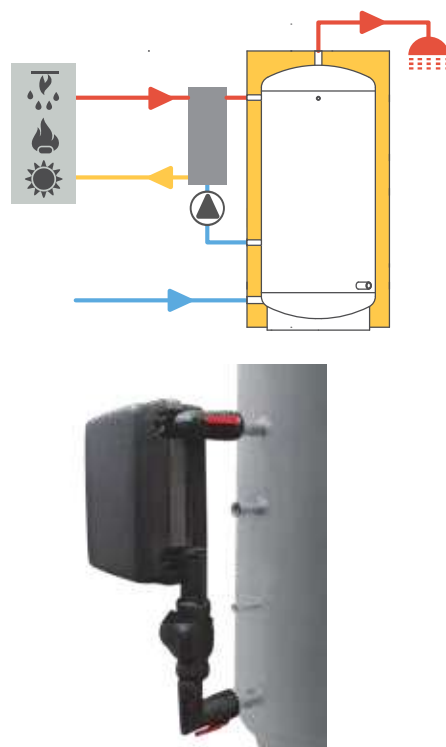
max. working pressure

10 bar

Fast heater Kit AFK



Kit AFK FLEXY series pag. 138
FLEXY INOX series pag. 140



Code	Accessory	Price
843090014X	AFK insulation kit for heat exchanger and pipe fittings	
822120028	SLC electronic control unit (see, pag. 274)	

Size of the exchanger	Power kW		Continuous DHW production L/h	dP Primary kPa	Couplings inch	Min-max power of the pump W	Tension V/Ph/Hz	Min-max current A
K042/09	35	14*	859	18	1"1/4	3-140	230/1/50	0,04-1,1
K042/15	70	24*	1717	24	1"1/4	3-140	230/1/50	0,04-1,1
K042/21	115	34*	2862	33	1"1/4	3-140	230/1/50	0,04-1,1
K042/25	150	40*	3721	39	1"1/4	3-140	230/1/50	0,04-1,1
K042/33	200	53*	4866	39	1"1/4	3-140	230/1/50	0,04-1,1

Performance calculated with primary 80-60 °C and domestic water 10-45 °C

* Performance calculated with primary 55-50 °C and domestic water 10-45 °C

Packed				
Size of the exchanger	Code	Price	Dimensions cm	Weight kg
K042/09	841060038X		105x41x27	38
K042/15	841060039X		105x41x27	40
K042/21	841060040X		105x41x27	42
K042/25	841060041X		105x41x27	43
K042/33	841060042X		105x41x27	45

Fast heater

Kit AFW

The AFW kit consists of a high efficiency brazed plate heat exchange unit, fittings and circulation pump. The systems for the rapid production of domestic hot water combine an AFW Kit with an storage tank chosen freely within the FLEXY and BOIL ranges. The possibility of combining AFW kits with storage tanks of any type and volume, allows you to create a wide range of solutions for the rapid production of domestic hot water ideal for small and medium-sized installations (homes, restaurants, hotels, sports centers, etc.) . Compared to traditional fixed coil storage systems, the advantages of combining the storage with an external plate heat exchanger are:

- ✓ use a lower capacity tank with the same DHW supplied, therefore drastically reduce the overall dimensions;
- ✓ optimize the combination of boiler power (or heat generator) and heat exchanger performance,
- ✓ decrease the DHW replenishment time

Standard accessories: SLC control unit see pag 274 - The regulation is entrusted to the electronic SLC regulator which, using the pre-set hydraulic schemes, allows to optimize and monitor the functioning of the system.

HOW TO COMPOSE THE AFW SYSTEM

To compose the desired AFW system it is necessary to identify:

1. the AFW kit code of the required power (see next page)
2. the code of the tank to be combined (see sections FLEXY and BOIL page 138 and page 140)
3. select any accessories from those available

AFW kits consist of:

- ✓ WP4 brazed plate heat exchanger available in configurations with different plate numbers depending on the power it must be exchanged
- ✓ High efficiency recirculation pump
- ✓ Chrome-plated brass fittings
- ✓ Thermostat

EXCHANGER AND ACCUMULATION

The heat exchange unit, i.e. the brazed WP4 heat exchanger, is made of corrugated AISI 316 stainless steel plates, soldered with pure copper. The body material of the tank, the internal protective treatments and the possible insulation are indicated in the relevant sections of this catalog, FLEXY and BOIL.



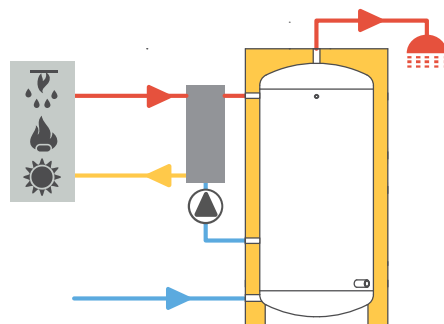
max. working pressure

10 bar

Fast heater Kit AFW



Kit AFW FLEXY series pag. 138
FLEXY INOX series pag. 140



AFW insulation kit

Size of the exchanger	Power kW		Continuous DHW production L/h	dP Primary kPa	Couplings inch	Min-max power of the pump W	Tension V/Ph/Hz	Min-max current A
WP4/14	35*	14**	859	18	1"1/4	3-140	230/1/50	0,04-1,1
WP4/20	70*	24**	1717	24	1"1/4	3-140	230/1/50	0,04-1,1
WP4/30	115*	34**	2862	33	1"1/4	3-140	230/1/50	0,04-1,1
WP4/40	150*	40**	3721	39	1"1/4	3-140	230/1/50	0,04-1,1
WP4/50	200*	53**	4866	39	1"1/4	3-140	230/1/50	0,04-1,1

Performance calculated with primary 80-60 °C and domestic water 10-45°C

* Performance calculated with primary 55-50°C and domestic water 10-45 °C

Size of the exchanger	Code	Price	Packed	
			Dimensions cm	Weight kg
WP4/14	841060043X		105x41x27	12
WP4/20	841060044X		105x41x27	13
WP4/30	841060045X		105x41x27	14
WP4/40	841060046X		105x41x27	16
WP4/50	841060047X		105x41x27	18

Cod.	Accessorio	Prezzo
843090091X	AFW insulation kit WP4/14	
843090092X	AFW insulation kit WP4/20	
843090093X	AFW insulation kit WP4/30	
843090094X	AFW insulation kit WP4/40	
843090095X	AFW insulation kit WP4/50	
822120028	SLC electronic control unit (see. pag. 274)	

Technical information - DHW fast production units – AFK and AFW series

Dimensions

The AFK and AFW DHW production station is different from regular water heaters because of the presence of a high efficiency plate heat exchanger. This feature ensures that the available power from the energy source is fully used even when the temperature in the storage tank increases. Because of all this, smaller storage tanks can be used instead of the larger ones that would be used with a normal water heater with tube heat exchanger. To select the right DHW production unit the following data are needed:

P_p	Power available from the primary source
T_{in}	Water temperature of the circuit
T_p	Temperature of the primary source
T_u	Temperature of the DHW
V_p	DHW flow to be distributed during the sampling period
T_{punta}	Duration of the sampling period
T_{rip}	Time available to restore the temperature in the storage tank

In the following pages there are a series of charts which indicate the DHW production when the sampling period lengthens and when the temperature varies in time, with the zero use. The graphics can help you with the selection of the correct model for your application.

Example

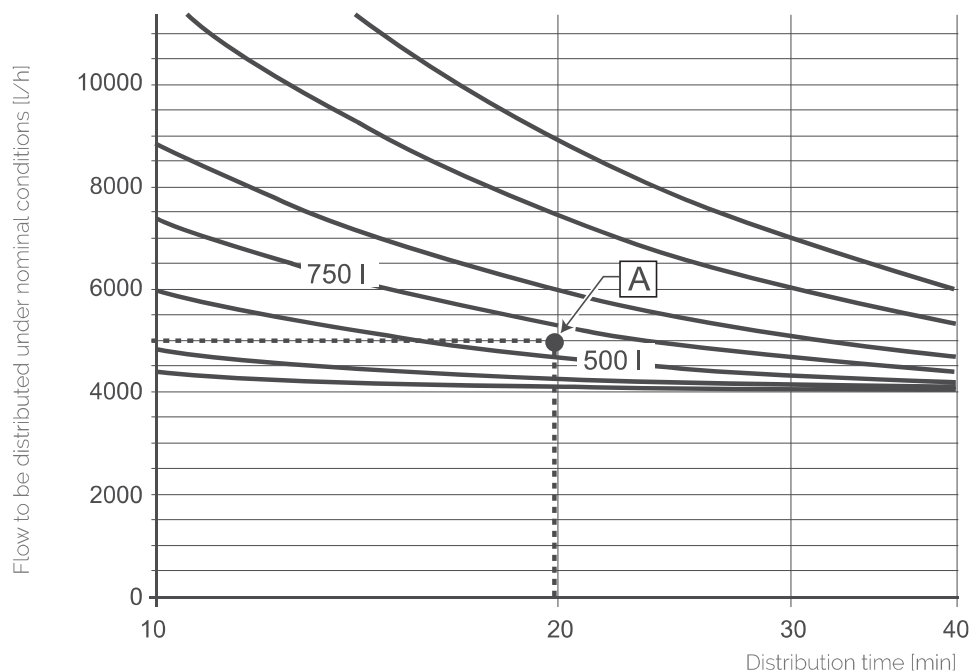
You have to distribute a DHW flow of 5000 l/h at 40°C for a sampling period of 20 min. The inlet temperature of the circuit is 15°C and the available power from the heater is 150 kW with a flow at 80°C.

Determining the volume

We use the graphic in which the nominal power of the heat exchanger is equal to or inferior to the power of the heater. Therefore, we select a KO42 with 25 plates. We look at the axis with the abscissas with the duration of the sampling period (20 min). Then, we vertically move the line until we cross the straight line with the flow. This is point A. Near that point there is the 750 l storage tank with a 5250 l/h flow for 20 min, while the 500 l storage tank has a 4100 l/h flow for 20 min. You should choose the boiler with the features that are the most similar to the project data.

Determining the heat exchanger

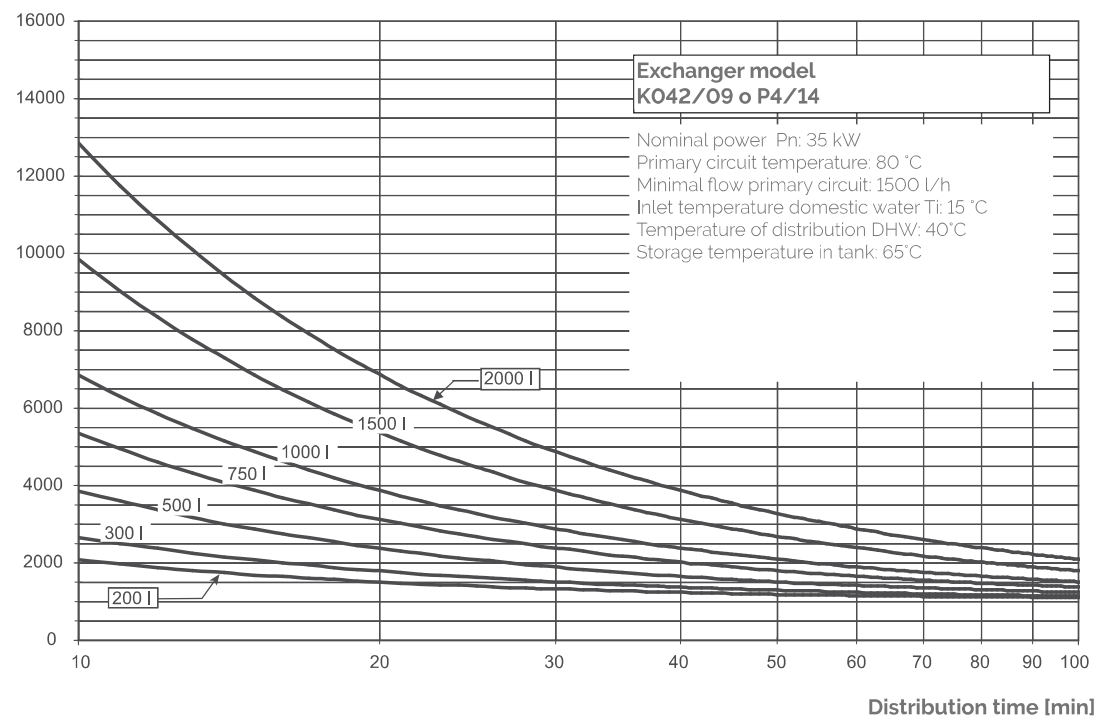
The correct heat exchanger should guarantee a thermal exchange equal to or superior to the power destined for the DHW production. Very important when choosing the heat exchanger is the flow temperature of the heat generator.



Performances AFK and AFW series

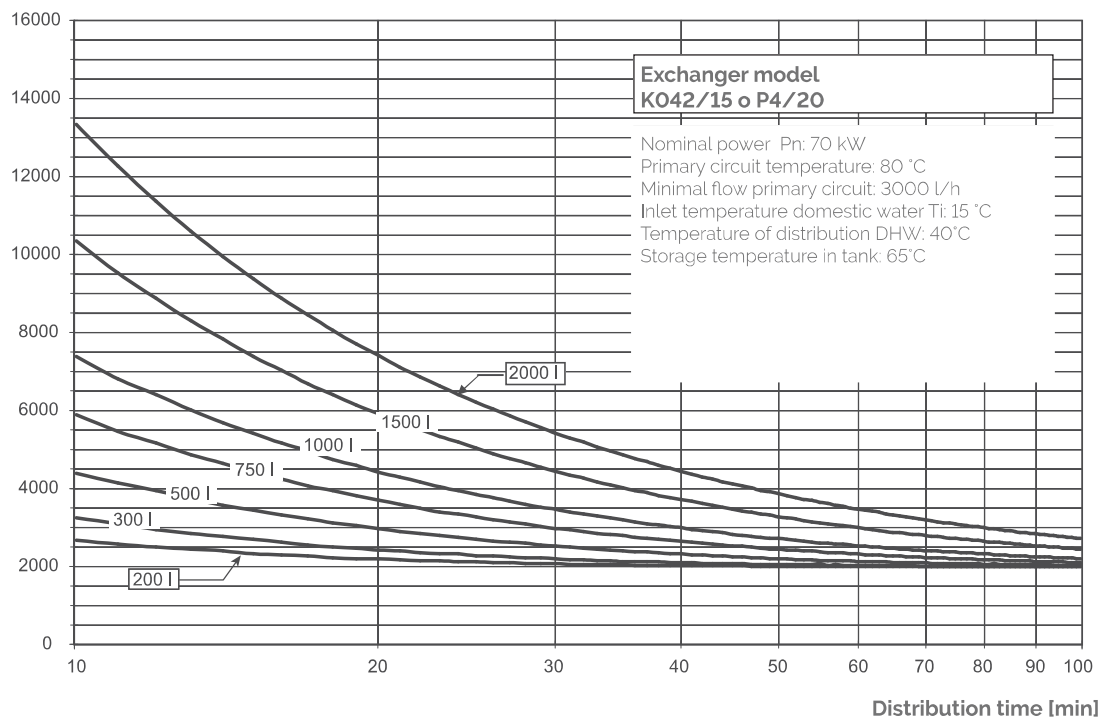
Performance with K042/09 plate heat exchanger

Flow to be distributed under nominal conditions [L/h]



Performance with K042/15 plate heat exchanger

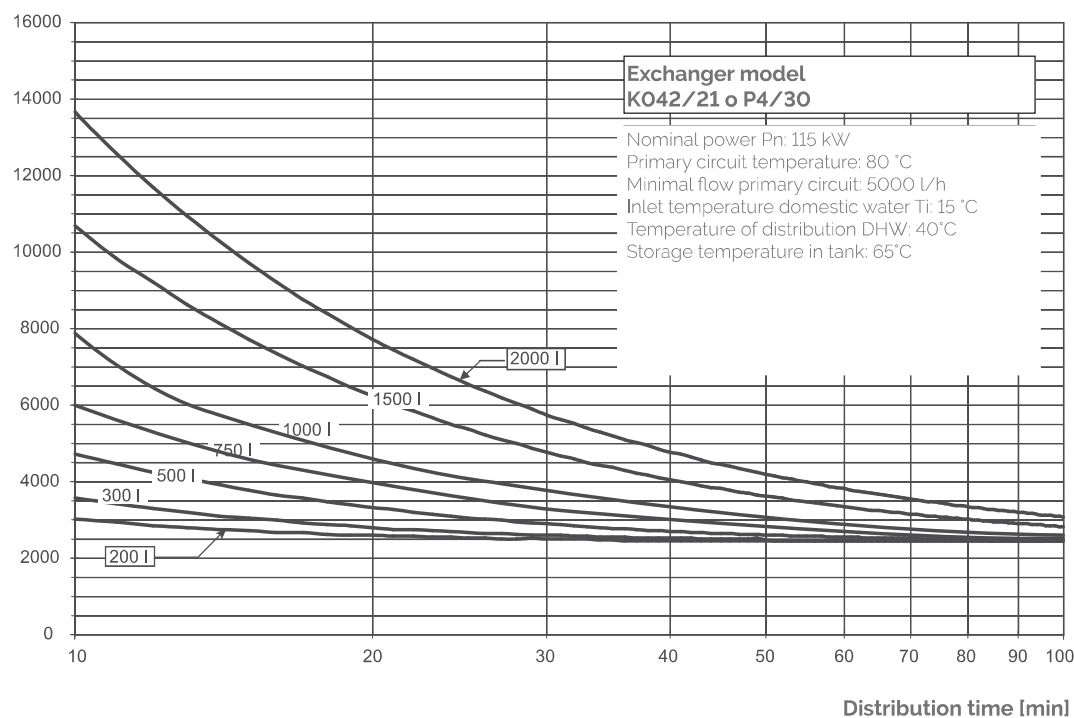
Flow to be distributed under nominal conditions [L/h]



Performances AFK and AFW series

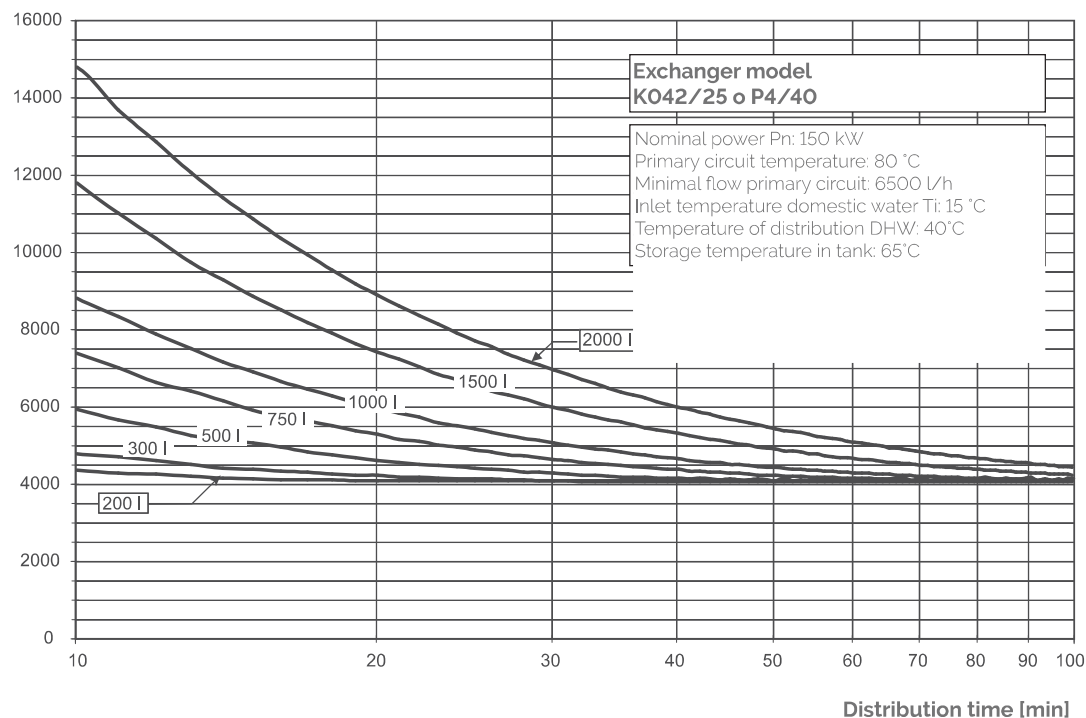
Performance with K042/21 plate heat exchanger

Flow to be distributed under nominal conditions [L/h]



Performance with K042/25 plate heat exchanger

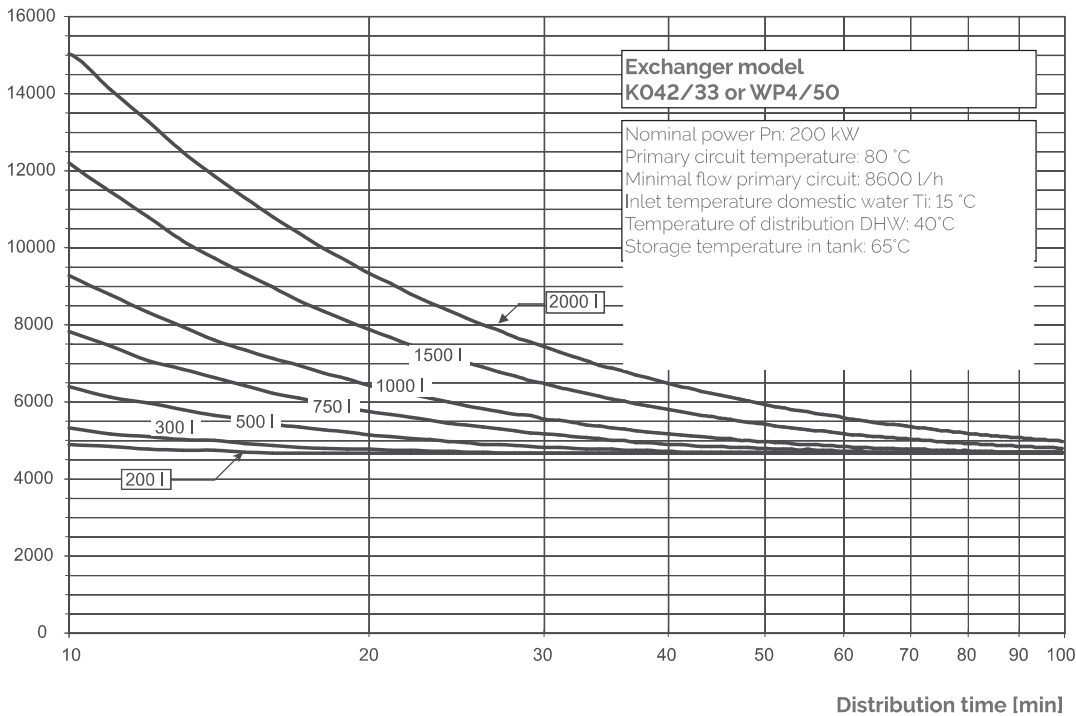
Flow to be distributed under nominal conditions [L/h]



Performances AFK and AFW series

Performances with K042/33 plate heat exchanger

Flow to be distributed under nominal conditions [l/h]



Fast selection charts for AFK and AFW

The two charts below can help you with the selection of the AFKX unit in some standard circumstances.

Hotel rooms

Exchanger model	Storage tank capacity						
	200 l	300 l	500 l	750 l	1000 l	1500 l	2000 l
K042/ 9 / WP4/14	6	8	13	14	16	*	*
K042/15 / WP4/20	12	16	22	23	25	28	*
K042/21 / WP4/30	16	22	28	29	30	34	38
K042/25 / WP4/40	30	40	51	51	52	54	58
K042/33 / WP4/50	35	47	60	60	60	62	65

Consumption in the room during the peak period: 130 l

Duration of the peak period: 1.5 h

Inlet temperature T_i : 15°C

DHW distribution temperature: 40°C

Initial storage temperature: 65°C

Max recovery time: 2h

Synchronism coefficient: 1

*: recovery time more than 2h

Residential setting

Exchanger model	Storage tank capacity						
	200 l	300 l	500 l	750 l	1000 l	1500 l	2000 l
K042/ 9 / WP4/14	7	10	14	16	18	*	*
K042/15 / WP4/20	13	17	23	24	25	28	*
K042/21 / WP4/30	16	22	28	29	30	33	36
K042/25 / WP4/40	28	37	47	47	48	49	52
K042/33 / WP4/50	31	42	53	53	53	55	58

Consumption in the room during the peak period: 260 l

Duration of the peak period: 1.5 h

Inlet temperature T_i : 15°C

DHW distribution temperature: 40°C

Initial storage temperature: 65°C

Max recovery time: 2h

Synchronism coefficient: table synchronism coefficients

*: recovery time more than 2h

Synchronism coefficient

N° rooms	Coeff.	N° rooms	Coeff.
<5	1	36 ÷ 40	0,48
6 ÷ 15	0,61	41 ÷ 45	0,47
16 ÷ 20	0,54	46 ÷ 50	0,46
21 ÷ 25	0,52	51 ÷ 55	0,45
26 ÷ 30	0,51	56 ÷ 60	0,44
31 ÷ 35	0,49		

Heat exchanger group for domestic hot water production – AFK-HD

The AFK-HD system for the fast preparation of Domestic Hot Water can be coupled with storage tanks that are already installed in small, medium-sized and large settings. The available thermal exchange units can be coupled with all storage tank of the FLEXY, FLEXY INOX, BOIL and BOIL INOX series.

The AFK-HD system consists of:

- ✓ Gasketed plate heat exchanger – AISI 316L stainless steel, model K042 or K080;
- ✓ Stainless steel self-supporting base with adjustable feet;
- ✓ Stainless steel pump, electronic and high efficiency (up to model K042);

Available accessories

All exchangers can be installed with the following accessories (on request)

- ✓ Removable heat exchanger insulation (optional);
- ✓ Thermostat for primary circuit (optional);
- ✓ control unit SLC (see pag. 274)

Available on request, for versions up to the AFK HD 200.

Primary circuit		Secondary circuit	
Max temperature	Max pressure	Max temperature	Max pressure
95°C	16 bar	195°C	6 bar



TESTED

FAST
HEATER

Model*	Exchanger	Code	Price	Packed	
				Dimensions cm	Weight kg
AFK-HD 35	K042/09	841060019X		28x49x105	51
AFK-HD 70	K042/15	841060020X		28x49x105	53
AFK-HD 115	K042/21	841060021X		28x49x105	55
AFK-HD 150	K042/25	841060022X		28x49x105	56
AFK-HD 200	K042/33	841060018X		28x49x105	59
AFK-HD 250	K080H/23	841060023X		105x33x95	126
AFK-HD 300	K080H/29	841060024X		105x33x95	129
AFK-HD 350	K080H/33	841060025X		105x33x95	131
AFK-HD 400	K080H/39	841060026X		105x33x95	140

* Electronic pump up to model AFK-HD 200, from 250 three-phase pump.



Standard Accessories: see pag 274

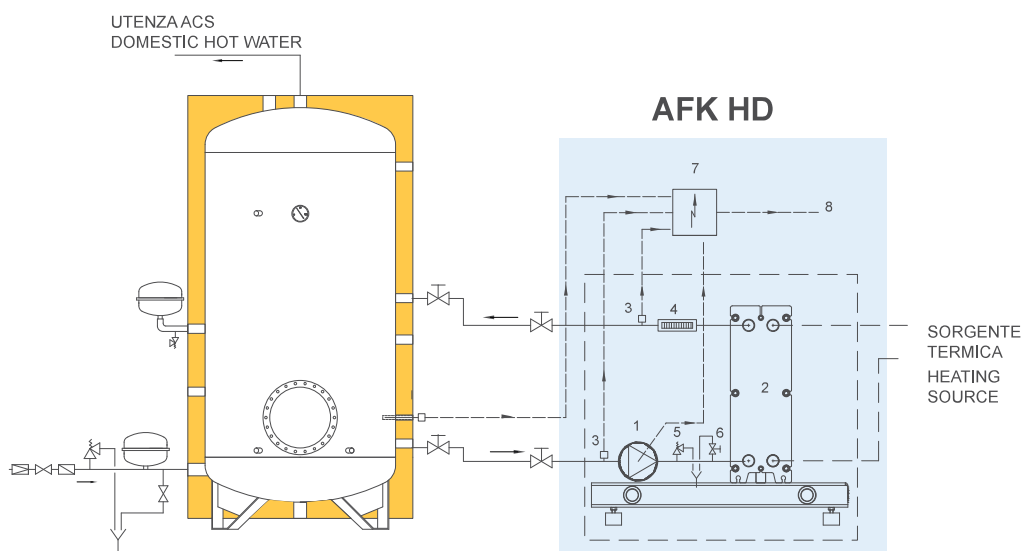
Code	Accessory	Price
822120028	SLC electronic control unit (see. pag. 274)	

ACCESSORY only suitable up to AFK-HD 200 (included)

Insulation kit for AFK HD			
K042		K080	
Code	Price	Code	Price
821080037X		821080038X	

Technical information

AFK-HD



Legend

- | | |
|---|-------------------------------------|
| 1 | Stainless steel recirculation pump |
| 2 | Gasketed plate heat exchanger |
| 3 | Probe holder |
| 4 | Flow rate regulator |
| 5 | Safety valve |
| 6 | Drain valve |
| 7 | Electronic control panel (optional) |
| 8 | Output signal for primary circuit |

Performances

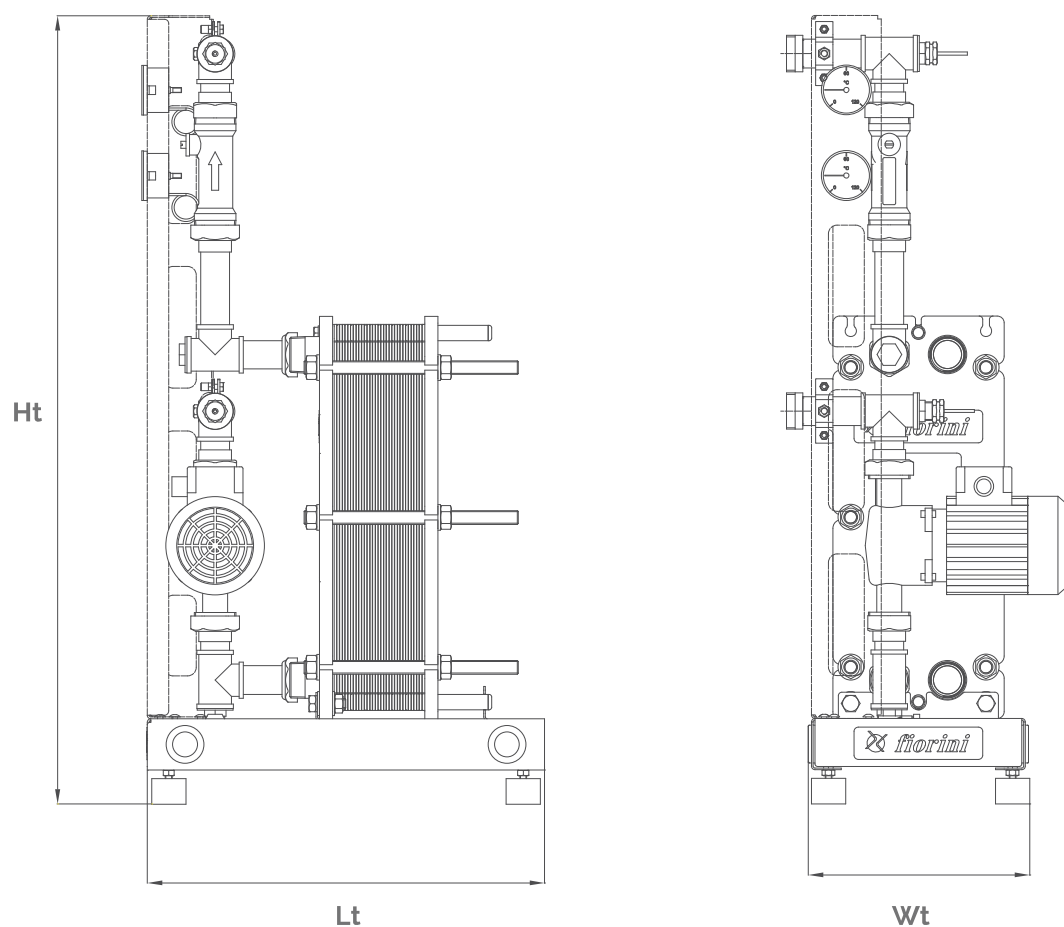
AFK-HD

Capacity l	K042/09	K042/15	K042/21	K042/25	K042/33	K080h/23	K080h/29	K080h/33	K080h/39
200	330/500 1100/859	440/725 2000/1717	500/1300 2900/2862	730/2075 4150/3721	810/2330 4900/4866	1055/1995 5765/5650	1340/2570 7485/7370	1505/2895 8465/8350	1830/3550 10430/10320
300	430/600 1300/859	535/1200 2000/1717	590/1400 2905/2862	800/2125 4200/3721	880/2375 4900/4866	1110/2055 5820/5650	1400/2625 7540/7370	1560/2955 8525/8350	1890/3610 10490/10320
500	665/800 1500/859	730/1475 2100/1717	785/1660 2910/2862	990/2310 4175/3721	1060/2560 4910/4866	1225/2165 5935/5650	1510/2740 7655/7370	1675/3070 8640/8350	2005/3725 10605/10320
800	900/1030 1750/859	980/1835 2300/1717	1030/2025 2920/2862	1230/2625 4175/3721	1300/2860 4915/4866	1395/2340 6105/5650	1685/2910 7825/7370	1845/3240 8810/8350	2175/3895 10775/10320
1000	1130/1300 1900/859	1220/2200 2500/1414	1280/2385 2930/2862	1470/300 4300/3721	1540/3200 4920/4866	1510/2455 6220/5650	1800/3025 7940/7370	1960/3355 8925/8350	2290/4010 10890/10320
1500	1630/1830 2490/859	1725/2950 2975/1717	1780/3125 3350/2862	1965/3710 4675/3721	2025/3925 5150/4866	1795/2740 6505/5650	2085/3310 8225/7370	2245/3640 9210/8350	2575/4295 11175/10320
2000	2160/2300 300/859	2220/3700 3450/1717	2280/3860 3825/2862	2465/4450 5100/3721	2500/4650 5550/4866	2080/3025 6790/5650	2370/3600 8510/7370	2535/3925 9595/8350	2860/4580 11460/10320

Supply of DHW in litres in the first 10/20/60 minutes and flow in continuous dispensing in l / h (Primary 80 ° C, delivery 45 ° C)

Technical information

AFK-HD



Technical information

Model	Exchanger	Power kW		Flow primary L/h	Pdc primary kPa	Electrical features pump		Wt	Lt	Ht	Couplings inch
						Tension V/Ph/Hz	Min-max current A				
SIZE 1											
AFK-HD 35	K042/09	35	14'	1500'/1800**	18'/25**	230/1/50	0,04-1,1	305	464	921	1 1/4
AFK-HD 70	K042/15	70	24'	3000'/3900**	24'/40**	230/1/50	0,04-1,1	305	464	921	1 1/4
AFK-HD 115	K042/21	115	34'	5000'/5800**	33'/45**	230/1/50	0,04-1,1	305	464	921	1 1/4
AFK-HD 150	K042/25	150	40'	6500'/6800**	39'/45**	230/1/50	0,04-1,1	305	464	921	1 1/4
AFK-HD 200	K042/33	200	53'	8600'/8700**	39'/43**	230/1/50	0,04-1,1	305	464	921	1 1/4
SIZE 2											
AFK-HD 250	K080H/23	250	165'	8800'/8800**	49'/49**	400/3/50	1,03	305	1031	829	1 1/2
AFK-HD 300	K080H/29	300	170'	10500'/10500**	48'/48**	400/3/50	1,03	305	1031	829	1 1/2
AFK-HD 350	K080H/33	350	210'	12500'/12500**	47'/47**	400/3/50	1,03	305	1031	829	1 1/2
AFK-HD 400	K080H/39	400	250'	14100'/14100**	46'/46**	400/3/50	1,03	305	1031	829	1 1/2

Performance calculated with primary 80°C and domestic water 10/45°C
 * Performance calculated with primary 55°C and domestic water 10-45°C



Fresh Water Stations for DHW

Contents

■ Domestic Hot Water Storages	pag. 134
■ Indirect Water Heater	pag. 142
■ Fast Heaters for DHW	pag. 186
■ Fresh Water Stations for DHW	pag. 200



AQUAMATIC
pag. 202



SET 2.0 wall-mounted
pag. 218



Mounted SET
pag. 227

■ Hot Water Storage Tanks	pag. 238
■ Thermal Solar Systems	pag. 252
■ Accessories and Insights	pag. 272

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:

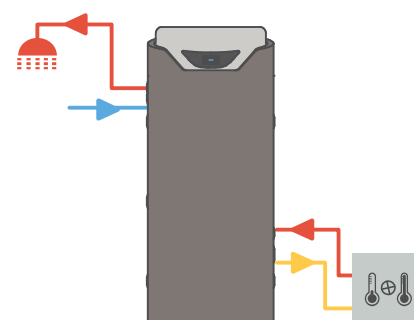
- ✓ maximum hygiene
- ✓ high production of domestic hot water without the need for a high level of installed power

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



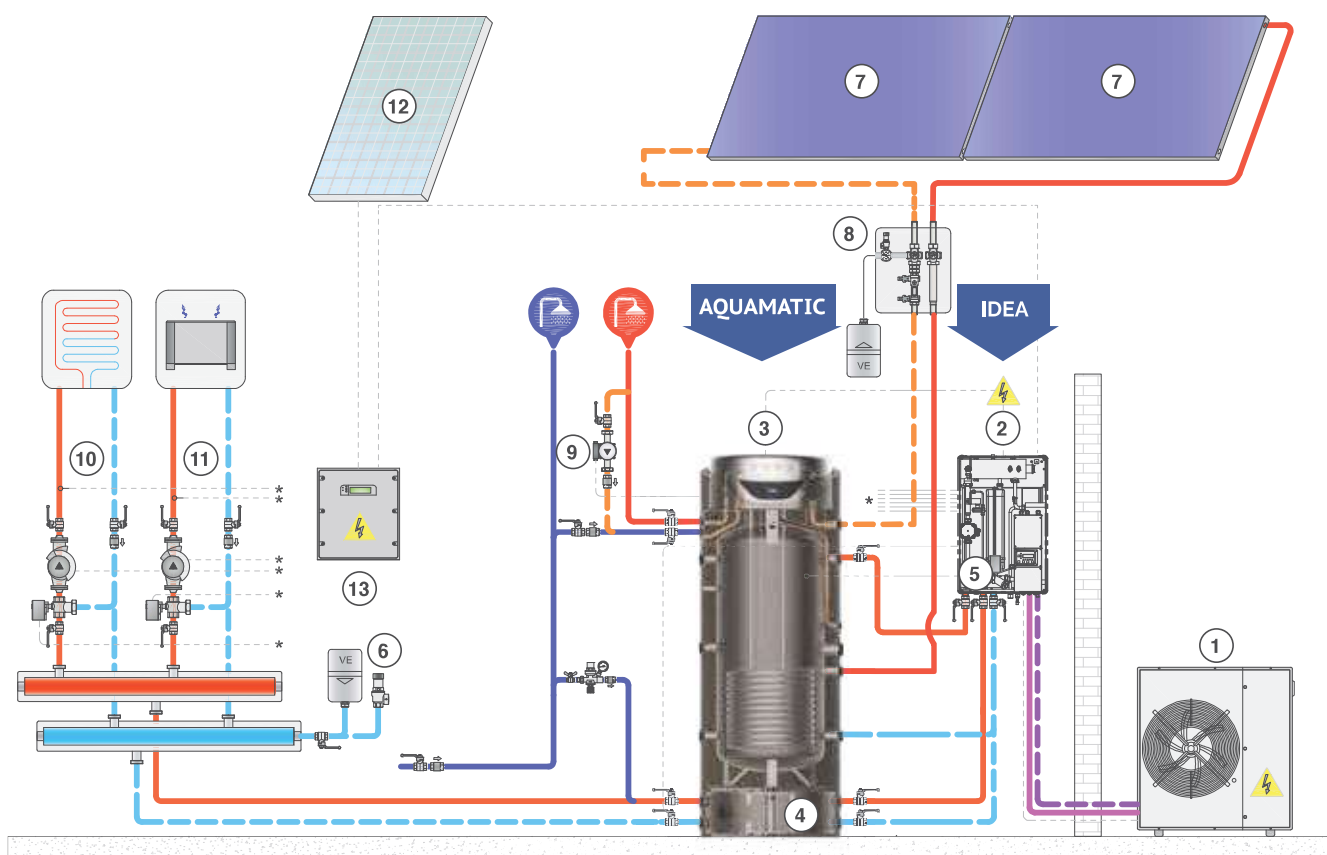
TESTED



Model	Capacity l	Code	Price	With vertical packaging	
				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

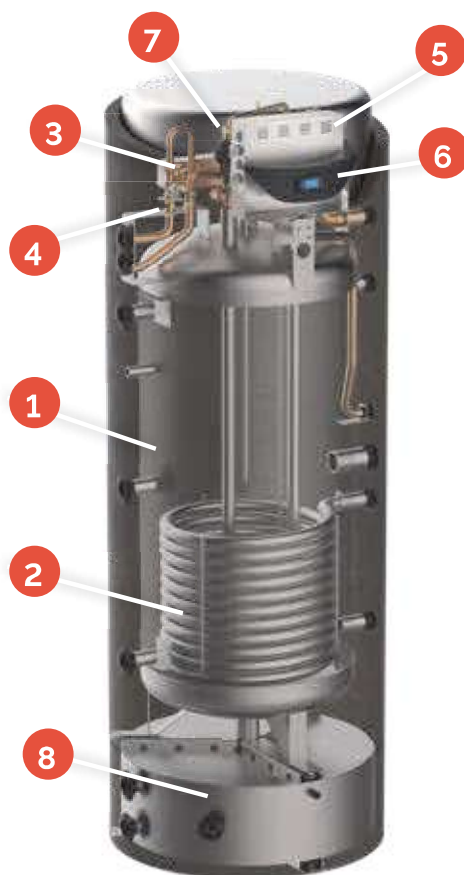


Legend

- 1 IDEA Flex Galileus heat pump (outdoor unit)
- 2 IDEA Flex Galileus 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. 210
- **AQUAMATIC Plus (2 sources):** see pag. 210
- **AQUAMATIC Solar (2 sources for solar circulation):** see pag. 211

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

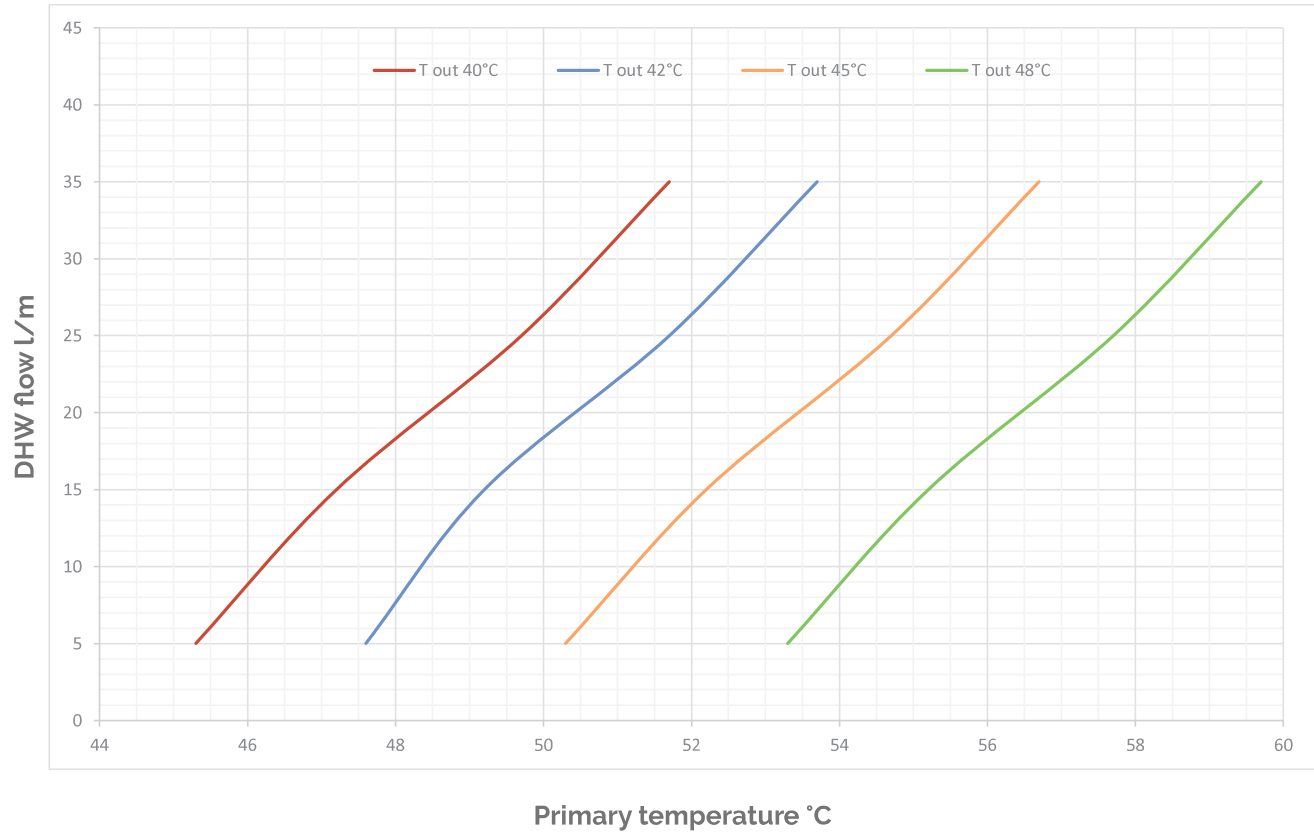
		AQUAMATIC			AQUAMATIC PLUS		AQUAMATIC SOLAR	
		200	300	500	300	500	300	500
Electrical supply	V/Ph/Hz	230/1/50			230/1/50		230/1/50	
Absorbed power min/max	W	25/75			25/75		27/127	
Absorbed current min/max	A	0,14/0,53			0,14/0,53		0,18/1,05	
Min DHW flow rate at start-up	l/min	2			2		2	
Max DHW flow rate	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.	m²	-	-	-	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

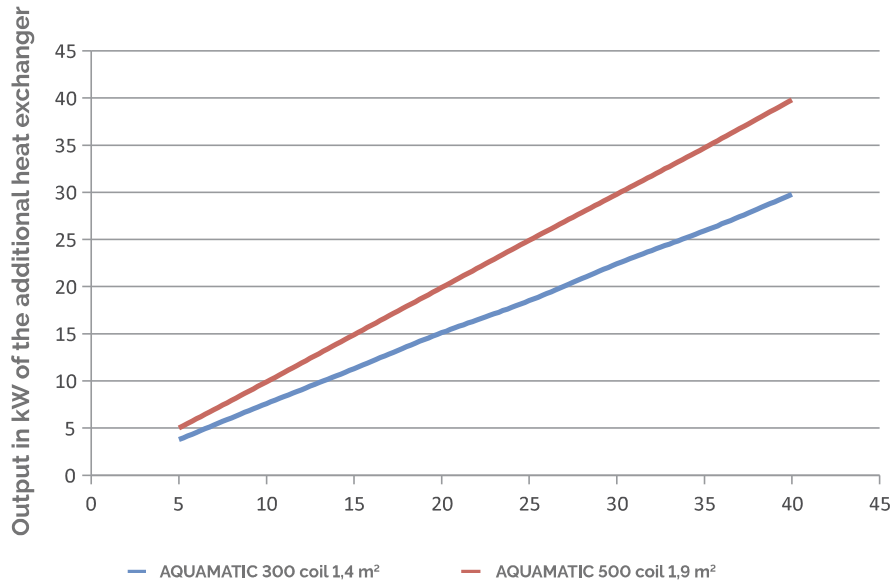


Deliverable DHW flow in function of the storage temperature fluctuations and the various outlet temperatures (can be set as setpoint for domestic hot water)
Inlet temperature domestic 10°C

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

Performance AQUAMATIC

Output in kW of the additional heat exchanger in function of the variation of the value ΔT between the temperature of the integrative source and the storage temperature.
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 ΔT of 50-30 = 20 K

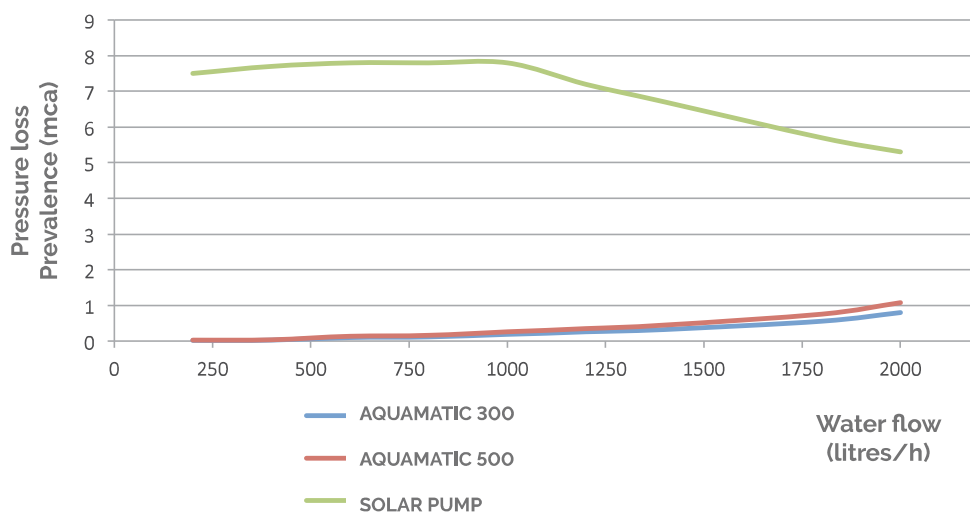
In this case the performance of the additional heat exchangers would be:

AQUAMATIC 300: 15 kW on average

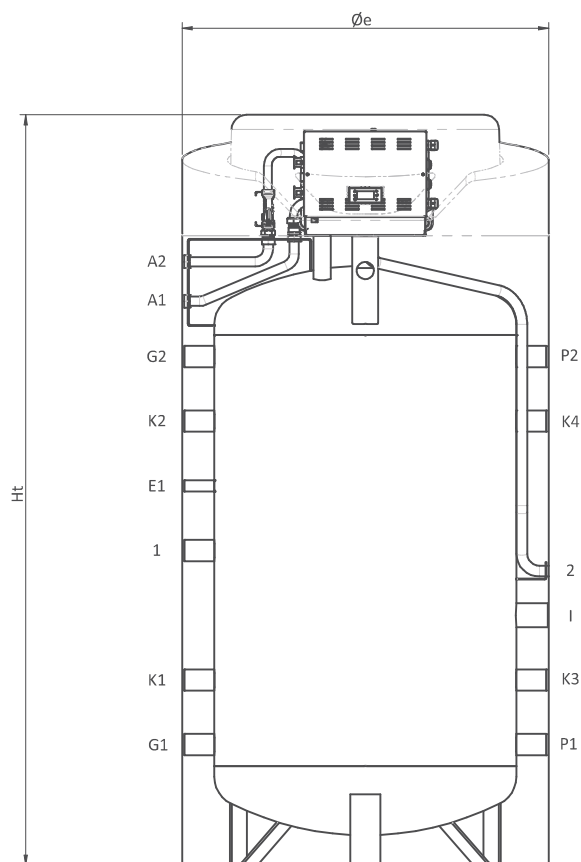
AQUAMATIC 500: 20 kW on average

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



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	70

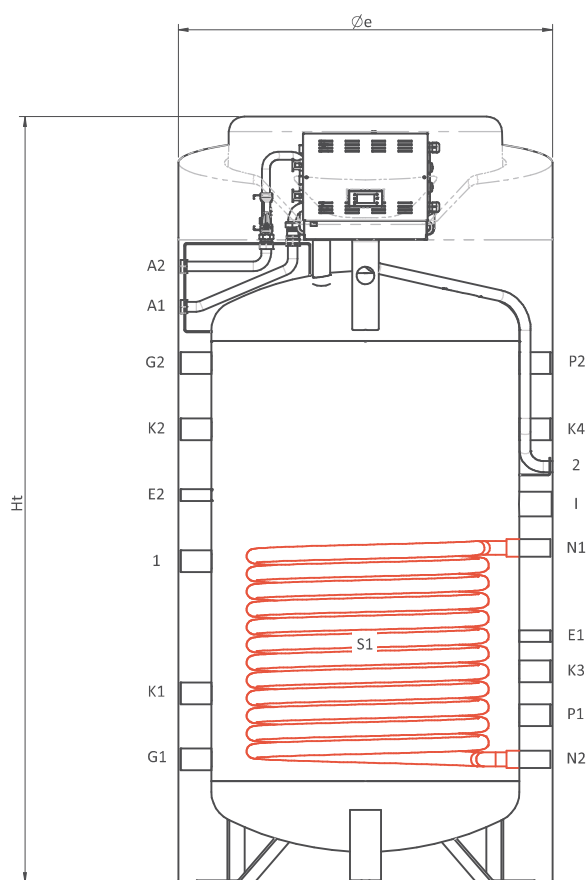
Couplings chart

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	915	970	629	255	780	405	-	-	-	-	225	780	518	525
300	710	1690	1190	1345	975	255	1145	405	-	-	-	-	225	1145	705	525
500	850	1740	1340	1395	880	280	1180	580	430	1030	430	1030	280	1180	730	683

Dimensions AQUAMATIC Plus



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	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	70

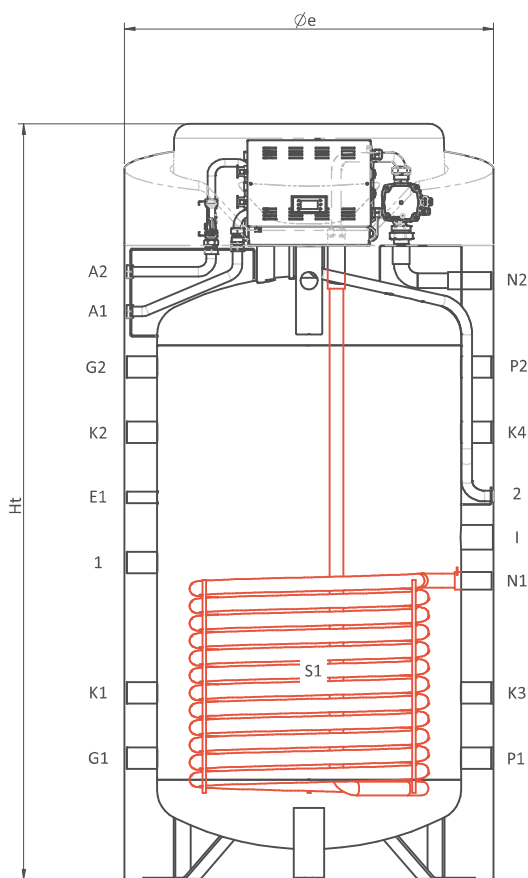
Couplings chart

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"	-	-	-	-	3/4"	3/4"	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"	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	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
300	710	1690	1290	1345	465	1005	355	1155	785	-	-	-	-	675	255	225	1155	705	905
500	850	1740	1340	1395	560	880	380	1180	860	430	1030	480	1030	760	280	280	1180	730	945

Dimensions AQUAMATIC Solar



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	70

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

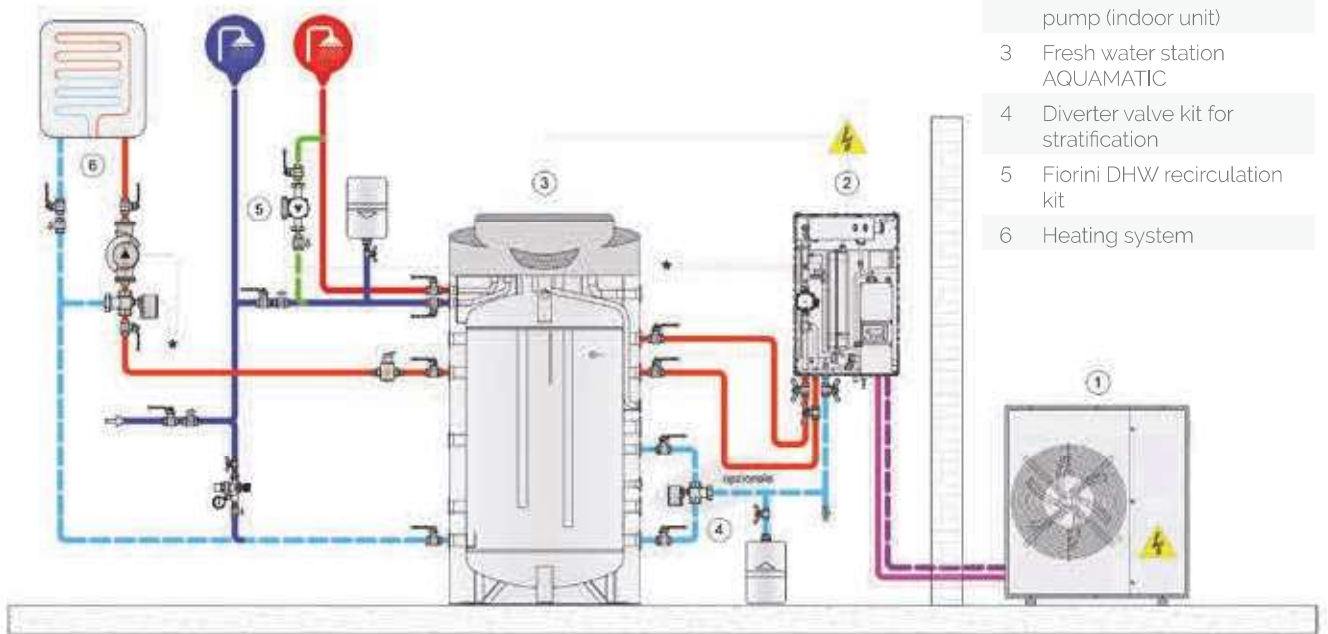
Size chart

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
300	710	1690	1290	1345	1005	255	1155	695	-	-	-	-	584	1329	225	1155	705	815
500	850	1740	1340	1395	880	280	1180	788	430	1030	430	1030	688	1379	280	1180	730	883

Installation chart AQUAMATIC

Legend

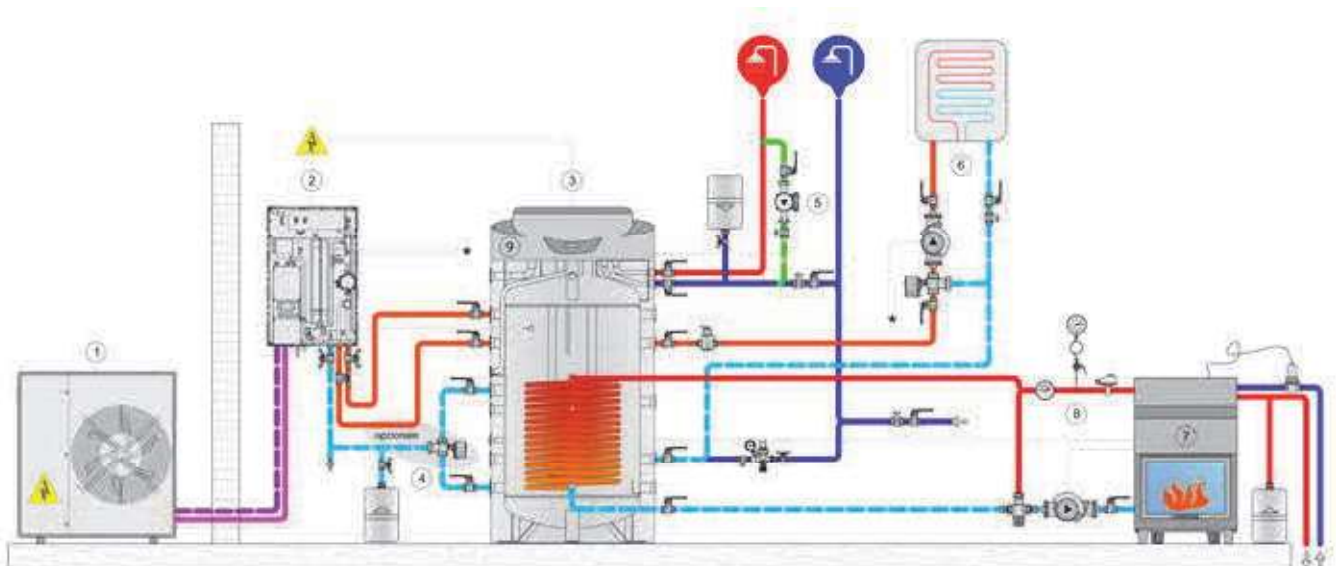
- 1 IDEA FLEX Galileus heat pump (outdoor unit)
- 2 IDEA FLEX Galileus heat pump (indoor unit)
- 3 Fresh water station AQUAMATIC
- 4 Diverter valve kit for stratification
- 5 Fiorini DHW recirculation kit
- 6 Heating system



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

Legend

- 1 IDEA FLEX Galileus heat pump (outdoor unit)
- 2 IDEA FLEX Galileus 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
- 9 Mixing valve kit (optional see page 208, suggested for temperatures above 60°C to avoid oscillations)

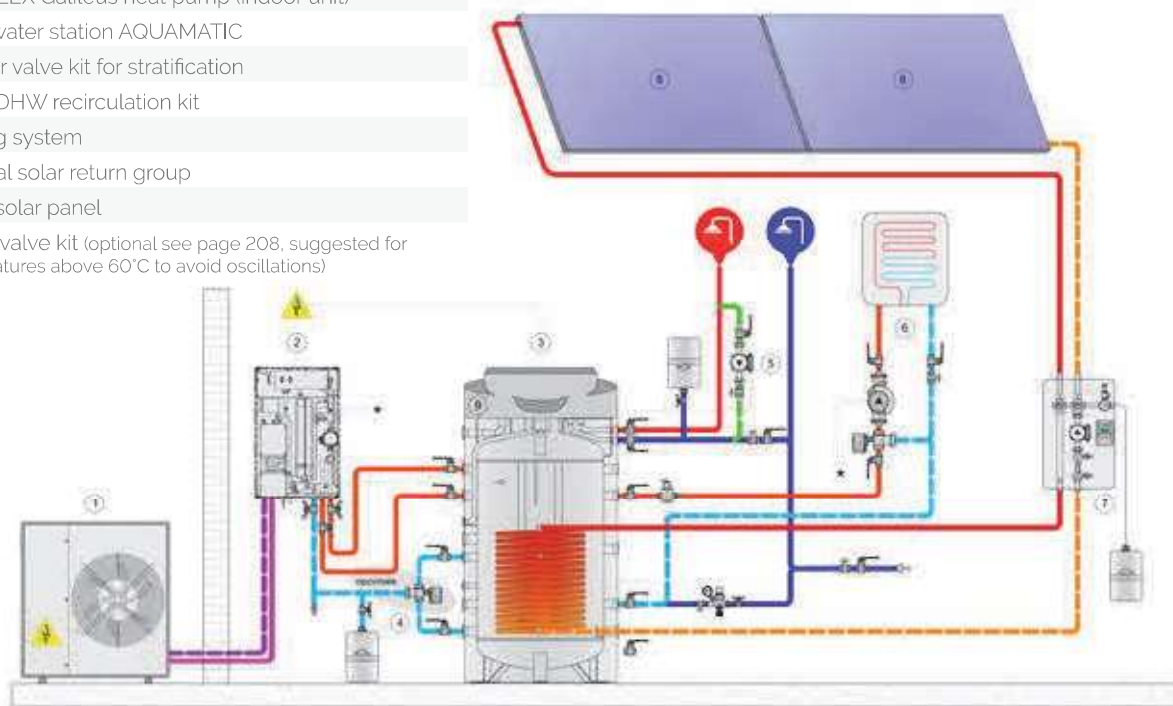


Installation chart AQUAMATIC Plus

Example 2 (Thermal solar)

Legend

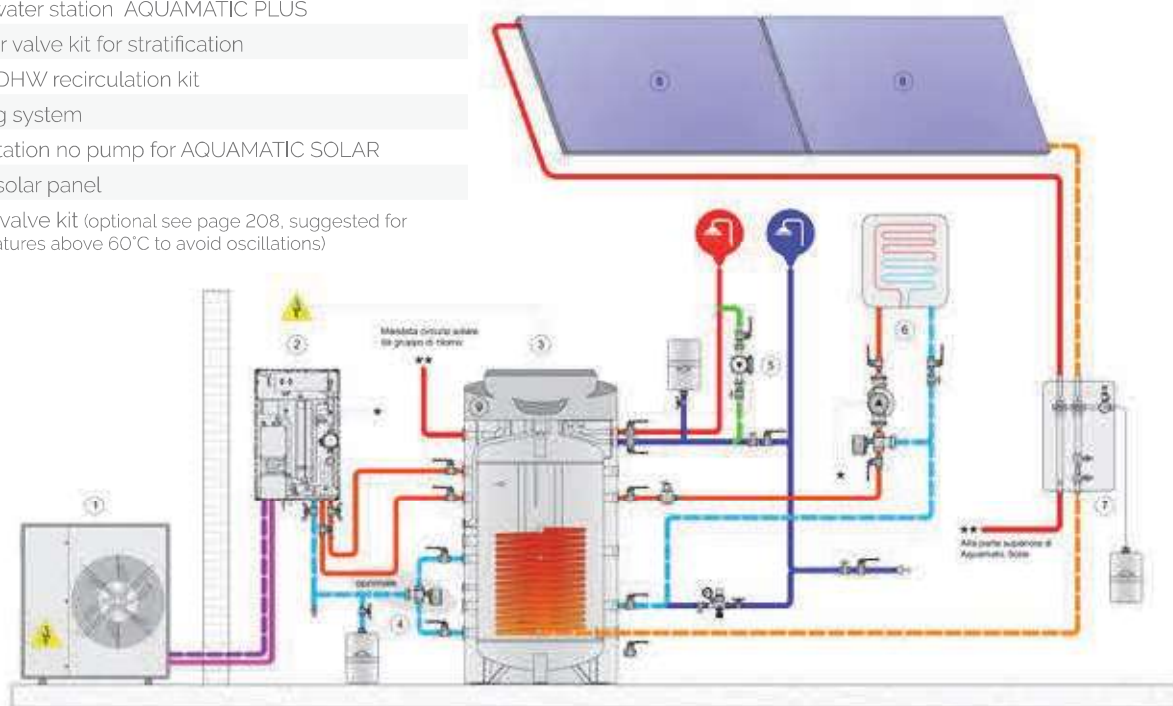
- 1 IDEA FLEX Galileus heat pump (outdoor unit)
- 2 IDEA FLEX Galileus heat pump (indoor unit)
- 3 Fresh water station AQUAMATIC
- 4 Diverter valve kit for stratification
- 5 Fiorini DHW recirculation kit
- 6 Heating system
- 7 Thermal solar return group
- 8 Fiorini solar panel
- 9 Mixing valve kit (optional see page 208, suggested for temperatures above 60°C to avoid oscillations)



Installation chart AQUAMATIC Solar

Legend

- 1 IDEA FLEX Galileus heat pump (outdoor unit)
- 2 IDEA FLEX Galileus 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
- 9 Mixing valve kit (optional see page 208, suggested for temperatures above 60°C to avoid oscillations)



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 the 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 thermostat
- ✓ 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.

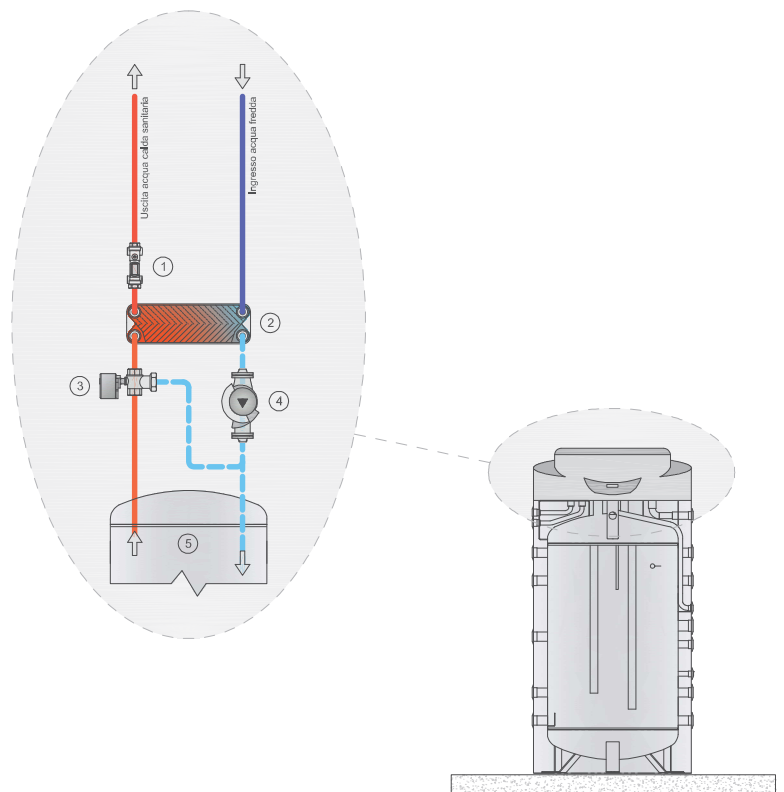
Kit mixing valve on primary circuit

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

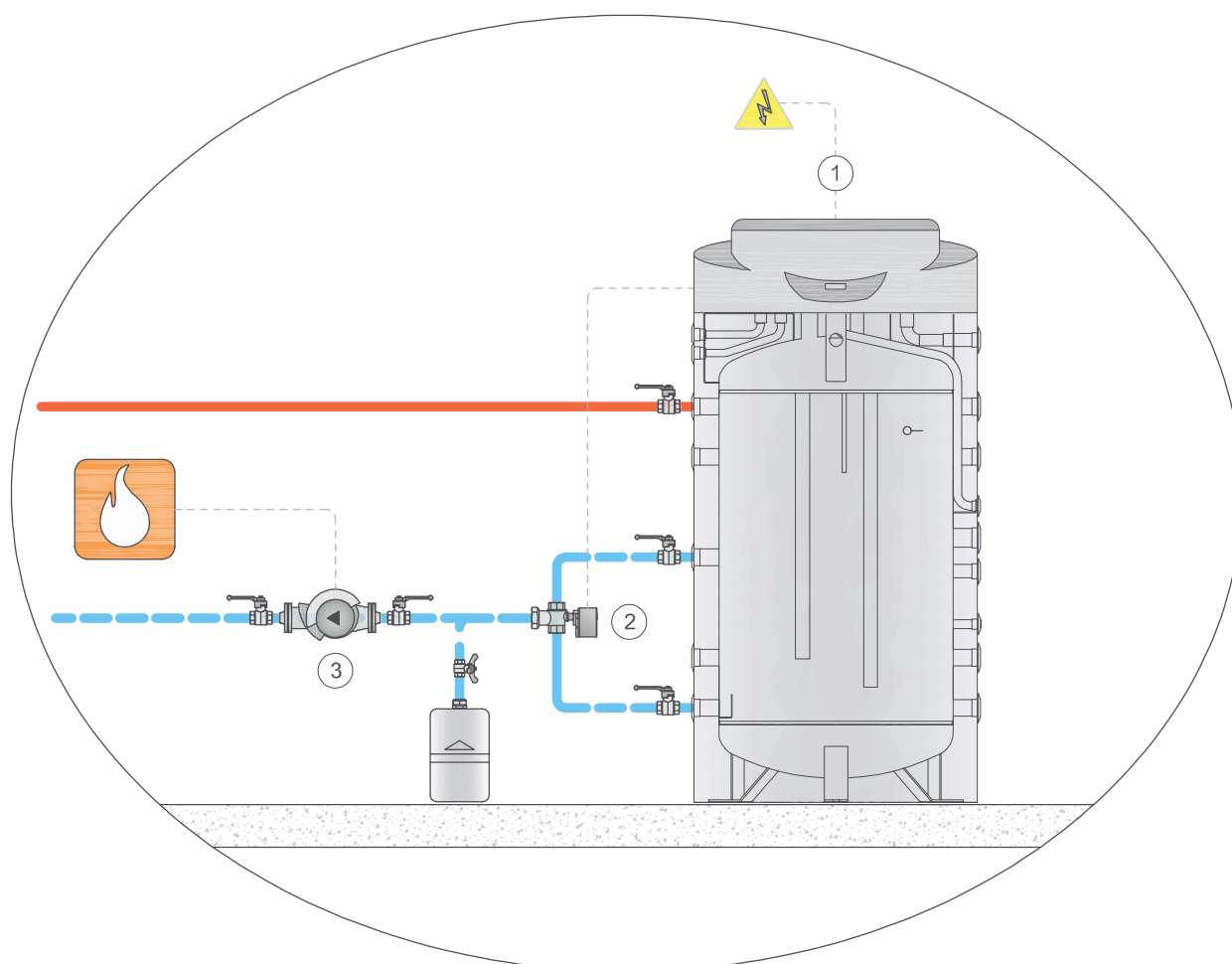
The kit with external deviation valve makes it possible to take the water for the return to the heat pump from the lower parts of the tanks instead of the middle in function of the temperature difference between the two zones in the tank.

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. Recommended in all case 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

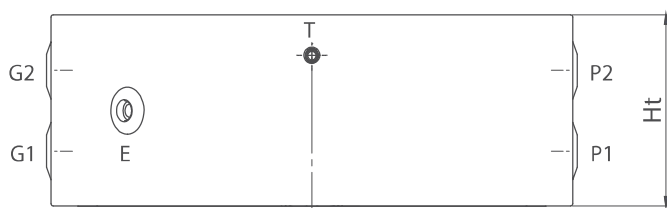
Min temperature -10 °C

Max temperature 95 °C

Max pressure 3 bar



TESTED



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

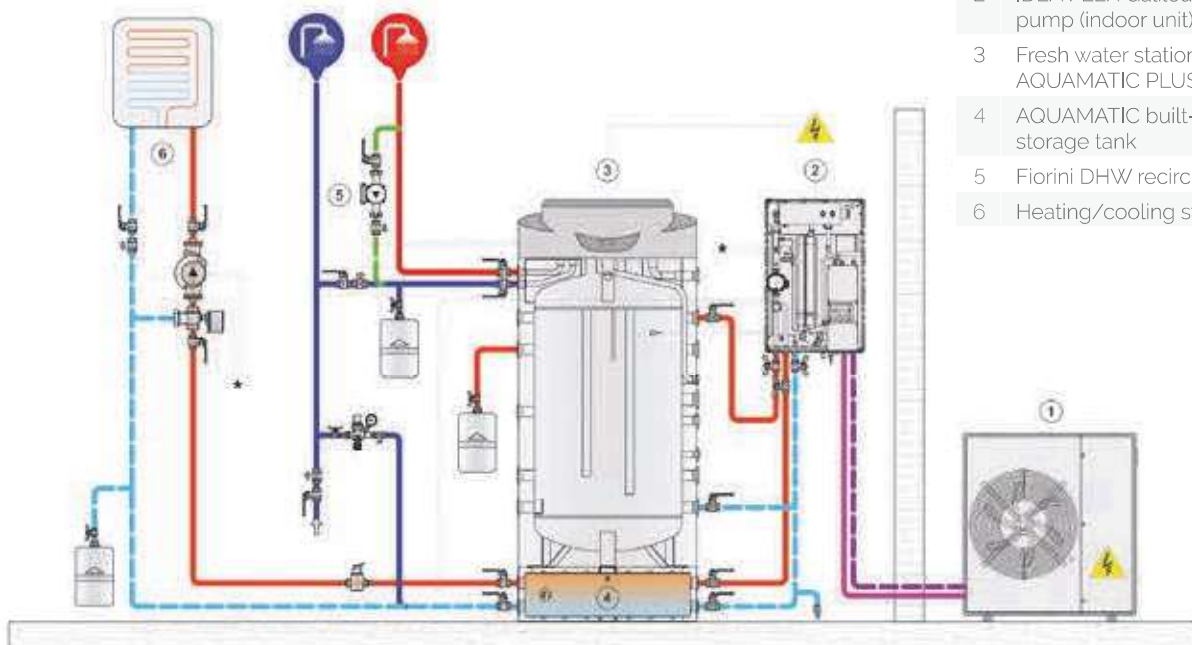
Cod.	capacity l	Øe mm	Ht mm	P1 mm	P2 mm	G1 mm	G2 mm	E mm	T mm	P1 inch	P2 inch	E inch	G1 inch	G2 inch	T inch
817010158X	66	710	260	75	185	75	185	130	205	1"	1"	1/2"	1"	1"	1/4"
817010159X	93	850	260	75	185	75	185	130	205	1 1/4"	1 1/4"	1/2"	1 1/4"	1 1/4"	1 1/4"

Installation chart accessory

Accessory Storage with AQUAMATIC (1 source)

Legend

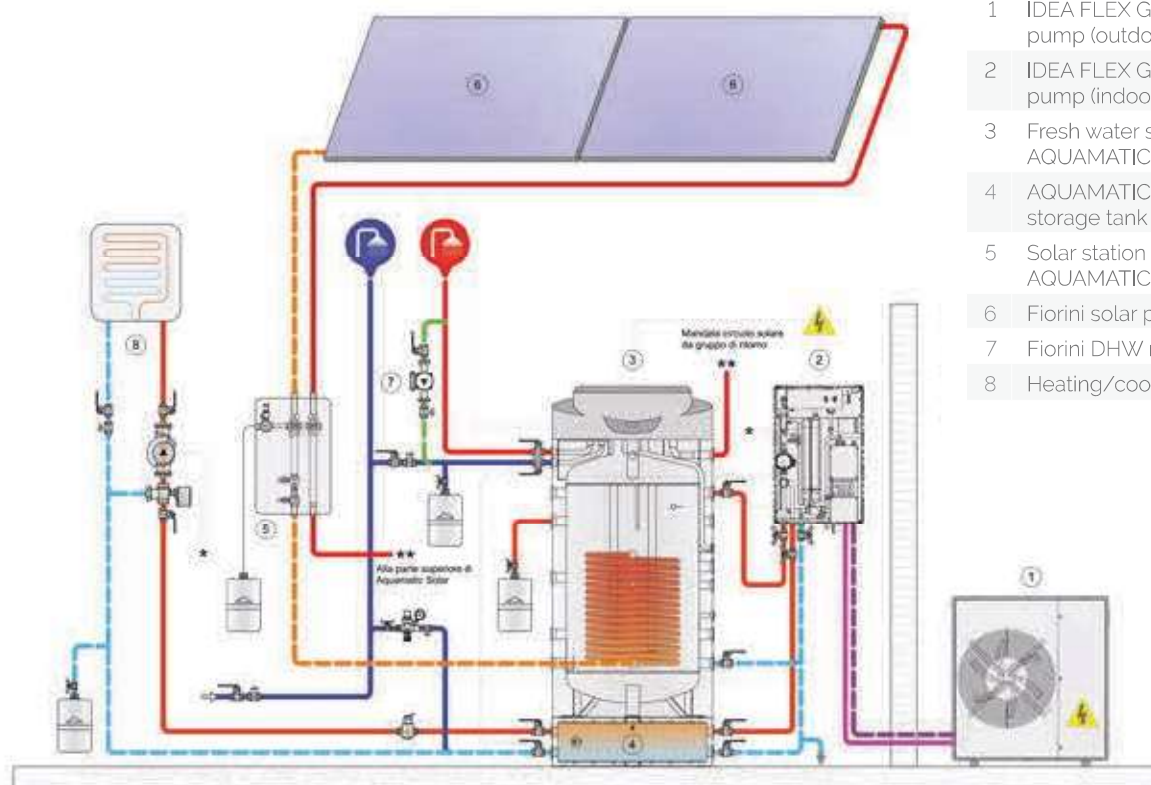
- 1 IDEA FLEX Galileus heat pump (outdoor unit)
- 2 IDEA FLEX Galileus heat pump (indoor unit)
- 3 Fresh water station AQUAMATIC PLUS
- 4 AQUAMATIC built-in-storage tank
- 5 Fiorini DHW recirculation kit
- 6 Heating/cooling system



Accessory Storage with AQUAMATIC SOLAR

Legend

- 1 IDEA FLEX Galileus heat pump (outdoor unit)
- 2 IDEA FLEX Galileus 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.

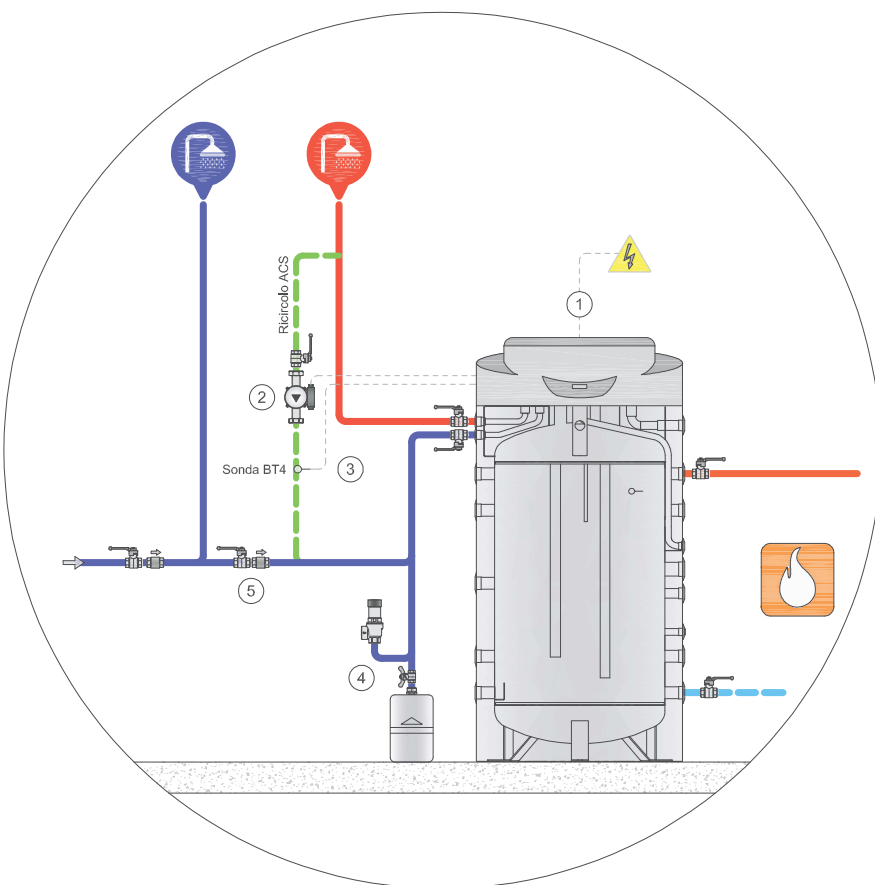
It contains:

- ✓ 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 temperature probe |
| 4 | Safety group |
| 5 | Non-return valve |

Kit serial port RS485 Modbus

Makes it possible to communicate with the supervision systems through the Modbus protocol

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:

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 $\frac{3}{4}$ "F
- ✓ coupling for expansion vessel $\frac{3}{4}$ "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



TESTED

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	
817010159X	Accessory puffer 90 litres AQUAMATIC 500	
838110069X	Solar station no pump	
452010010	Kit serial port RS485	
452010006	Kit web (remote control)	

SET 2.0 wall-mounted fresh Water Stations

A plug and play system for transferring heat from the technical water storage tank with a programmable control unit and a circulator. The SET 2.0 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 2.0 unit is the special electronic control unit which keeps up the imposed DHW temperature by modulating the flow in the primary circuit.

In this way the following is guaranteed:

- ✓ max heat drop in the primary circuit in order to 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

- ✓ temperature management of the hot water
- ✓ 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
- ✓ two models are available: one with an electronic entry level (S) and one with electronics with more options (L)



Available accessories see pag. 223

Model	Control unit	Code	Price	Packed	
				Dimensions cm	Weight kg
SET 2.0 - 25	S	842030034X		77x45x39	25
SET 2.0 - 35	S	84203A018X		77x45x39	28
SET 2.0 - 40	S	842030035X		77x45x39	31
SET 2.0 - 25	L	842030090X		77x45x39	25
SET 2.0 - 35	L	84203A024X		77x45x39	28
SET 2.0 - 40	L	842030088X		77x45x39	31

Available versions

Fiorini offers two versions of the SET 2.0 fresh water station. The difference between the two is in the control unit: one version with a limited number of functions (SET 2.0 S) and another version with many functions and control settings (SET 2.0 L).

Below the main features of the two units are indicated.

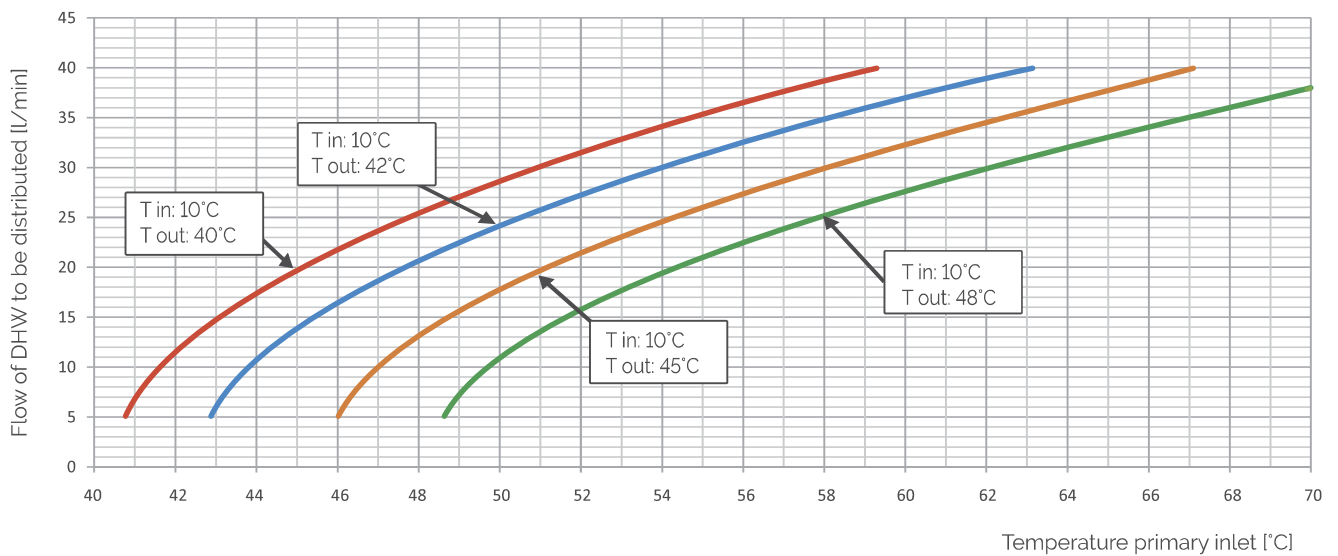
	SET 2.0	
	S	L
Efficient, electronic regulation of the velocity of the pump	✓	✓
Graphical display	✓	✓
Imposing the temperature of the DHW	✓	✓
Imposing the max temperature of the DHW. This is a safety option which stops the unit in case the max value is reached.	✓	✓
Possibility to control the recirculation 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	✓	✓
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		✓
Management kit in series		✓
Management kit Mixing valve on the primary circuit		✓
Management kit stratification of the tank		✓
*Anti-legionella heating: activation of an integrative heat source when the anti-legionella treatment is carried out		✓
Consumption accounting functions		✓

*Anti-legionella function only if available heat source greater than 65°C.

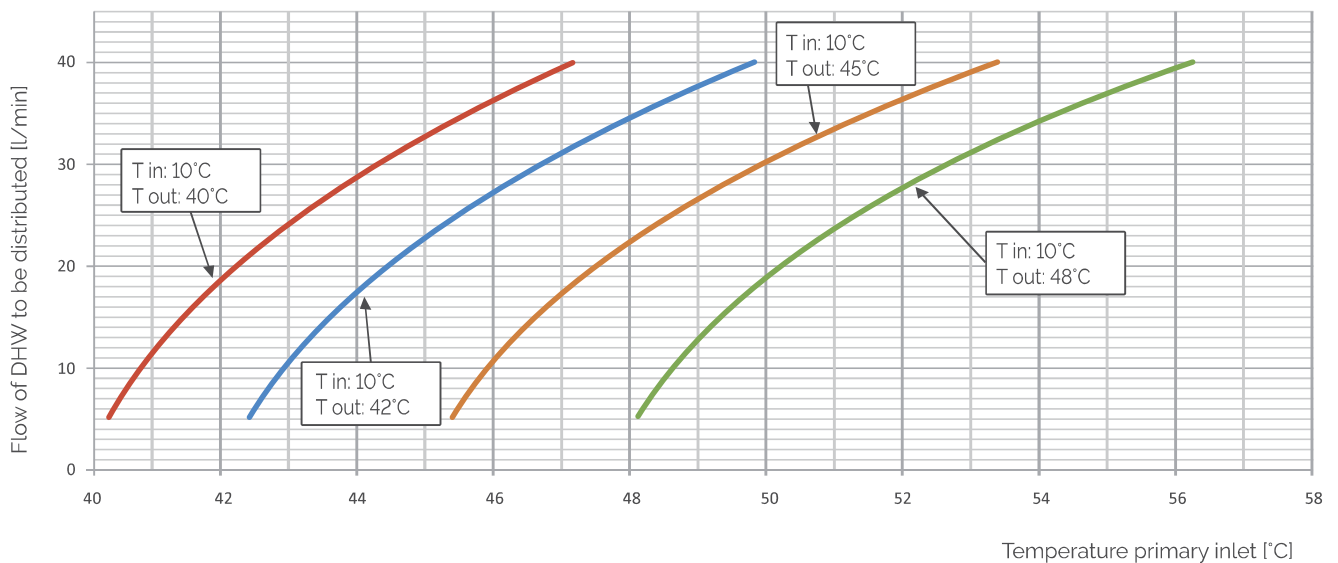


SET 2.0 (S and L) thermal performance

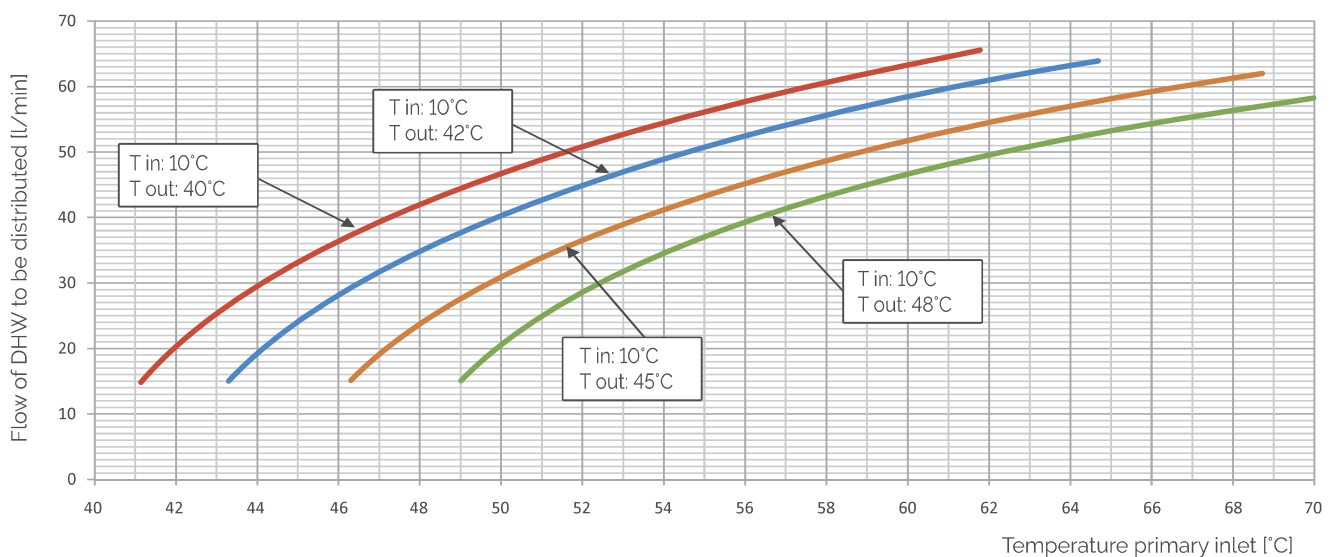
SET 2.0 - 25



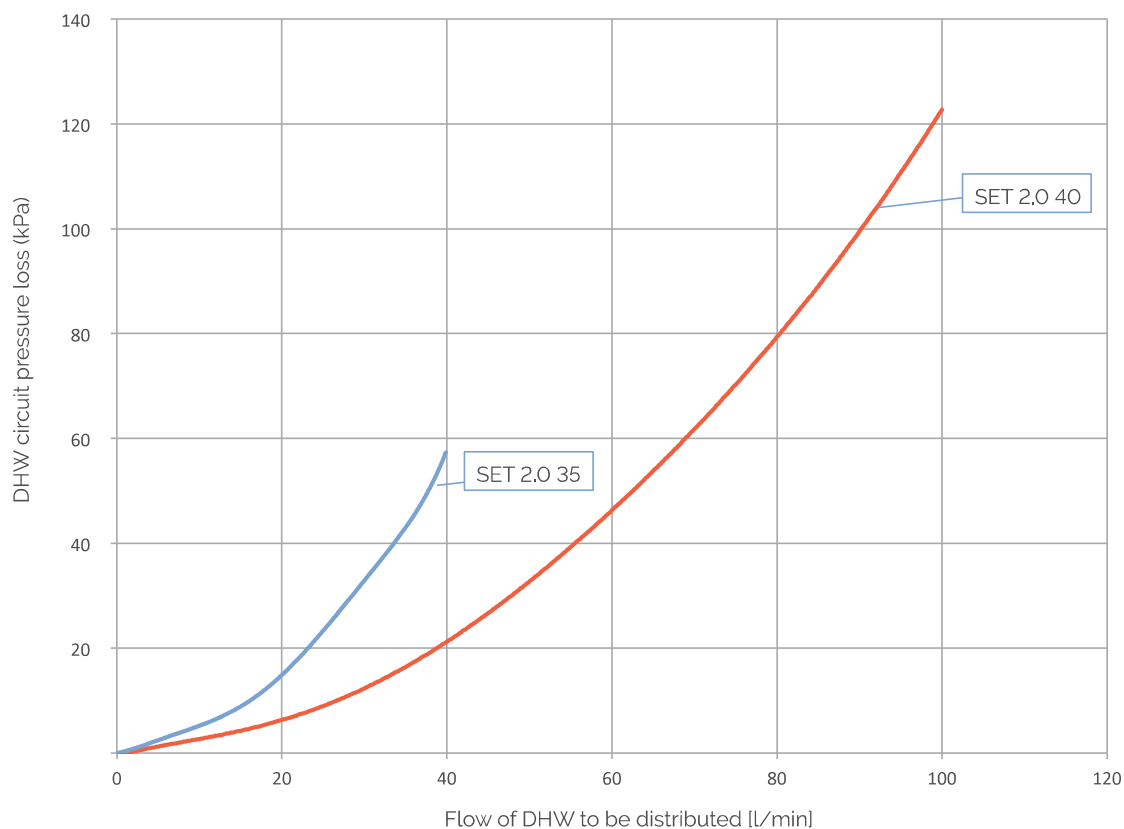
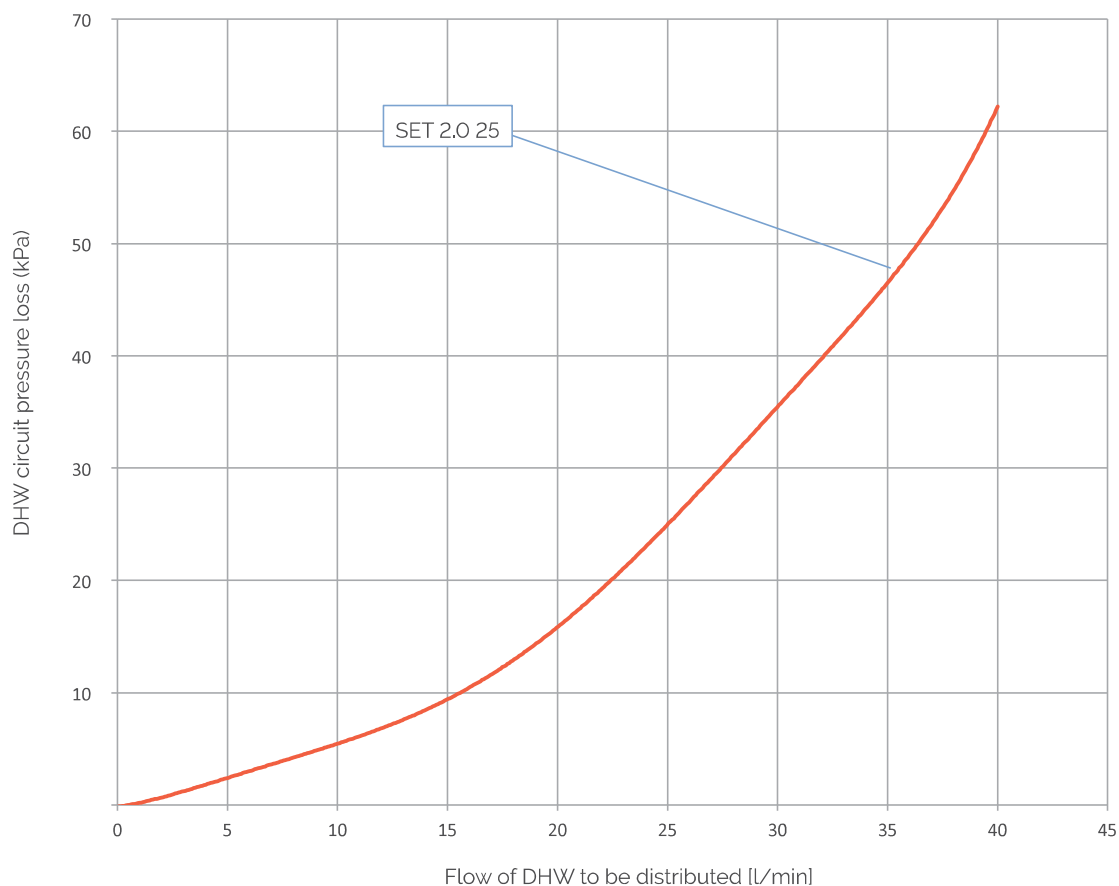
SET 2.0 - 35



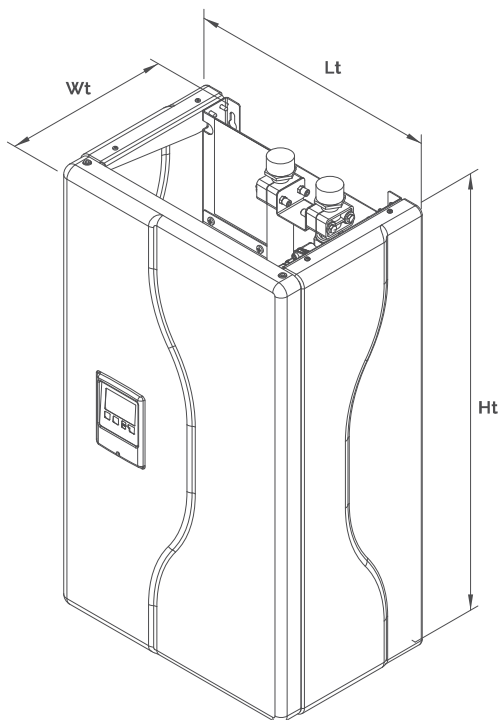
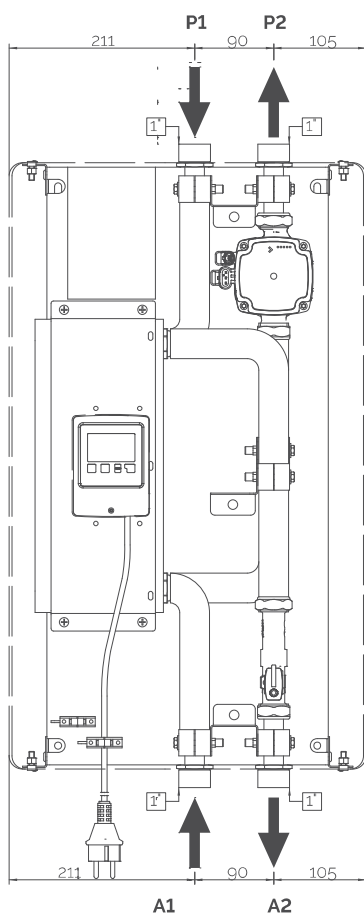
SET 2.0 - 40



SET 2.0 (S and L) thermal performance

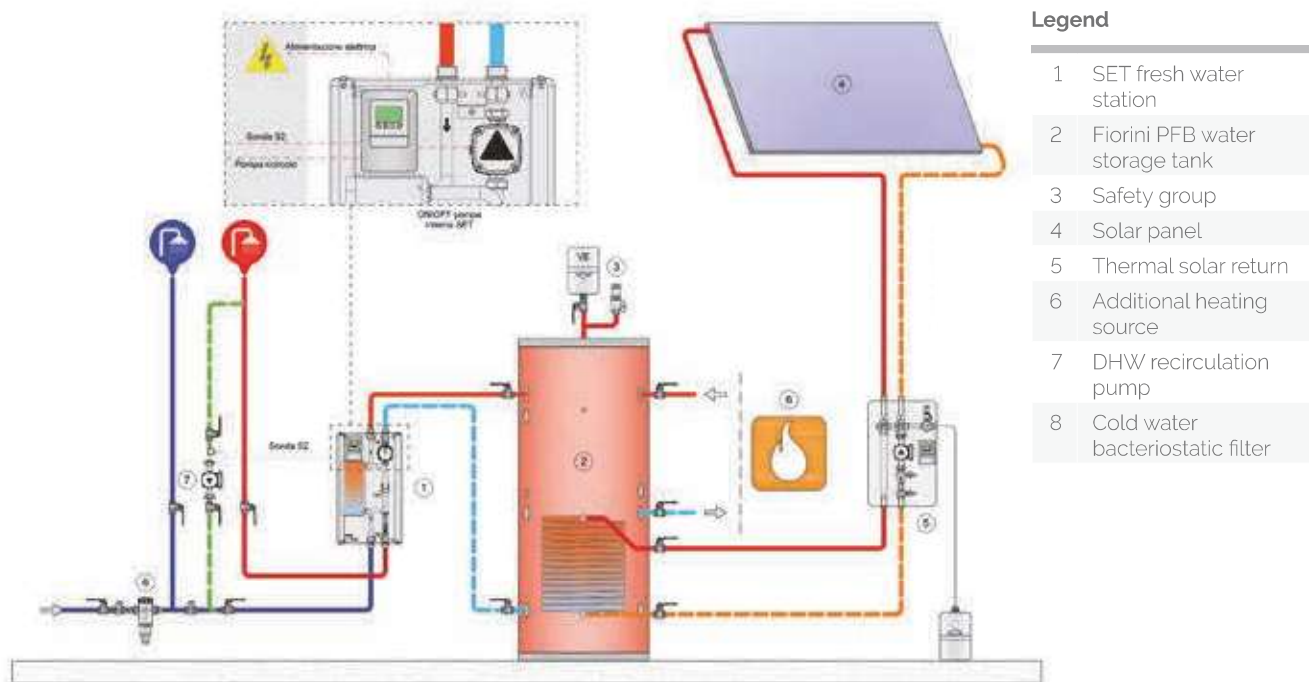


Dimensions



technical information	SET 2.0 (S e L)		
	25	35	40
Electrical supply (V/Ph/Hz)	230/1/50		
Power of primary pump min/max (W)	2/52		
Absorption of primary pump min/max (A)	0.04/0.52		
Max power of the recirculation pump (can be managed from the control unit)(pump not supplied)	460		
Primary flow (l/h)	2000	2800	2800
Residual prevalence of the primary circuit (m.c.a.)	2.0	2.5	1.0
Weight unpacked/packed (kg)	15/22	18/25	20/27
Volume of the primary circuit (l)	1.1	1.62	1.6
Volume of the domestic circuit (l)	0.85	1.75	1.4
Max operating pressure primary circuit (bar)	5		
Max operating pressure DHW circuit (bar)	10		
Couplings primary circuit (inch)	1" GAS M		
Couplings secondary circuit (inch)	1" GAS M		
Max operating temperature (°C)	95		
Category of electrical protection	IP40		
Type of plug (electrical connection)	Schuko 10-16A/250V		
Length of the electric cable (m)	1.5		
Min DHW ignition flow (l/min)	2	2	5
Max DHW flow (l/min)	40	40	100
Size (HxLxWt)	690x406x270 mm		

Installation chart in combination with the water storage tank



Equipment

The SET 2.0 fresh water station is delivered in a cardboard box with:

- ✓ Fresh water station with electric cable with a Schuko plug
- ✓ Template to facilitate making the holes in the wall for anchoring the fresh water station
- ✓ Pegs and screws to anchor the fresh water station to the wall

Accessories on request

Several accessory kits are available that can be combined with the SET 2.0 fresh water station. Some can only be coupled with the SET 2.0L. Below you can consult the compatibility chart.

Description	Set 2.0 S	Set 2.0 L	Uscite digitali*
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 valve)		✓	1

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

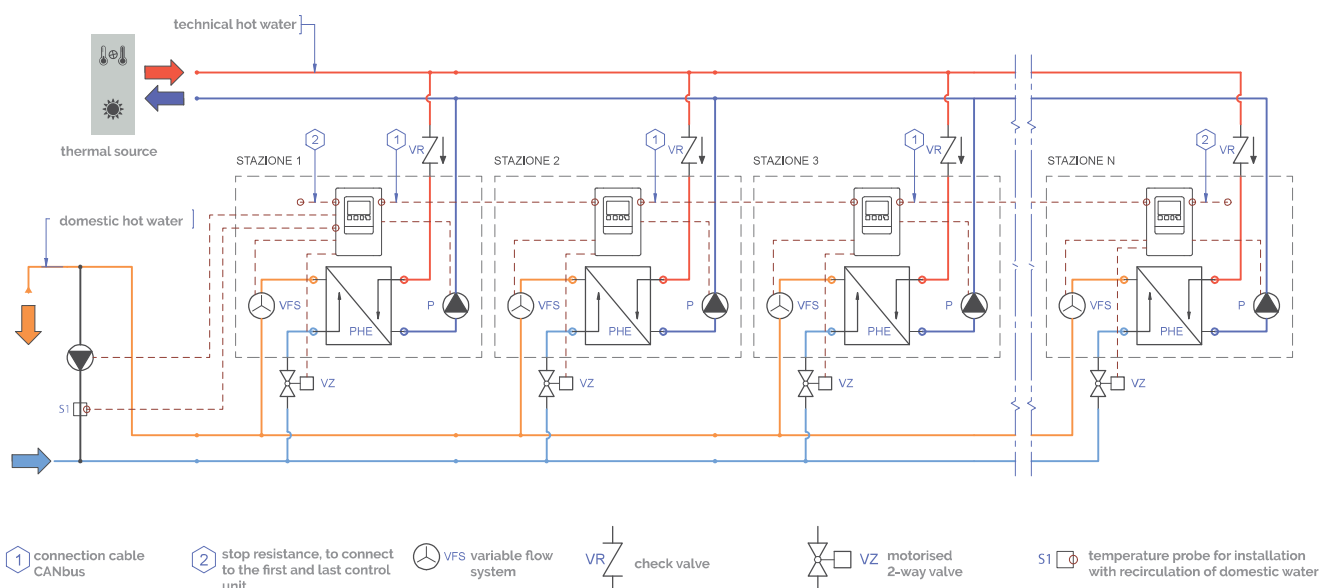
Kit to connect the SET in series

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. In this way it is possible to connect max 8 fresh water stations and ensure a DHW production of min 2 l/m and max 800 l/min*. The electronic control units that are mounted on every fresh water station enables communication between the stations via Modbus (only the L version). 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 2 to 800 l/min*
- ✓ 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 the DHW distribution continues.
- ✓ regulation of the temperature is even more precise. The regulation makes it possible to activate the right number of fresh water stations based on the flow and the temperature of the DHW. 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 system 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.

Installation chart



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 pipe fitting for the coupling
- ✓ one CanBus cable
- ✓ the instructions

* The production by several SET connected in series depends on the temperature in the primary circuit and the DHW production. The flow of DHW to be distributed by the stations connected in series equals the sum of the flow of the fresh water stations indicated in the section hydraulic performance

Recirculation kit

The recirculation kit offers multiple possibilities for the electronic control unit 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

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

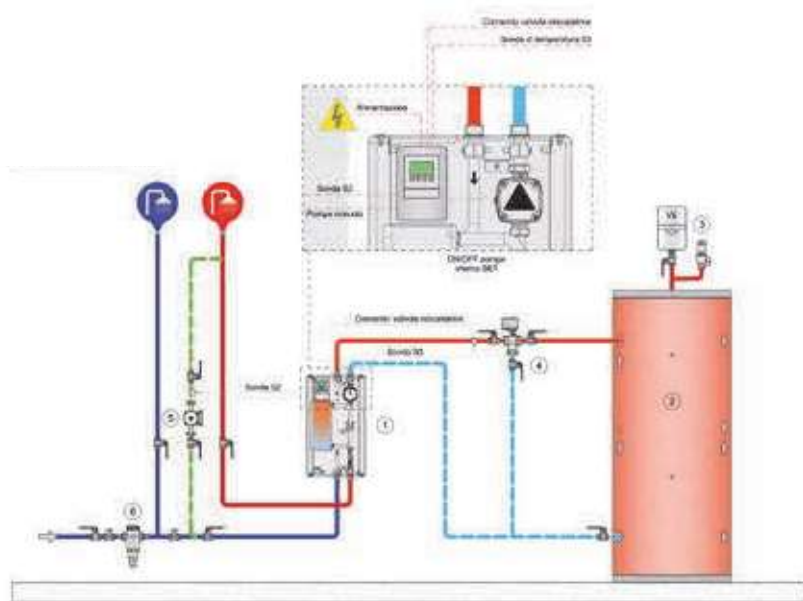
Recirculation pump

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 185 W

Kit with mixing valve on the primary circuit



Legend

- | | |
|---|----------------------------------|
| 1 | SET fresh water station |
| 2 | Fiorini water storage tank |
| 3 | Safety group |
| 4 | Mixing valve |
| 5 | DHW recirculation pump |
| 6 | Cold water bacteriostatic filter |

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 better comfort.

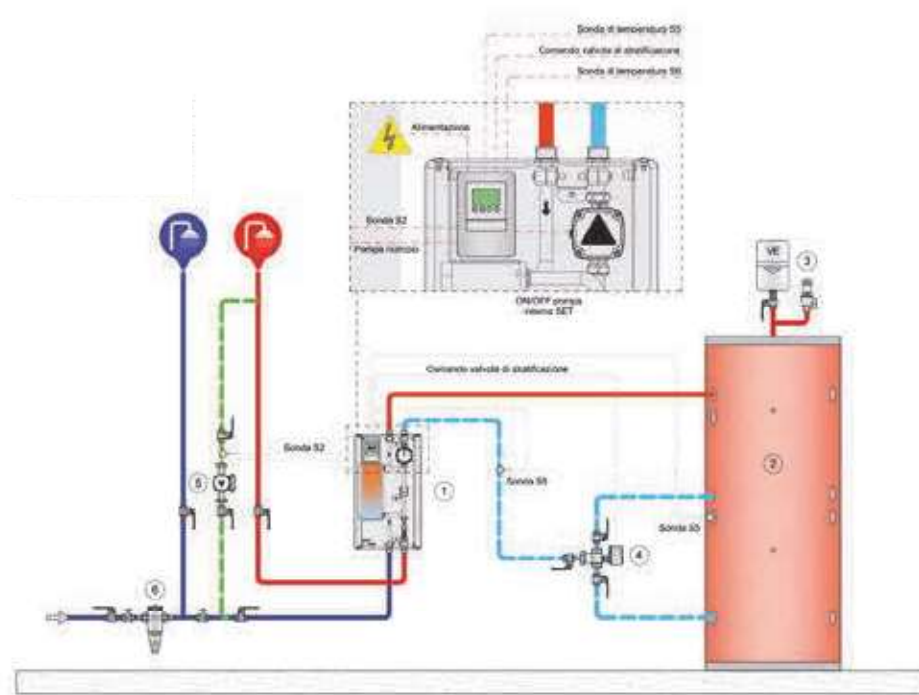
Composition of the kit

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 | SET fresh water station |
| 2 | Fiorini water storage tank |
| 3 | Safety group |
| 4 | Stratification valve for the storage tank |
| 5 | DHW recirculation pump |
| 6 | Cold water bacteriostatic filter |

Composition of the kit

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

- ✓ S5 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 2.0 wall-mounted

External accessories		Digital output*	Price
842030089X	KIT SET 2.0 SERIES	1	
842030099X	Recirculation kit SET 2,0 (NO PUMP)	1	
842030097X	Kit with mixing valve SET 2.0 DN40	2	
842030095X	Kit storage tank stratification (with external diverter valve) SET 2.0 DN40	1	

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

Mounted 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.

The mounted SET unit is available in several sizes (60, 70, 80, 100, 120 and 200*)
*: DHW production of 10 to 45°C 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 to 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

Codes and prices for Mounted SET see pag. 228

Available accessories see pag. 234



TESTED

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

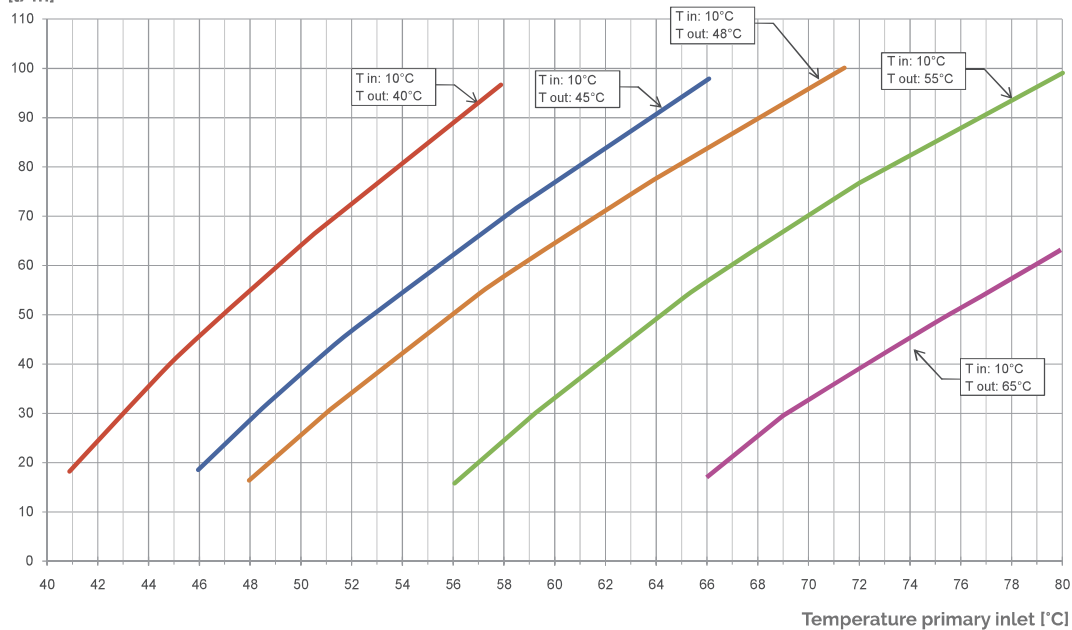
Consumption accounting functions

Code	Description	Price	Packed	
			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
842030016X	SET 200 - DHW FRESH WATER STATION		139,2x63,4x125	200

Mounted SET 2.0 thermal performance

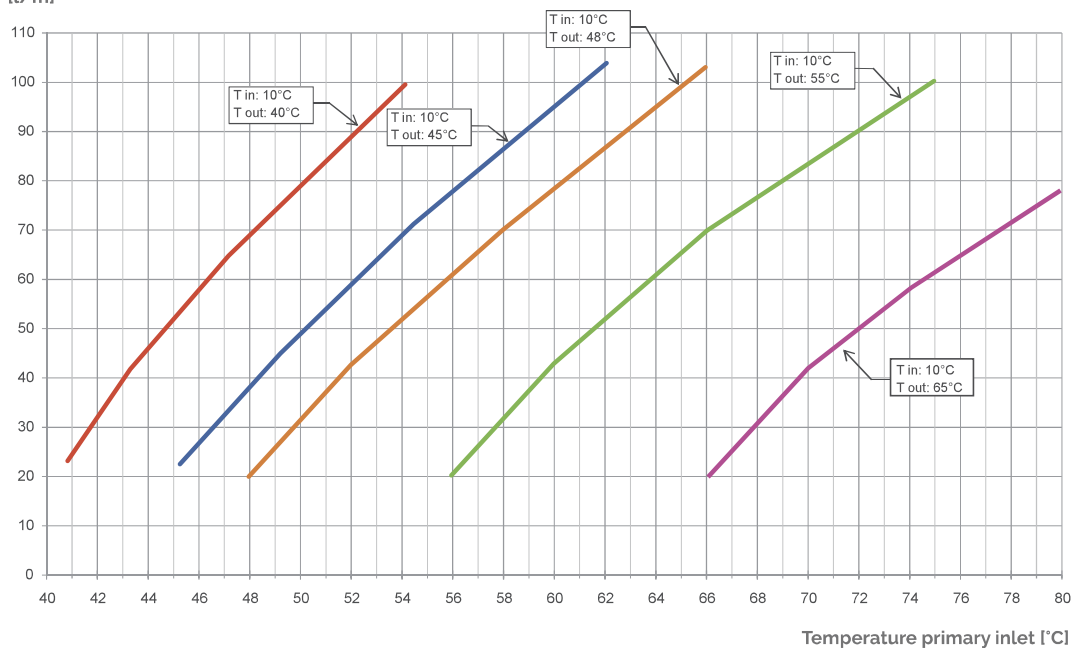
SET 60 performance

Flow of DHW to be distributed
[L/m]



SET 70 performance

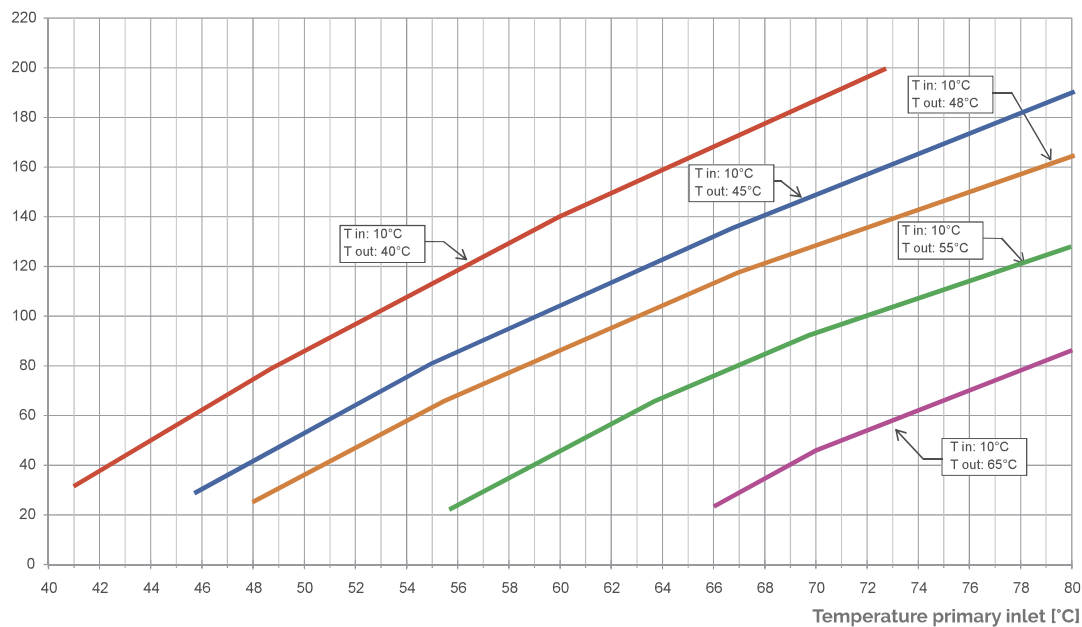
Flow of DHW to be distributed
[L/m]



Mounted SET thermal performance

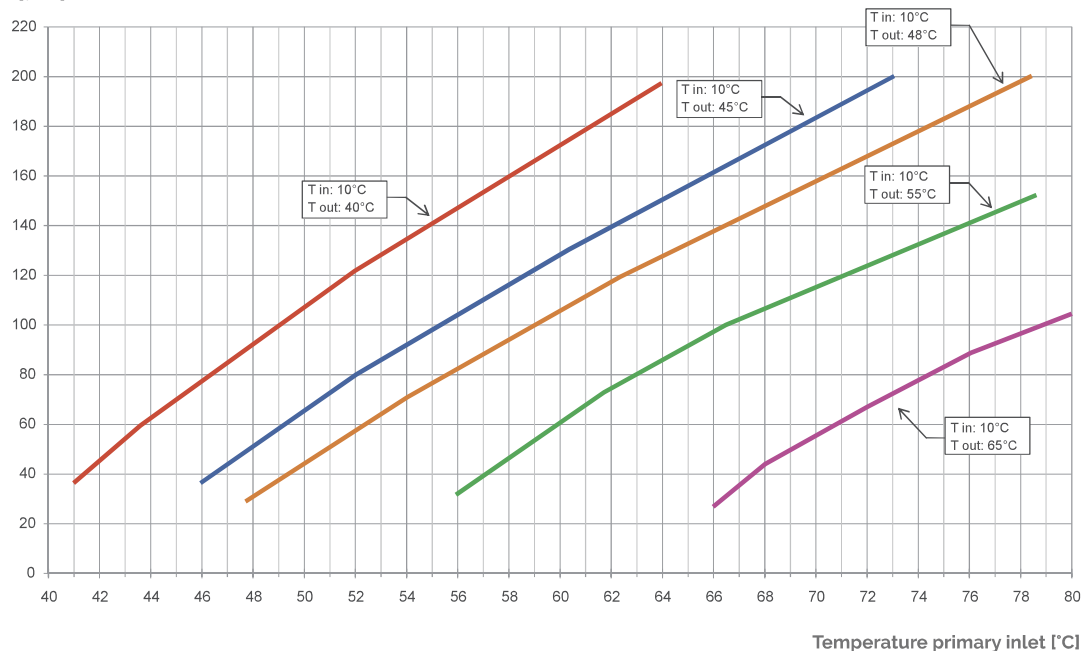
SET 80 performance

Flow of DHW to be distributed
[L/m]



SET 100 performance

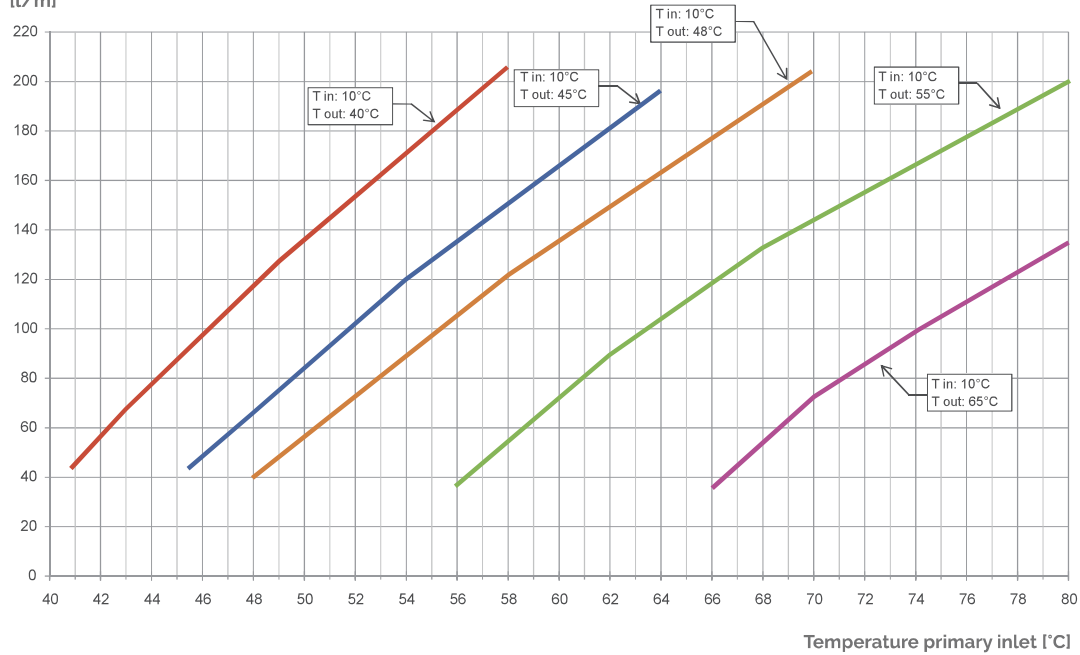
Flow of DHW to be distributed
[L/m]



Mounted SET thermal performance

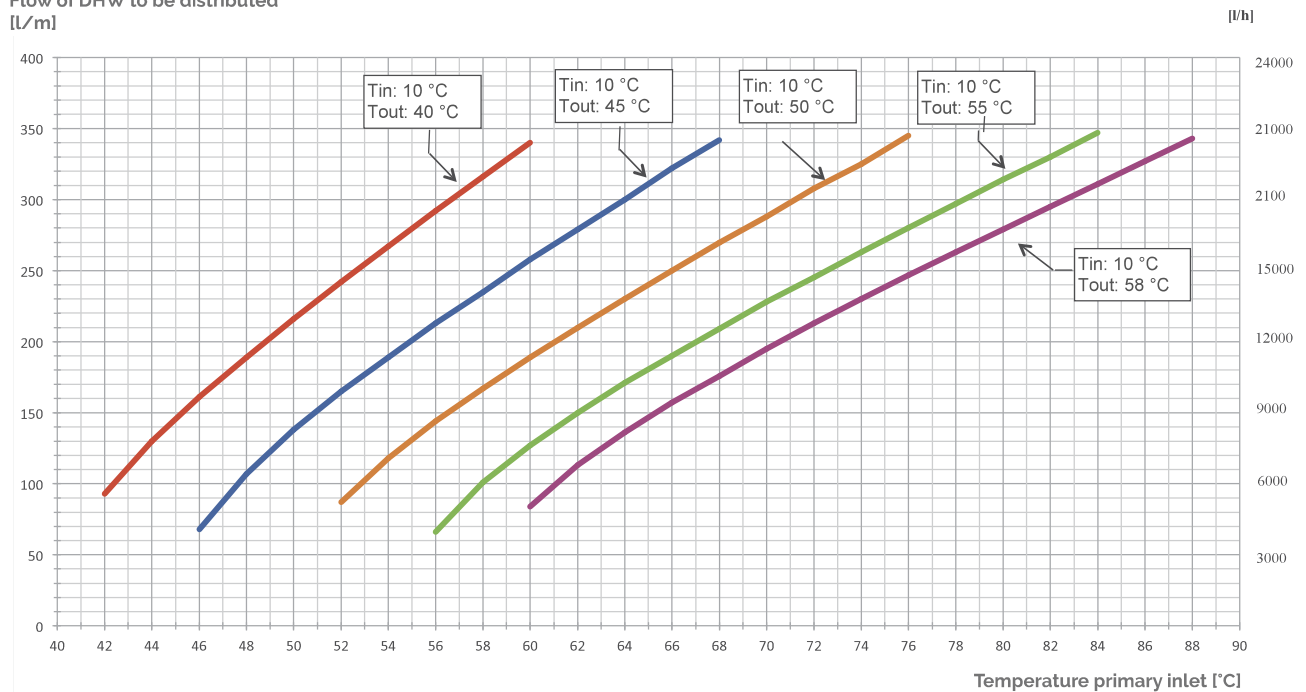
SET 120 performance

Flow of DHW to be distributed
[L/m]

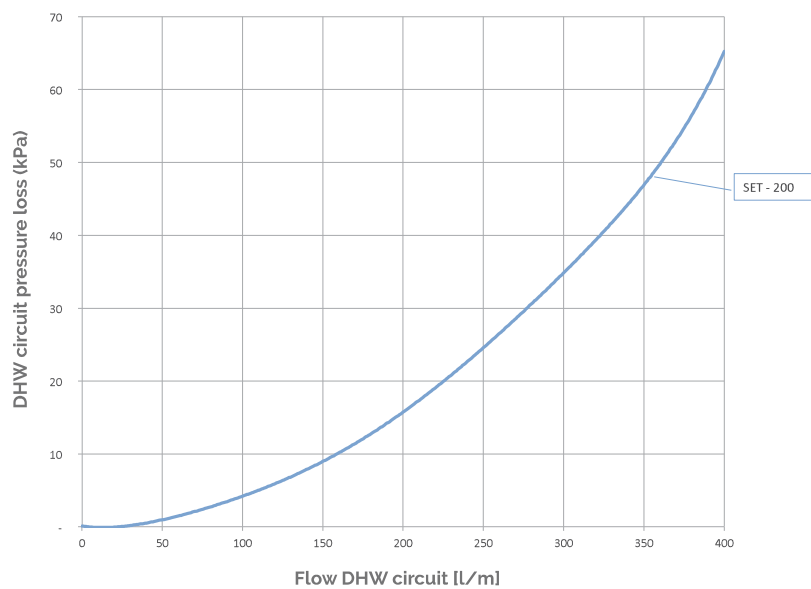
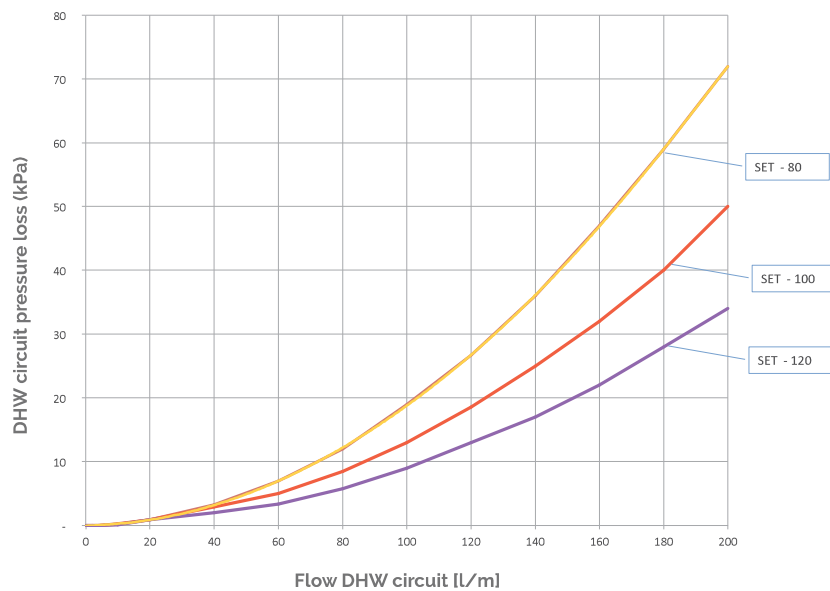
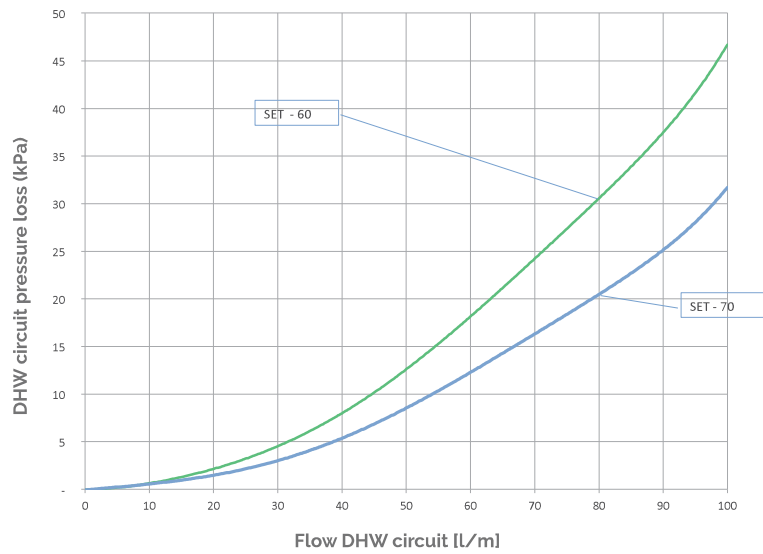


SET 200 performance

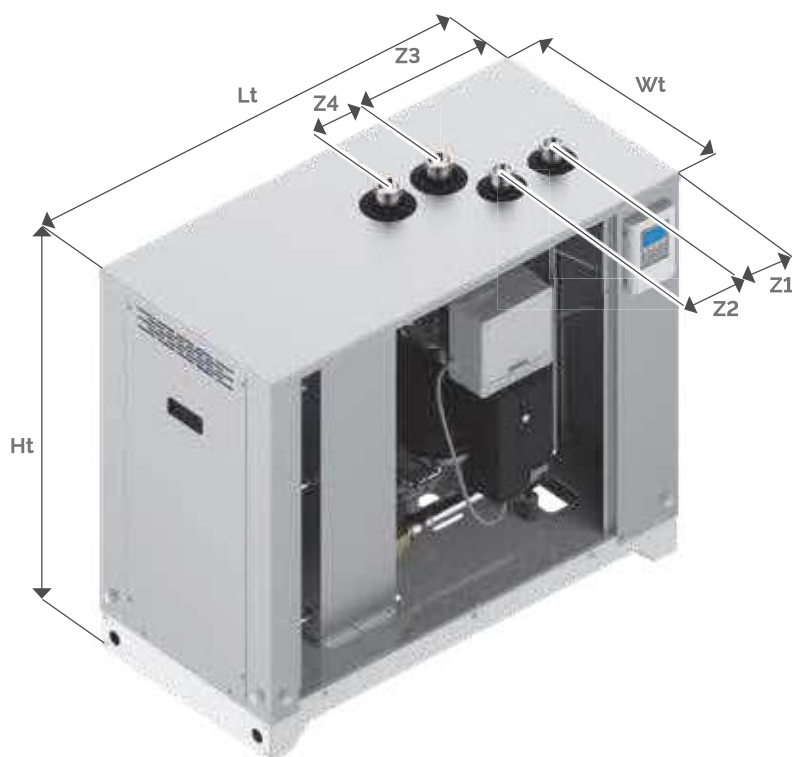
Flow of DHW to be distributed
[L/m]



Hydraulic performance SET



Dimensions

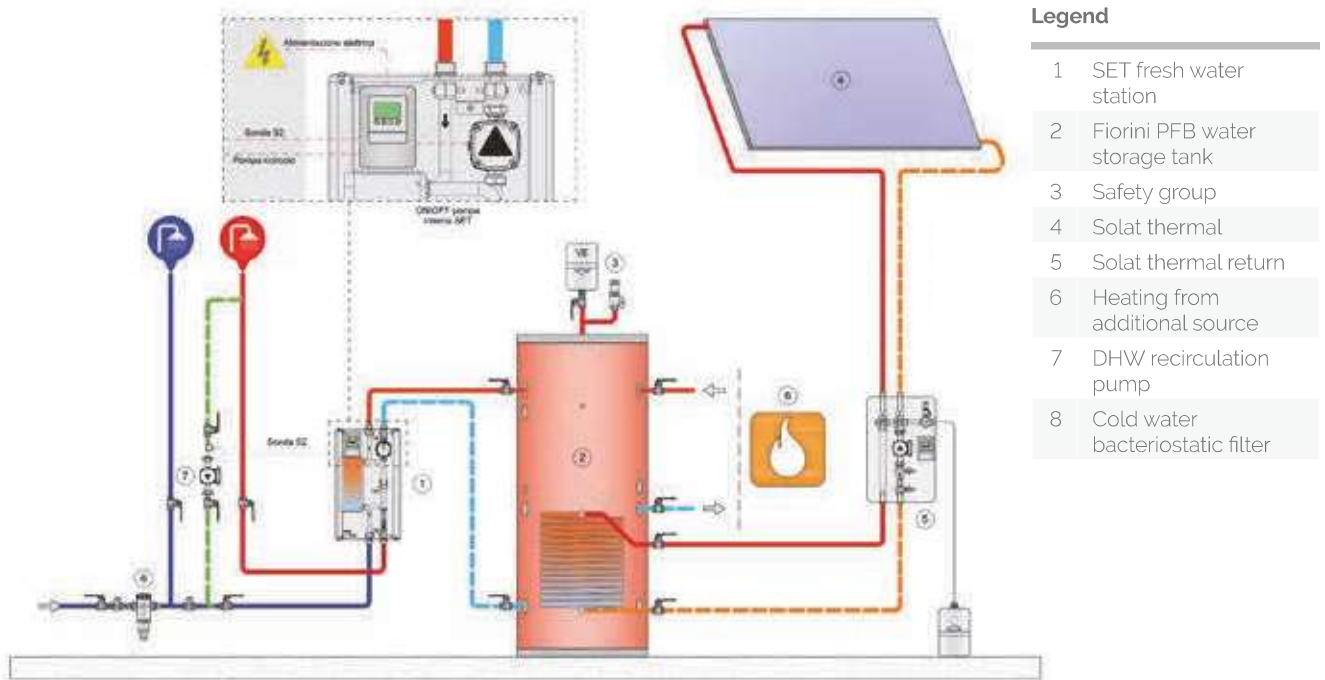


Model	Lt mm	Ht mm	Wt mm	Z1 mm	Z2 mm	Z3 mm	Z4 mm
SET 60	1004	871	484	153	125	346	125
SET 70	1004	871	484	153	125	346	125
SET 80	1004	871	484	153	125	346	125
SET 100	1004	871	484	153	125	346	125
SET 120	1004	871	484	153	125	346	125
SET 200	1220	1100	550	90	125	389	125

Technical information	MOUNTED SET					
	60	70	80	100	120	200
Electrical supply (V/Ph/Hz)	230/1/50					
Power of primary pump max (W)		310		450		600
Absorption of primary pump max (A)		1,37		2,01		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	22000
Residual prevalence of the primary circuit (m.c.a.)	2,0	4,0	2,0	2,0	4,0	2,0
Volume of the primary circuit (l)	2,66	2,90	3,15	3,87	4,84	6,55
Volume of the domestic circuit (l)	2,54	2,14	3,06	3,77	4,71	6,37
Max operating pressure primary and DHW (bar)	6					
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	20
Max DHW flow (L/min)	100	100	200	200	200	400

Installation chart

In combination with the water storage tank



Equipment

The mounted 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	L	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

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

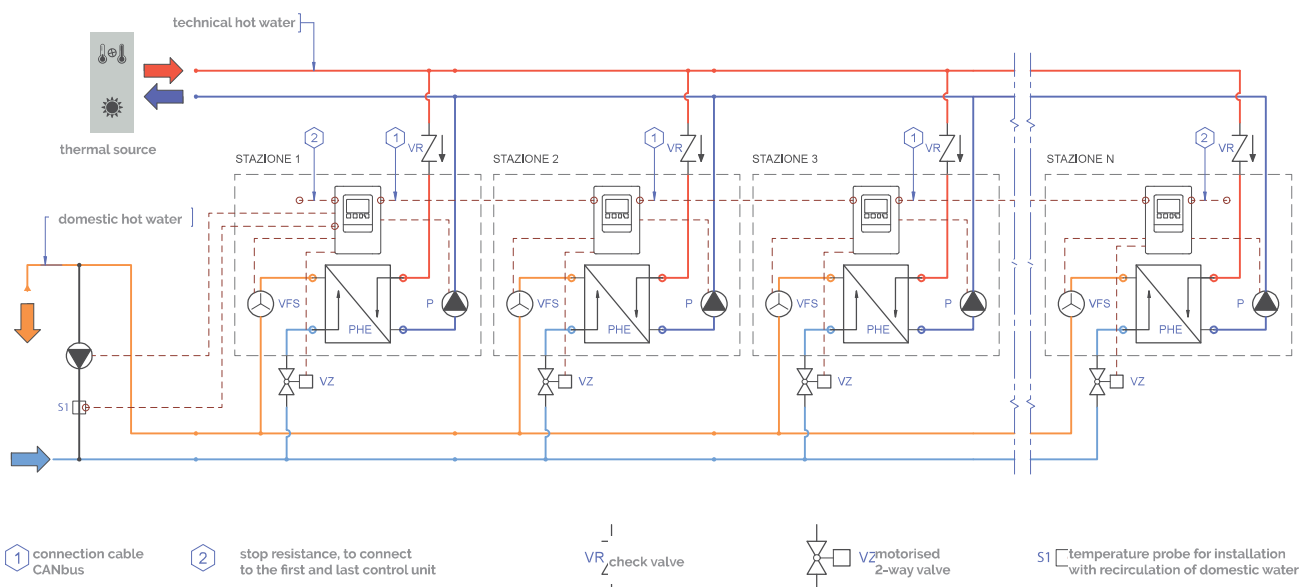
Kit to connect the SET in series

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 chart



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

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:

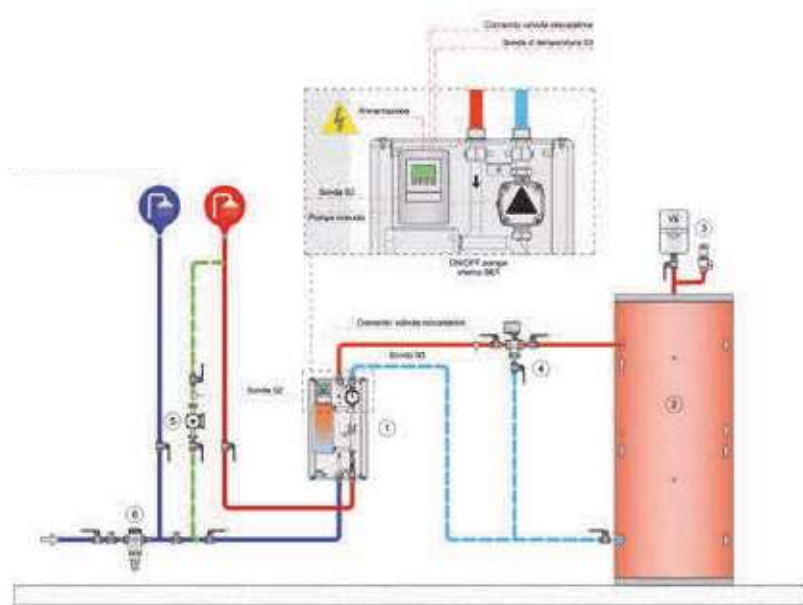
- ✓ temperature probe to be put on the recirculation ring
- ✓ instructions

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 185 W

Kit with mixing valve on the primary circuit



Legend

- | | |
|---|----------------------------------|
| 1 | SET fresh water station |
| 2 | Fiorini water storage tank |
| 3 | Safety group |
| 4 | Mixing valve |
| 5 | DHW recirculation pump |
| 6 | Cold water bacteriostatic filter |

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.

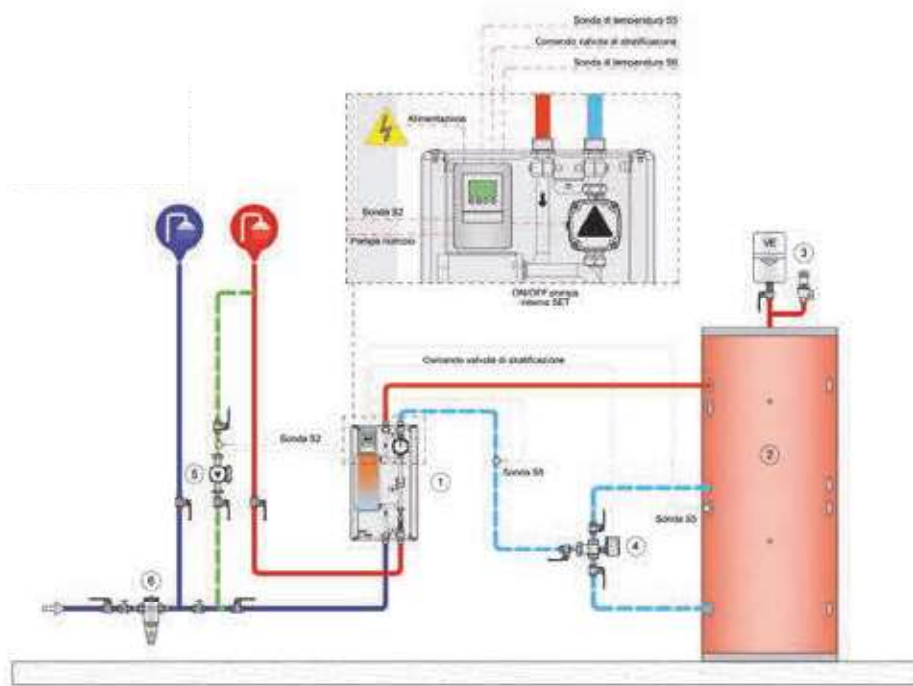
Composition of the kit

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 | SET fresh water station |
| 2 | Fiorini water storage tank |
| 3 | Safety group |
| 4 | Kit stratification valve |
| 5 | DHW recirculation pump |
| 6 | Cold water bacteriostatic filter |

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 2.0 wall-mounted


External accessories		Digital output*	Price
842030092X	KIT SET 2.0 SERIES DN32 Models 60 - 70 -80 -100 -120	1	
842030140X	KIT SET 2.0 SERIES DN50 Model 200	1	
842030099X	Recirculation kit SET 2.0 (NO PUMP)	1	
842030096X	Kit storage tank with stratification with external diverter valve) SET 2.0 DN40	1	
842030098X	Kit with mixing valve SET 2.0 DN40	2	


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



Water storage tanks

Contents

- Domestic Hot Water Storages pag. 134
- Indirect Water Heater pag. 142
- Fast Heaters for DHW pag. 186
- Fresh Water Stations for DHW pag. 200
- Hot Water Storage Tanks pag. 238
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PUFFER
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COMBI PLUS
pag. 246
- Thermal Solar Systems pag. 252
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PUFFER

Hot Water storage tanks

The Puffer tanks are inertial tanks for heating installations which store non-domestic hot water. They are used in all devices powered by discontinuous power sources (e.g. solar panels, wood burners, boiler stoves, etc.) or wherever the volume of water stored in the device must be increased (e.g. devices with heat pumps, combined heat and power units, biomass burners, etc.). Several versions are available, to be used with one or more energy sources:

PFA Regular storage tank

PFB Storage tank fitted with smooth tube heat exchanger to add an additional power source (e.g. solar).

PFC Storage tank fitted with two smooth tube heat exchangers to add two additional power sources (e.g. solar and boiler stove).

Materials

All storage tanks are made of carbon steel sheets, externally varnished

Insulation

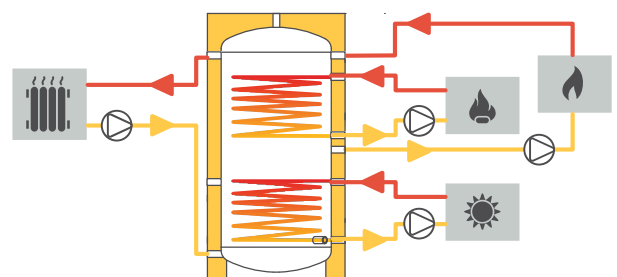
Capacity (l)	Type
from 300 to 1000	Highly rigid polyurethane foam
from 1500 to 5000	Polyester Fiber
from 6000	Flexible polyurethane foam

Operational limits

Model	Storage tank		S1 Coil Circuit		S2 Coil Circuit	
	max. temperature	max. pressure	max. temperature	max. pressure	max. temperature	max. pressure
PFA	95°C	6 bar	-	-	-	-
PFB	95°C	6 bar	99°C	9 bar	-	-
PFC	95°C	6 bar	99°C	9 bar	99°C	9 bar

 **Standard Accessories:** see pag 274







 **Special versions:** see pag 277









PUFFER

Product code







PFA series

capacity l	code	price	energy label	packed	
				dimensions cm	weight kg
300	817010119X			64x64x180	55
500	817010120X			77x77x184	77
750	817010216X			95x95x178	117,5
1000	817010002			129x129x216	125
1500	817010003			125x125x229	194
2000	817010004			136x136x261	263
2500	817010101X			147x147x234	296
3000	817010102X			147x147x284	346
4000	817010103X			163x163x293	492
5000	817010104X			183x183x299	582
6000	817010129X			282x203x217,5	684
8000	817010130X			352x203x217,5	823
10000	817010131X			427x203x217,5	973

PFB series

capacity l	code	price	energy label	packed	
				dimensions cm	weight kg
300	819010129X			64x64x180	65
500	819010130X			77x77x184	98
750	819010202X			95x95x178	144,5
1000	819010003			129x129x216	153
1500	819010004			125x125x229	237
2000	819010005			136x136x261	315
2500	819010135X			147x147x234	352
3000	819010136X			147x147x284	413
4000	819010137X			163x163x293	571
5000	819010138X			183x183x299	672

PFC series

capacity l	code	price	energy label	packed	
				dimensions cm	weight kg
300	819010149X			64x64x180	77
500	819010150X			77x77x184	111
750	819010203X			95x95x178	162,5
1000	819010006			129x129x216	181
1500	819010007			125x125x229	268
2000	819010008			136x136x261	346
2500	819010155X			147x147x234	383
3000	819010156X			147x147x284	460
4000	819010157X			163x163x293	628
5000	819010158X			183x183x299	730

PUFFER Size PFA

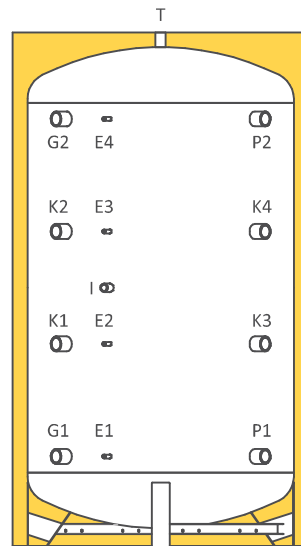
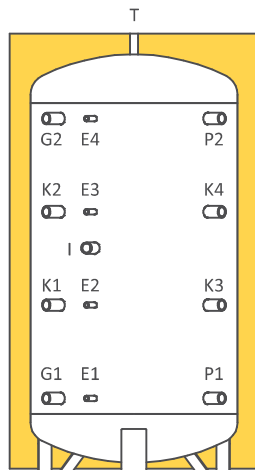
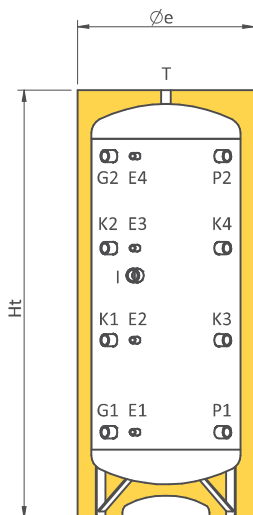
300 ≤ cap. ≤ 1.000

1.500 ≤ cap. ≤ 5.000

6.00 ≤ cap. ≤ 10.000

Couplings legend

- E1** Probe / Thermometer
- E2** Probe / Thermometer
- E3** Probe / Thermometer
- E4** Probe / Thermometer
- G1** From plant
- G2** To plant
- I** Electrical resistor
- K1** Auxiliary
- K2** Auxiliary
- K3** Auxiliary
- K4** Auxiliary
- P1** To energy source
- P2** From energy source
- T** Vent



Couplings chart

Cap. l	E1 inch	E2 inch	E3 inch	E4 inch	G1 inch	G2 inch	I inch	K1 inch	K2 inch	K3 inch	K4 inch	P1 inch	P2 inch	T inch
300	1/2"	1/2"	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 1/4	1 1/4	1 1/4
500	1/2"	1/2"	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 1/4	1 1/4	1 1/4
750	1/2"	1/2"	1/2"	1/2"	1 1/2	1 1/2	1 1/2	1 1/2	1 1/2	1 1/2	1 1/2	1 1/2	1 1/2	1 1/2
1000	1/2"	1/2"	1/2"	1/2"	1 1/2	1 1/2	1 1/2	1 1/2	1 1/2	1 1/2	1 1/2	1 1/2	1 1/2	1 1/2
1500	1/2"	1/2"	1/2"	1/2"	1 1/2	1 1/2	1 1/2	1 1/2	1 1/2	1 1/2	1 1/2	1 1/2	1 1/2	1"
2000	1/2"	1/2"	1/2"	1/2"	1 1/2	1 1/2	1 1/2	1 1/2	1 1/2	1 1/2	1 1/2	1 1/2	1 1/2	1"
2500	1/2"	1/2"	1/2"	1/2"	2"	2"	1 1/2	2"	2"	2"	2"	2"	2"	1"
3000	1/2"	1/2"	1/2"	1/2"	2"	2"	1 1/2	2"	2"	2"	2"	2"	2"	1"
4000	1/2"	1/2"	1/2"	1/2"	2"	2"	1 1/2	2"	2"	2"	2"	2"	2"	1"
5000	1/2"	1/2"	1/2"	1/2"	2"	2"	1 1/2	2"	2"	2"	2"	2"	2"	1"
6000	1/2"	1/2"	1/2"	1/2"	3"	3"	1 1/2	3"	3"	3"	3"	3"	3"	2"
8000	1/2"	1/2"	1/2"	1/2"	3"	3"	1 1/2	3"	3"	3"	3"	3"	3"	2"
10000	1/2"	1/2"	1/2"	1/2"	3"	3"	1 1/2	3"	3"	3"	3"	3"	3"	2"

Size chart

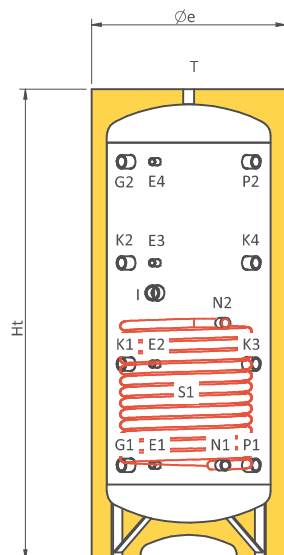
Cap. l	Øe mm	Ht mm	R* mm	E1 mm	E2 mm	E3 mm	E4 mm	G1 mm	G2 mm	I mm	K1 mm	K2 mm	K3 mm	K4 mm	P1 mm	P2 mm
300	610	1680	1790	325	695	1065	1435	325	1435	880	695	1065	695	1065	325	1435
500	760	1735	1895	355	725	1095	1465	355	1465	985	725	1095	725	1095	355	1465
750	910	1765	1990	395	745	1095	1445	395	1445	920	745	1095	745	1095	395	1445
1000	1010	2000	2245	330	770	1210	1650	330	1650	990	770	1210	770	1210	330	1650
1500	1250	2145	2475	360	810	1260	1710	360	1710	1085	810	1260	810	1260	360	1710
2000	1350	2475	2815	390	930	1470	2010	390	2010	1200	930	1470	930	1470	390	2010
2500	1450	2220	2655	425	865	1305	1745	425	1745	1145	865	1305	865	1305	425	1745
3000	1450	2720	3085	435	1035	1635	2235	435	2235	1435	1035	1635	1035	1635	435	2235
4000	1600	2810	3235	480	1080	1680	2280	480	2280	1430	1080	1680	1080	1680	480	2280
5000	1800	2870	3390	510	1110	1710	2310	510	2310	1510	1110	1710	1110	1710	510	2310
6000	2000	2790	3435	635	1155	1675	2195	635	2195	1415	1155	1675	1155	1675	635	2195
8000	2000	3490	4025	625	1385	2145	2905	625	2905	1615	1385	2145	1385	2145	625	2905
10000	2000	4240	4690	625	1635	2645	3655	625	3655	2365	1635	2645	1635	2645	625	3655

R*: reversal quota

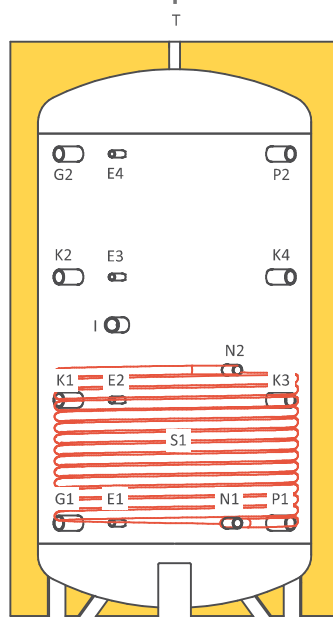
PUFFER

Size PFB

300 ≤ cap. ≤ 1.000



1.500 ≤ cap. ≤ 5.000



Couplings legend

E1	Probe / Thermometer
E2	Probe / Thermometer
E3	Probe / Thermometer
E4	Probe / Thermometer
G1	Ingresso da impianto
G2	To plant
I	Electrical resistor
K1	Auxiliary
K2	Auxiliary
K3	Auxiliary
K4	Auxiliary
N1	Lower exchanger outlet
N2	Lower exchanger inlet
P1	To energy source
P2	Ingresso da fonte energetica
S1	From energy source
T	Vent

Couplings chart

Cap. l	E1 inch	E2 inch	E3 inch	E4 inch	G1 inch	G2 inch	I inch	K1 inch	K2 inch	K3 inch	K4 inch	N1 inch	N2 inch	P1 inch	P2 inch	T inch
300	1/2"	1/2"	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
500	1/2"	1/2"	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
750	1/2"	1/2"	1/2"	1/2"	1 1/2	1 1/2	1 1/2	1 1/2	1 1/2	1 1/2	1 1/2	1"	1"	1 1/2	1 1/2	1 1/2
1000	1/2"	1/2"	1/2"	1/2"	1 1/2	1 1/2	1 1/2	1 1/2	1 1/2	1 1/2	1 1/2	1"	1"	1 1/2	1 1/2	1 1/2
1500	1/2"	1/2"	1/2"	1/2"	1 1/2	1 1/2	1 1/2	1 1/2	1 1/2	1 1/2	1 1/2	1"	1"	1 1/2	1 1/2	1"
2000	1/2"	1/2"	1/2"	1/2"	1 1/2	1 1/2	1 1/2	1 1/2	1 1/2	1 1/2	1 1/2	1"	1"	1 1/2	1 1/2	1"
2500	1/2"	1/2"	1/2"	1/2"	2"	2"	1 1/2	2"	2"	2"	2"	1"	1"	2"	2"	1"
3000	1/2"	1/2"	1/2"	1/2"	2"	2"	1 1/2	2"	2"	2"	2"	1"	1"	2"	2"	1"
4000	1/2"	1/2"	1/2"	1/2"	2"	2"	1 1/2	2"	2"	2"	2"	1"	1"	2"	2"	1"
5000	1/2"	1/2"	1/2"	1/2"	2"	2"	1 1/2	2"	2"	2"	2"	1"	1"	2"	2"	1"

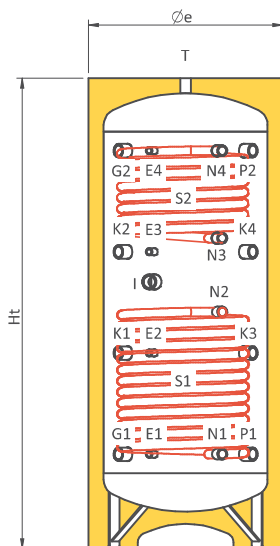
Size chart

Cap. l	Øe mm	Ht mm	R* mm	E1 mm	E2 mm	E3 mm	E4 mm	G1 mm	G2 mm	I mm	K1 mm	K2 mm	K3 mm	K4 mm	N1 mm	N2 mm	P1 mm	P2 mm	S1 m ²
300	610	1680	1790	325	695	1065	1435	325	1435	880	695	1065	695	1065	325	685	325	1435	1
500	760	1735	1895	355	725	1095	1465	355	1465	985	725	1095	725	1095	355	875	355	1465	1,9
750	910	1765	1990	395	745	1095	1445	395	1445	920	745	1095	745	1095	395	875	395	1445	2,5
1000	1010	2000	2245	330	770	1210	1650	330	1650	990	770	1210	770	1210	330	890	330	1650	3,1
1500	1250	2145	2475	360	810	1260	1710	360	1710	1085	810	1260	810	1260	360	920	360	1710	3,8
2000	1350	2475	2815	390	930	1470	2010	390	2010	1200	930	1470	930	1470	390	990	390	2010	4,6
2500	1450	2220	2655	425	865	1305	1745	425	1745	1145	865	1305	865	1305	425	985	425	1745	5
3000	1450	2720	3085	435	1035	1635	2235	435	2235	1435	1035	1635	1035	1635	435	1115	435	2235	6
4000	1600	2810	3235	480	1080	1680	2280	480	2280	1430	1080	1680	1080	1680	480	1160	480	2280	7
5000	1800	2870	3390	510	1110	1710	2310	510	2310	1510	1110	1710	1110	1710	510	1190	510	2310	8

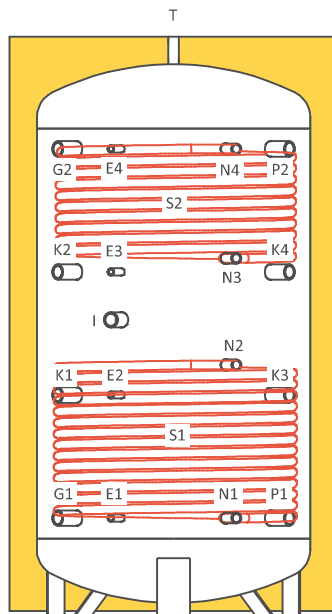
R*: reversal quota

PUFFER Size PFC

300 ≤ cap. ≤ 1.000



1.500 ≤ cap. ≤ 5.000



Couplings legend

E1	Probe / Thermometer
E2	Probe / Thermometer
E3	Probe / Thermometer
E4	Probe / Thermometer
G1	From plant
G2	To plant
I	Electrical resistor
K1	Auxiliary
K2	Auxiliary
K3	Auxiliary
K4	Auxiliary
N1	Lower exchanger outlet
N2	Lower exchanger inlet
N3	Upper exchanger outlet
N4	Upper exchanger inlet
P1	To energy source
P2	From energy source
S1	Lower exchanger
S2	Upper exchanger
T	Vent

Couplings chart

Cap. l	E1 inch	E2 inch	E3 inch	E4 inch	G1 inch	G2 inch	I inch	K1 inch	K2 inch	K3 inch	K4 inch	N1 inch	N2 inch	N3 inch	N4 inch	P1 inch	P2 inch	T inch
300	1/2"	1/2"	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"	1 1/4	1 1/4	1 1/4
500	1/2"	1/2"	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"	1 1/4	1 1/4	1 1/4
750	1/2"	1/2"	1/2"	1/2"	1 1/2	1 1/2	1 1/2	1 1/2	1 1/2	1 1/2	1 1/2	1"	1"	1"	1"	1 1/2	1 1/2	1 1/2
1000	1/2"	1/2"	1/2"	1/2"	1 1/2	1 1/2	1 1/2	1 1/2	1 1/2	1 1/2	1 1/2	1"	1"	1"	1"	1 1/2	1 1/2	1 1/2
1500	1/2"	1/2"	1/2"	1/2"	1 1/2	1 1/2	1 1/2	1 1/2	1 1/2	1 1/2	1 1/2	1"	1"	1"	1"	1 1/2	1 1/2	1"
2000	1/2"	1/2"	1/2"	1/2"	1 1/2	1 1/2	1 1/2	1 1/2	1 1/2	1 1/2	1 1/2	1"	1"	1"	1"	1 1/2	1 1/2	1"
2500	1/2"	1/2"	1/2"	1/2"	2"	2"	1 1/2	2"	2"	2"	2"	1"	1"	1"	1"	2"	2"	1"
3000	1/2"	1/2"	1/2"	1/2"	2"	2"	1 1/2	2"	2"	2"	2"	1"	1"	1"	1"	2"	2"	1"
4000	1/2"	1/2"	1/2"	1/2"	2"	2"	1 1/2	2"	2"	2"	2"	1"	1"	1"	1"	2"	2"	1"
5000	1/2"	1/2"	1/2"	1/2"	2"	2"	1 1/2	2"	2"	2"	2"	1"	1"	1"	1"	2"	2"	1"

Size chart

Cap. l	Øe mm	Ht mm	R* mm	E1 mm	E2 mm	E3 mm	E4 mm	G1 mm	G2 mm	I mm	K1 mm	K2 mm	K3 mm	K4 mm	N1 mm	N2 mm	N3 mm	N4 mm	P1 mm	P2 mm	S1 m²	S2 m²
300	610	1680	1790	325	695	1065	1435	325	1435	880	695	1065	695	1065	325	685	685	1075	325	1435	1	1
500	760	1735	1895	355	725	1095	1465	355	1465	985	725	1095	725	1095	355	875	875	1145	355	1465	1,9	1,2
750	910	1765	1990	395	745	1095	1445	395	1445	920	745	1095	745	1095	395	875	875	1210	395	1445	2,5	1,5
1000	1010	2000	2245	330	770	1210	1650	330	1650	990	770	1210	770	1210	330	890	1210	1650	330	1650	3,1	2,5
1500	1240	2140	2475	360	810	1260	1710	360	1710	1085	810	1260	810	1260	360	920	920	1310	360	1710	3,8	2,8
2000	1340	2470	2815	390	930	1470	2010	390	2010	1200	930	1470	930	1470	390	990	990	1650	390	2010	4,6	2,8
2500	1450	2220	2655	425	865	1305	1745	425	1745	1145	865	1305	865	1305	425	985	985	1305	425	1745	5	4
3000	1450	2720	3085	435	1035	1635	2235	435	2235	1435	1035	1635	1035	1635	435	1115	1115	1755	435	2235	6	4,2
4000	1600	2810	3235	480	1080	1680	2280	480	2280	1430	1080	1680	1080	1680	480	1160	1160	1800	480	2280	7	5
5000	1800	2870	3390	510	1110	1710	2310	510	2310	1510	1110	1710	1110	1710	510	1190	1190	1910	510	2310	8	5

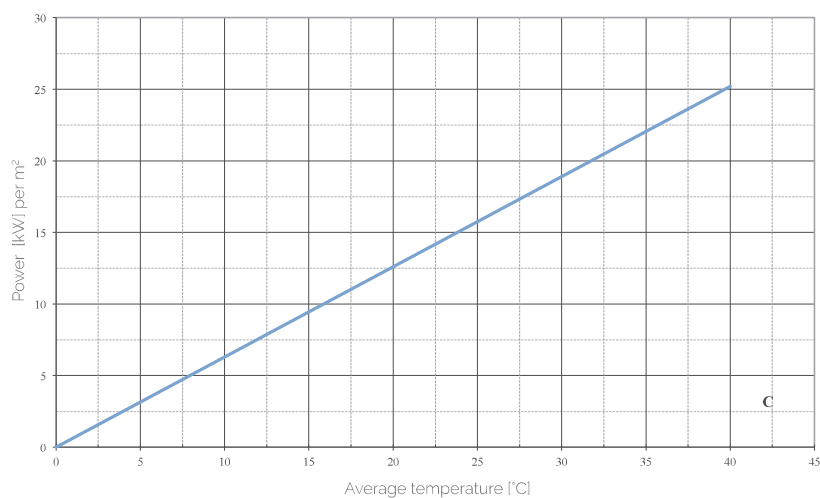
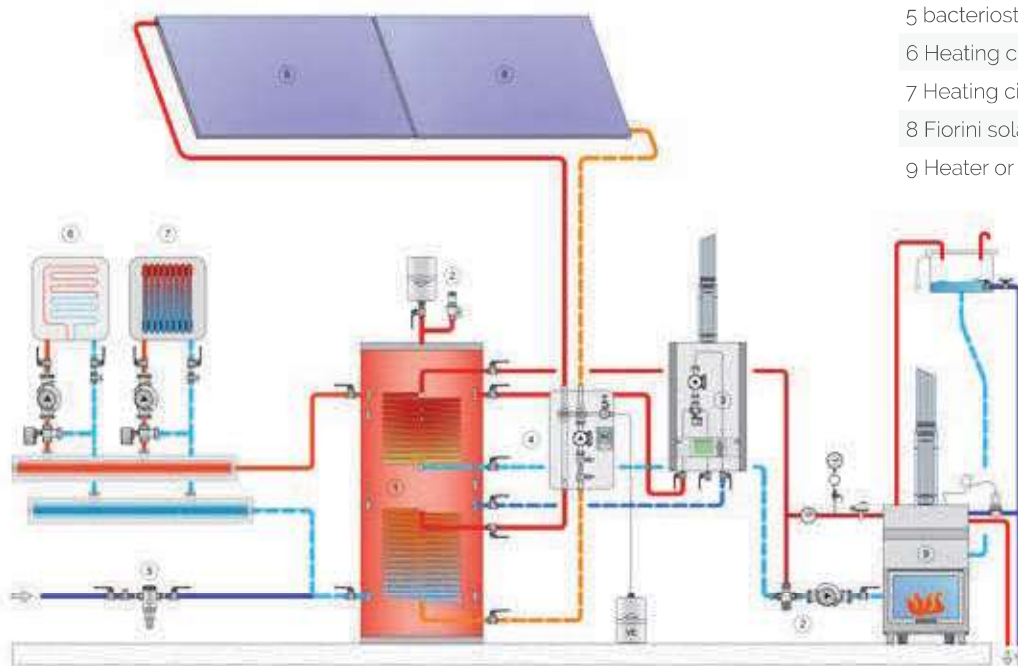
R*: reversal quota

PUFFER

Installation chart

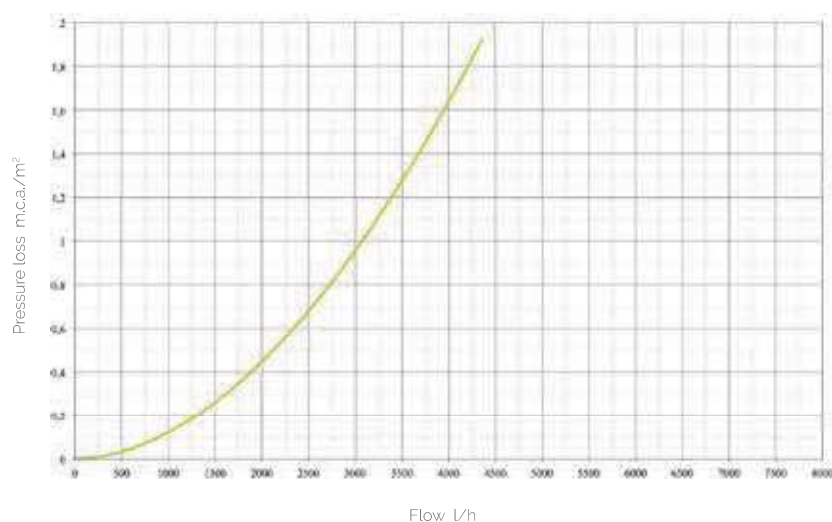
List of components

- 1 PFC Fiorini Puffer
- 2 Safety unit
- 3 Heating by alternative source
- 4 solar thermal return unit
- 5 bacteriostatic cold water filter
- 6 Heating circuit 1
- 7 Heating circuit 2
- 8 Fiorini solar collectors
- 9 Heater or stove with open vessel



Fixed coil power

The chart indicates maximum exchanged power by the fix internal coil depending on the temperature difference between water into the coil and water into the tank.



Pressure loss in the fixed coil

The pressure loss indicated in the chart refers to a surface area of 1 m² of the coil. Multiply this value with the exchange surface in order to come to the total pressure loss.

COMBI PLUS

Combi storage tank

The COMBI PLUS range consists of inertial tanks for installations which use discontinuous energy sources, such as solar power systems, biomass systems and wood burning systems. Thanks to the internal exchanger with a stainless steel corrugated tube with a large surface, the instantaneous DHW production is guaranteed. There are three versions of which several capacities are available, from 600 to 2000 litres.

COMBI PLUS A: equipped with n°1 internal fixed exchanger with a stainless steel corrugated tube for instantaneous DHW production

COMBI PLUS B: equipped with n°2 internal fixed heat exchangers, one with a stainless steel corrugated tube for instantaneous DHW production and another for coupling to an additional heat source.

COMBI PLUS C: equipped with n°3 internal fixed heat exchangers, one with a stainless steel corrugated tube for instantaneous DHW production and two in carbon steel for coupling to other additional heat sources

Materials

The inertial tanks are made of high quality material, in particular:

Coil for domestic use: AISI 316L stainless steel

Tank and integration coil: S 235 JR carbon steel


External protective treatment: enamelling with industrial varnish

Insulation

Capacity (l)	Type
from 600 to 2000	Polystyrene Graphite + Polyester Fiber

Operational limits

Storage tank		S1 Coil Circuit		S2-S3 Coil Circuit	
max. temperature	max. pressure	max. temperature	max. pressure	max. temperature	max. pressure
90°C	3 bar	90°C	6 bar	90°C	16 bar

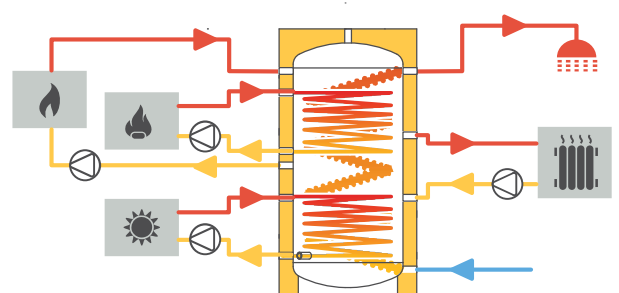
 **Supplied accessories:** Adjustable height feet for sizes up to 500 l, safety valve and thermometer for sizes up to 1000 l, magnesium sacrificial anode for all sizes.

 **Standard accessories:** see pag 274

 **Special versions:** see pag 277








TESTED





COMBI PLUS

Combi storage tank

COMBI PLUS A

capacity l	code	price	energy label	packed	
				dimensions cm	weight kg
600	842020178X			97x97x205	195
750	842020179X			105x105x203	210
1000	842020180X			105x105x242	238
1500	842020181X			115x115x283	330
2000	842020182X			135x135x265	378

COMBI PLUS B

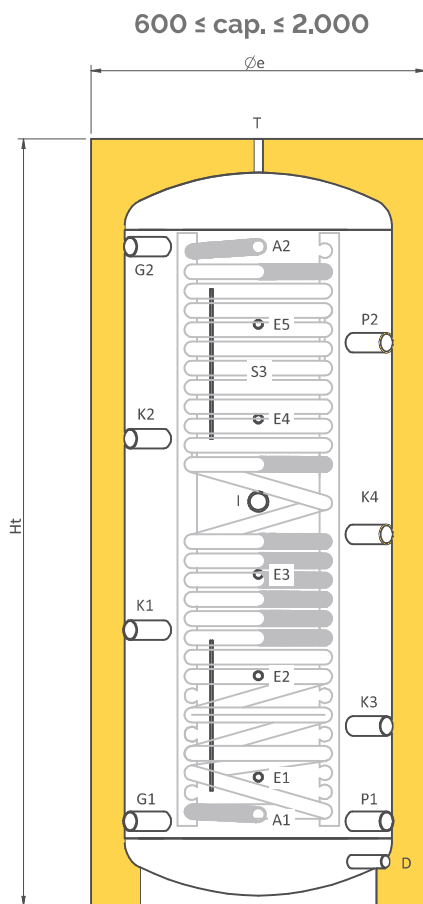
capacity l	code	price	energy label	packed	
				dimensions cm	weight kg
600	842020148X			97x97x205	205
750	842020149X			105x105x203	232
1000	842020150X			105x105x242	246
1500	842020151X			115x115x283	371
2000	842020152X			135x135x265	404

COMBI PLUS C

capacity l	code	price	energy label	packed	
				dimensions cm	weight kg
600	842020153X			97x97x205	220
750	842020154X			105x105x203	254
1000	842020155X			105x105x242	278
1500	842020156X			115x115x283	411
2000	842020157X			135x135x265	455

COMBI PLUS A

Dimensions



Couplings legend

A1	DHW inlet
A2	DHW outlet
D	Drain
E1	Probe / Thermometer
E2	Probe / Thermometer
E3	Probe / Thermometer
E4	Probe / Thermometer
E5	Probe / Thermometer
G1	From plant
G2	To plant
I	Electrical resistor
K1	Auxiliary
K2	Auxiliary
K3	Auxiliary
K4	Auxiliary
P1	To energy source
P2	From energy source
S3	DHW exchanger
T	Vent

Couplings chart

Cap. l	A1 inch	A2 inch	D inch	E1 inch	E2 inch	E3 inch	E4 inch	E5 inch	G1 inch	G2 inch	I inch	K1 inch	K2 inch	K3 inch	K4 inch	P1 inch	P2 inch	T inch
600	1 1/4	1 1/4	1"	1/2"	1/2"	1/2"	1/2"	1/2"	1 1/2	1 1/2	1 1/2	1 1/2	1 1/2	1 1/2	1 1/2	1 1/2	1 1/2	1/2"
750	1 1/4	1 1/4	1"	1/2"	1/2"	1/2"	1/2"	1/2"	1 1/2	1 1/2	1 1/2	1 1/2	1 1/2	1 1/2	1 1/2	1 1/2	1 1/2	1/2"
1000	1 1/4	1 1/4	1"	1/2"	1/2"	1/2"	1/2"	1/2"	1 1/2	1 1/2	1 1/2	1 1/2	1 1/2	1 1/2	1 1/2	1 1/2	1 1/2	1/2"
1500	1 1/4	1 1/4	1"	1/2"	1/2"	1/2"	1/2"	1/2"	1 1/2	1 1/2	1 1/2	1 1/2	1 1/2	1 1/2	1 1/2	1 1/2	1 1/2	1/2"
2000	1 1/4	1 1/4	1"	1/2"	1/2"	1/2"	1/2"	1/2"	1 1/2	1 1/2	1 1/2	1 1/2	1 1/2	1 1/2	1 1/2	1 1/2	1 1/2	1/2"

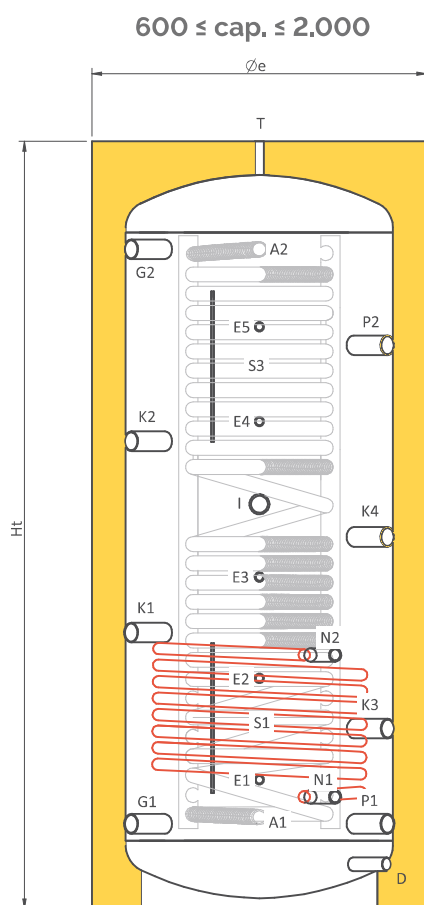
Size chart

Cap. l	Øe mm	Ht mm	R* mm	A1 mm	A2 mm	E1 mm	E2 mm	E3 mm	E4 mm	E5 mm	G1 mm	G2 mm	I mm	K1 mm	K2 mm	K3 mm	K4 mm	P1 mm	P2 mm	S3 m²
600	860	1930	2115	270	1560	420	643	865	1215	1410	275	1555	1030	701	1129	488	915	275	1342	5,65
750	950	1900	2125	285	1570	395	585	765	1165	1420	265	1565	950	698	1132	482	915	265	1348	5,65
1000	950	2305	2495	285	1965	395	695	995	1440	1735	265	1965	1220	831	1397	548	1114	265	1681	6,95
1500	1100	2665	2885	400	2260	510	875	1240	1680	2020	380	2260	1440	1015	1640	705	1325	380	1950	6,95
2000	1300	2475	2800	380	2030	610	840	1070	1530	1830	380	2030	1310	925	1475	655	1205	380	1750	8

R*: reversal quota

COMBI PLUS B

Dimensions



Couplings legend

A1	DHW inlet
A2	DHW outlet
D	Drain
E1	Probe / Thermometer
E2	Probe / Thermometer
E3	Probe / Thermometer
E4	Probe / Thermometer
E5	Probe / Thermometer
G1	From plant
G2	To plant
I	Electrical resistor
K1	Auxiliary
K2	Auxiliary
K3	Auxiliary
K4	Auxiliary
N1	Lower exchanger outlet
N2	Lower exchanger inlet
P1	To energy source
P2	From energy source
S1	Lower exchanger
S3	DHW exchanger
T	Vent

Couplings chart

Cap. l	A1 inch	A2 inch	D inch	E1 inch	E2 inch	E3 inch	E4 inch	E5 inch	G1 inch	G2 inch	I inch	K1 inch	K2 inch	K3 inch	K4 inch	N1 inch	N2 inch	P1 inch	P2 inch	T inch
600	1 1/4	1 1/4	1"	1/2"	1/2"	1/2"	1/2"	1/2"	1 1/2	1 1/2	1 1/2	1 1/2	1 1/2	1 1/2	1 1/2	1"	1"	1 1/2	1 1/2	1/2"
750	1 1/4	1 1/4	1"	1/2"	1/2"	1/2"	1/2"	1/2"	1 1/2	1 1/2	1 1/2	1 1/2	1 1/2	1 1/2	1 1/2	1"	1"	1 1/2	1 1/2	1/2"
1000	1 1/4	1 1/4	1"	1/2"	1/2"	1/2"	1/2"	1/2"	1 1/2	1 1/2	1 1/2	1 1/2	1 1/2	1 1/2	1 1/2	1"	1"	1 1/2	1 1/2	1/2"
1500	1 1/4	1 1/4	1"	1/2"	1/2"	1/2"	1/2"	1/2"	1 1/2	1 1/2	1 1/2	1 1/2	1 1/2	1 1/2	1 1/2	1"	1"	1 1/2	1 1/2	1/2"
2000	1 1/4	1 1/4	1"	1/2"	1/2"	1/2"	1/2"	1/2"	1 1/2	1 1/2	1 1/2	1 1/2	1 1/2	1 1/2	1 1/2	1"	1"	1 1/2	1 1/2	1/2"

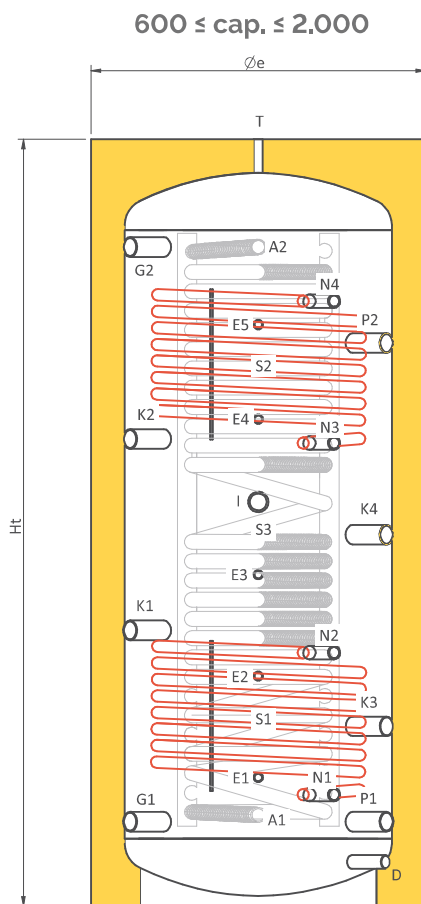
Size chart

Cap. l	Øe mm	Ht mm	R* mm	A1 mm	A2 mm	E1 mm	E2 mm	E3 mm	E4 mm	E5 mm	G1 mm	G2 mm	I mm	K1 mm	K2 mm	K3 mm	K4 mm	N1 mm	N2 mm	P1 mm	P2 mm	S1 m²	S3 m²
600	860	1930	2115	270	1560	420	643	865	1215	1410	275	1555	1030	701	1129	488	915	345	745	275	1342	1,4	5,65
750	950	1900	2125	285	1570	395	585	765	1165	1420	265	1565	950	698	1132	482	915	345	765	265	1348	1,8	5,65
1000	950	2305	2495	285	1965	395	695	995	1440	1735	265	1965	1220	831	1397	548	1114	345	765	265	1681	1,8	6,95
1500	1100	2665	2885	400	2260	510	875	1240	1680	2020	380	2260	1440	1015	1640	705	1325	460	1260	380	1950	3	6,95
2000	1300	2475	2800	380	2030	610	840	1070	1530	1830	380	2030	1310	925	1475	655	1205	450	1250	380	1750	4,5	8

R*: reversal quota

COMBI PLUS C

Dimensions



Couplings legend

A1	DHW inlet
A2	DHW outlet
D	Drain
E1	Probe / Thermometer
E2	Probe / Thermometer
E3	Probe / Thermometer
E4	Probe / Thermometer
E5	Probe / Thermometer
G1	From plant
G2	To plant
I	Electrical resistor
K1	Auxiliary
K2	Auxiliary
K3	Auxiliary
K4	Auxiliary
N1	Lower exchanger outlet
N2	Lower exchanger inlet
N3	Upper exchanger outlet
N4	Upper exchanger inlet
P1	To energy source
P2	From energy source
S1	Lower exchanger
S2	Upper exchanger
S3	DHW exchanger
T	Vent

Couplings chart

Cap. l	A1 inch	A2 inch	D inch	E1 inch	E2 inch	E3 inch	E4 inch	E5 inch	G1 inch	G2 inch	I inch	K1 inch	K2 inch	K3 inch	K4 inch	N1 inch	N2 inch	N3 inch	N4 inch	P1 inch	P2 inch	T inch
600	1 1/4	1 1/4	1"	1/2"	1/2"	1/2"	1/2"	1/2"	1 1/2	1 1/2	1 1/2	1 1/2	1 1/2	1 1/2	1 1/2	1"	1"	1"	1"	1 1/2	1 1/2	1/2"
750	1 1/4	1 1/4	1"	1/2"	1/2"	1/2"	1/2"	1/2"	1 1/2	1 1/2	1 1/2	1 1/2	1 1/2	1 1/2	1 1/2	1"	1"	1"	1"	1 1/2	1 1/2	1/2"
1000	1 1/4	1 1/4	1"	1/2"	1/2"	1/2"	1/2"	1/2"	1 1/2	1 1/2	1 1/2	1 1/2	1 1/2	1 1/2	1 1/2	1"	1"	1"	1"	1 1/2	1 1/2	1/2"
1500	1 1/4	1 1/4	1"	1/2"	1/2"	1/2"	1/2"	1/2"	1 1/2	1 1/2	1 1/2	1 1/2	1 1/2	1 1/2	1 1/2	1"	1"	1"	1"	1 1/2	1 1/2	1/2"
2000	1 1/4	1 1/4	1"	1/2"	1/2"	1/2"	1/2"	1/2"	1 1/2	1 1/2	1 1/2	1 1/2	1 1/2	1 1/2	1 1/2	1"	1"	1"	1"	1 1/2	1 1/2	1/2"

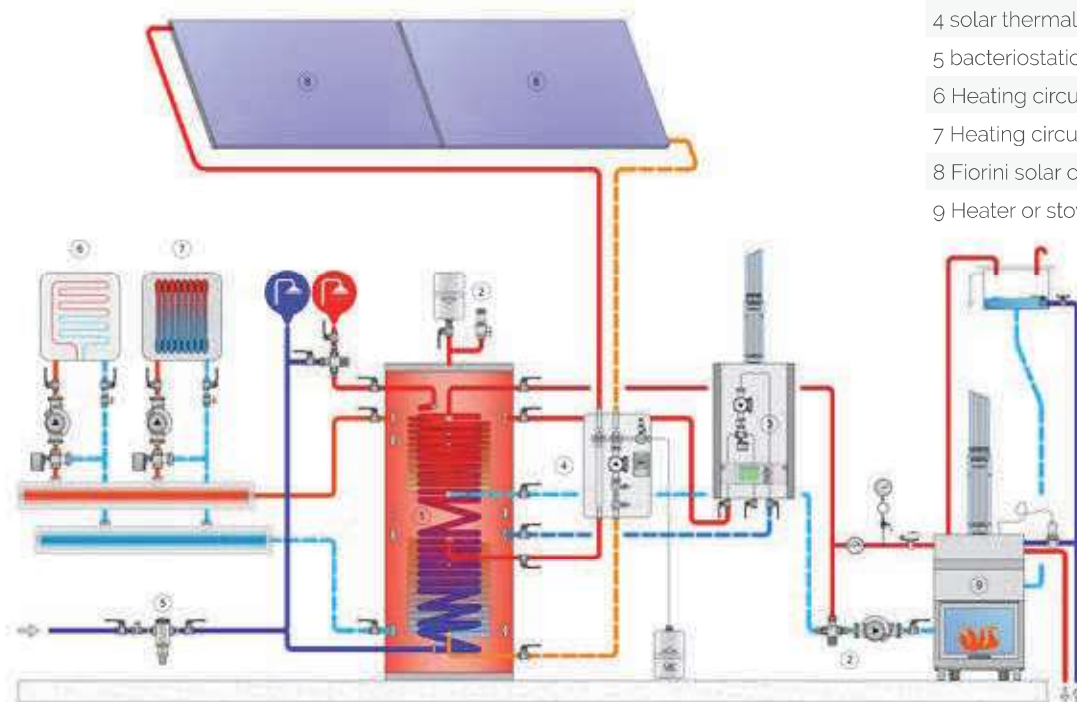
Size chart

Cap. l	Øe mm	Ht mm	R* mm	A1 mm	A2 mm	E1 mm	E2 mm	E3 mm	E4 mm	E5 mm	G1 mm	G2 mm	I mm	K1 mm	K2 mm	K3 mm	K4 mm	N1 mm	N2 mm	N3 mm	N4 mm	P1 mm	P2 mm	S1 m²	S2 m²	S3 m²
600	860	1930	2115	270	1560	420	643	865	1215	1410	275	1555	1030	701	1129	488	915	345	745	1105	1505	275	1342	1.4	1.4	5.65
750	950	1900	2125	285	1570	395	585	765	1165	1420	265	1565	950	698	1132	482	915	345	765	1075	1495	265	1348	1.8	1.8	5.65
1000	950	2305	2495	285	1965	395	695	995	1440	1735	265	1965	1220	831	1397	548	1114	345	765	1385	1805	265	1681	1.8	1.8	6.95
1500	1100	2665	2885	400	2260	510	875	1240	1680	2020	380	2260	1440	1015	1640	705	1325	460	1260	1590	2190	380	1950	3	2.4	6.95
2000	1300	2475	2800	380	2030	610	840	1070	1530	1830	380	2030	1310	925	1475	655	1205	450	1250	1410	1960	380	1750	4.5	3	8

R*: reversal quota

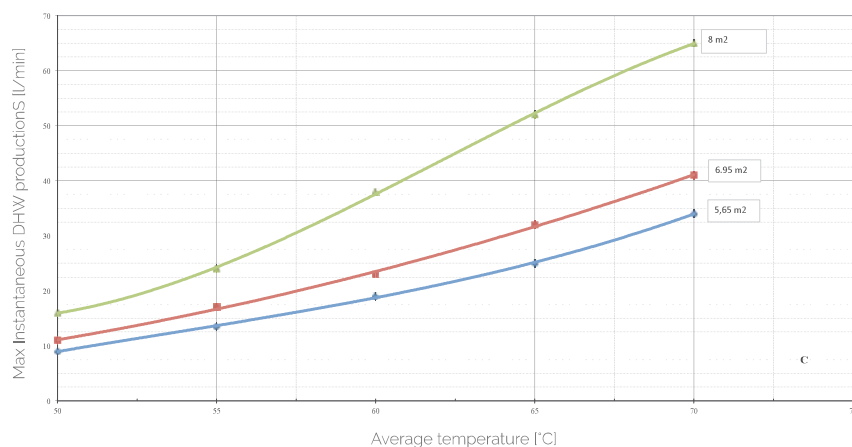
COMBI PLUS

Installation chart



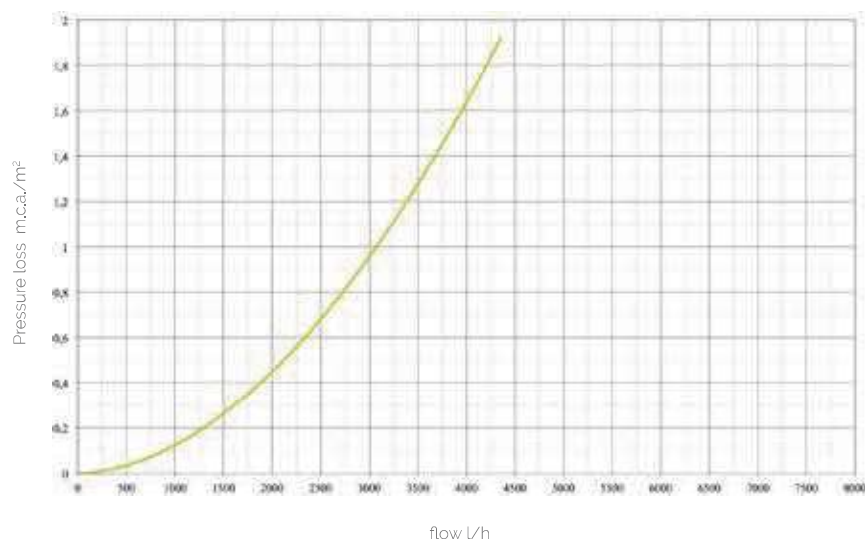
List of components

- 1 PFC FIORINI Puffer
- 2 Safety unit
- 3 Heating by alternative source
- 4 solar thermal return unit
- 5 bacteriostatic cold water filter
- 6 Heating circuit 1
- 7 Heating circuit 2
- 8 FIORINI solar collectors
- 9 Heater or stove with open vessel



Instantaneous DHW production

The chart indicates the maximum instantaneous DHW production (10-45°C) through the stainless steel coil in function of the storage temperature in the tank



Pressure loss in the fixed coil

The pressure loss indicated in the chart refers to a surface area of 1 m² of the coil. Multiply this value with the exchange surface in order to come to the total pressure loss.



Solar Thermal Systems

Contents

■ Domestic Hot Water Storages	pag. 134
■ Indirect water heater	pag. 142
■ Fast Heaters	pag. 186
■ Fresh Water Stations for DHW	pag. 200
■ Hot Water Storage Tanks	pag. 238
■ Thermal Solar Systems	pag. 252



AQUA SUN - Kit for DHW production
pag. 256



COMBI SUN - Kit for DHW production and heating
pag. 258



H2000 - solar panel
pag. 260



H2500 - solar panel
pag. 262



MTDC - control unit
pag. 266



S1 SOLAR 1
pag. 267



S2 SOLAR 30
pag. 268



S2 SOLAR 2
pag. 269



Installation form
pag. 270

■ Accessories and Insights	pag. 272
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Thermal Solar Kit for DHW production

HOT WATER AND SOLAR HEATING SYSTEM

Solar energy is an inexhaustible source of energy that can be easily used both in hot water preparation and in the heating process. Solar energy helps protect the environment and ensures significant energy savings.

OUR SOLUTIONS

Fiorini has designed two product lines: the Aqua Sun line for domestic hot water production and the Combi Sun line for domestic hot water production and heating. Both solutions are available in different versions which are realized based on the user's consumption and the heating system typology, in order to meet a wide range of needs.

WHY THE SOLAR THERMAL KIT

In order to facilitate the choice for the most efficient solution and to make the installation of a solar thermal system easier, faster and therefore cheaper we conceived a series of devices which have many benefits and satisfy users' needs (single housing, multi-family houses, artisanal or commercial activities, accommodation facilities).



Thermal Solar Kit for DHW production

ADVANTAGES

⊗ Saving money. The technology we use ensures high efficiency. Acqua Sun and Combi Sun solutions make your working environment or your household more energy-efficient which saves you money every day. The solar Thermal Kit is not expensive and can be written off.

⊗ Value of the property. The installation of a system based on renewable energy can improve the energetic classification of the household and working environments which makes the property value and commercial value increase.

⊗ Respect for the environment. Solar energy is clean and eco-friendly. It helps reducing polluting emissions.

⊗ Energy autonomy. Solar energy is an energy source which is always available and it is not subject to restrictions or conditioning. For this reason, it helps reaching energy autonomy. Consequently, thermal energy production is low-cost and not subject to price increases.

⊗ Fast and easy installation. The production of devices in a Kit facilitates the assembly which also reduces installation time.

⊗ Minimal maintenance. The equipment (collectors, regulators, pumps) and accessories require minimal maintenance.

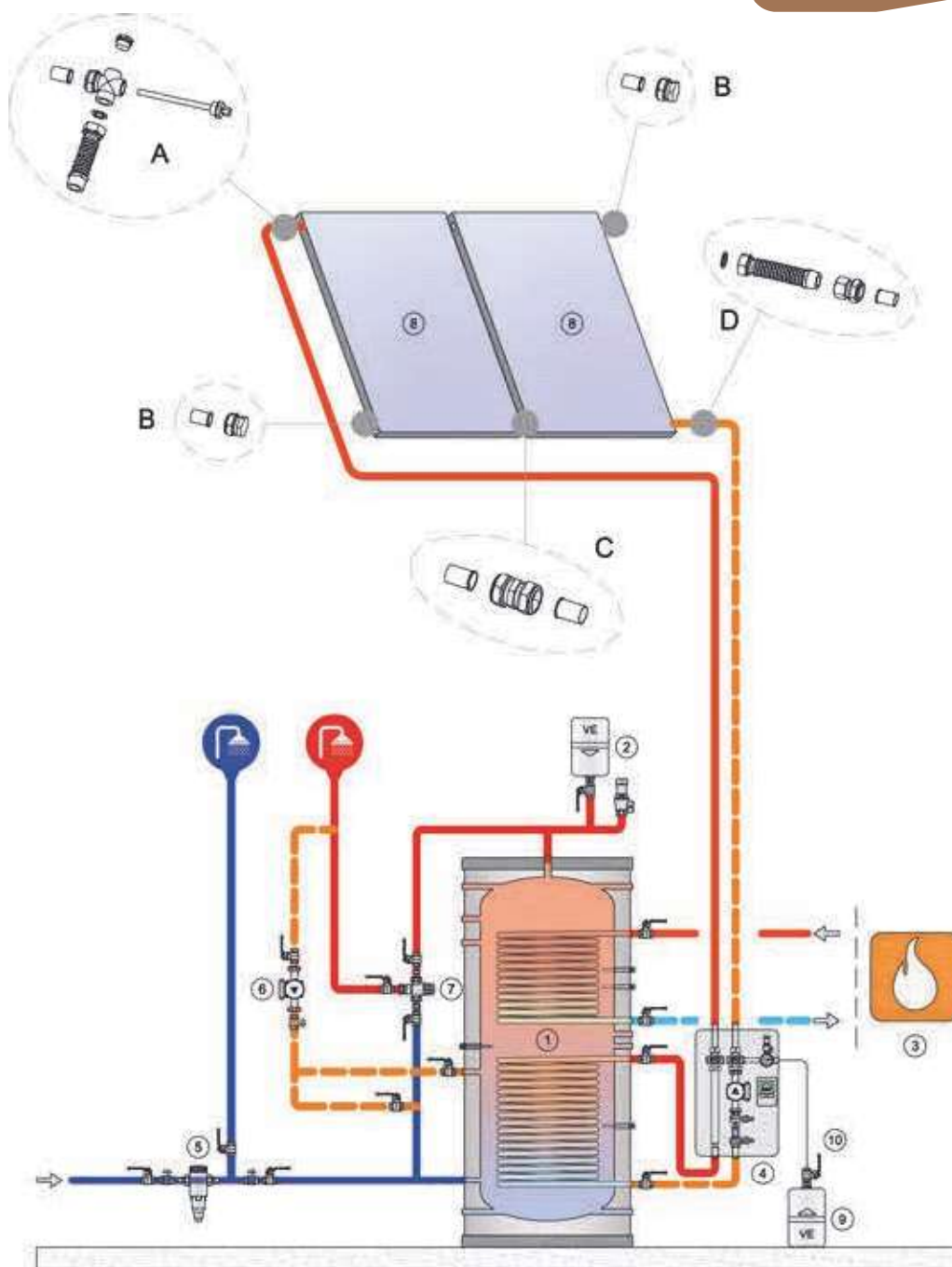
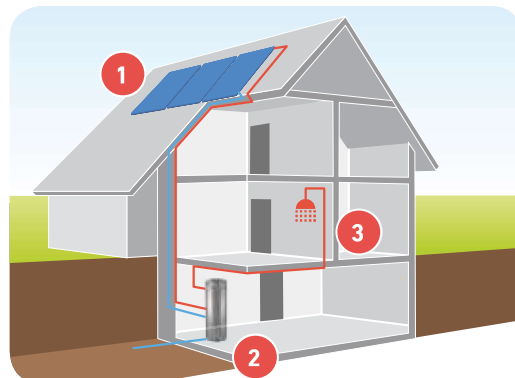


AQUA SUN Thermal Solar kit for DHW production

The Aqua Sun Kit is the easiest and most efficient way to produce hot water using solar power. There are two versions of the Aqua Sun systems which correspond to different daily needs (see 'daily needs' chart).

Principles

1. The sun heats the solar liquid in the solar collectors
2. The solar liquid reaches the storage tank and heats the water with help of the exchanger.
3. The hot water is available for domestic use.



List of components

A) kit outlet for the assembly of the collectors

B) kit plug for the assembly of the collectors

C) connection between collectors

D) kit inlet for the assembly of the collectors

List of components

1. Fiorini domestic water storage tank

2. safety unit

3. heating from alternative source

4. return unit solar thermal system

5. bacteriostatic cold water filter

6. sanitary recirculation pump

7. DHW thermostatic mixer

8. Fiorini solar collectors

9. solar expansion vessel

10. kit to fix the expansion vessel

AQUA SUN Thermal Solar kit for DHW production

		Series Code Price Energy label Composition	Aqua Sun 1 838111114X 1 H2000+SMART2 200 x 2	Aqua Sun 1.1 838111115X 1 H2500+SMART2 200 x 3
Rif.	Number of persons*			
8	Solar collector		1xH2000 pag. 260	1xH2500 pag. 262
A+B+D	Kit for basic connections		1 piece	1 piece
C	Joint		-	-
4	Solar station for pumping and regulation	S2 SOLAR 30 - 25/6.0	pag. 268	S2 SOLAR 30 - 25/6.0 pag. 268
-	Anti-freeze liquid	20 litres	pag. 279	20 litres pag. 279
9	Expansion vessel	18 litres	pag. 279	18 litres pag. 279
10	Set for fixing the vessel	SSTOAS	pag. 279	SSTOAS pag. 279
1	Solar power water heater	SMART2 200	pag. 148	SMART2 200 pag. 148

		Series Code Price Energy label Composition	Aqua Sun 2 838111116X 2 H2000+SMART2 SOLAR KIT x 4	Aqua Sun 2.1 838111123X 2 H2500+SMART2 SOLAR KIT x 5
Rif.	Number of persons*			
8	Solar collector		2xH2000 pag. 260	2xH2500 pag. 262
A+B+D	Kit for basic connections		1 piece	1 piece
C	Joint		1 piece	1 piece
4	Solar station for pumping and regulation	S2 SOLAR 30 - 25/6.0	pag. 268	S2 SOLAR 30 - 25/6.0 pag. 268
-	Anti-freeze liquid	20 litres	pag. 279	20 litres pag. 279
9	Expansion vessel	18 litres	pag. 279	18 litres pag. 279
10	Set for fixing the vessel	SSTOAS	pag. 279	SSTOAS pag. 279
1	Solar power water heater	SMART 2 SOLAR KIT 300 l	pag. 152	SMART 2 SOLAR KIT 300 l pag. 152

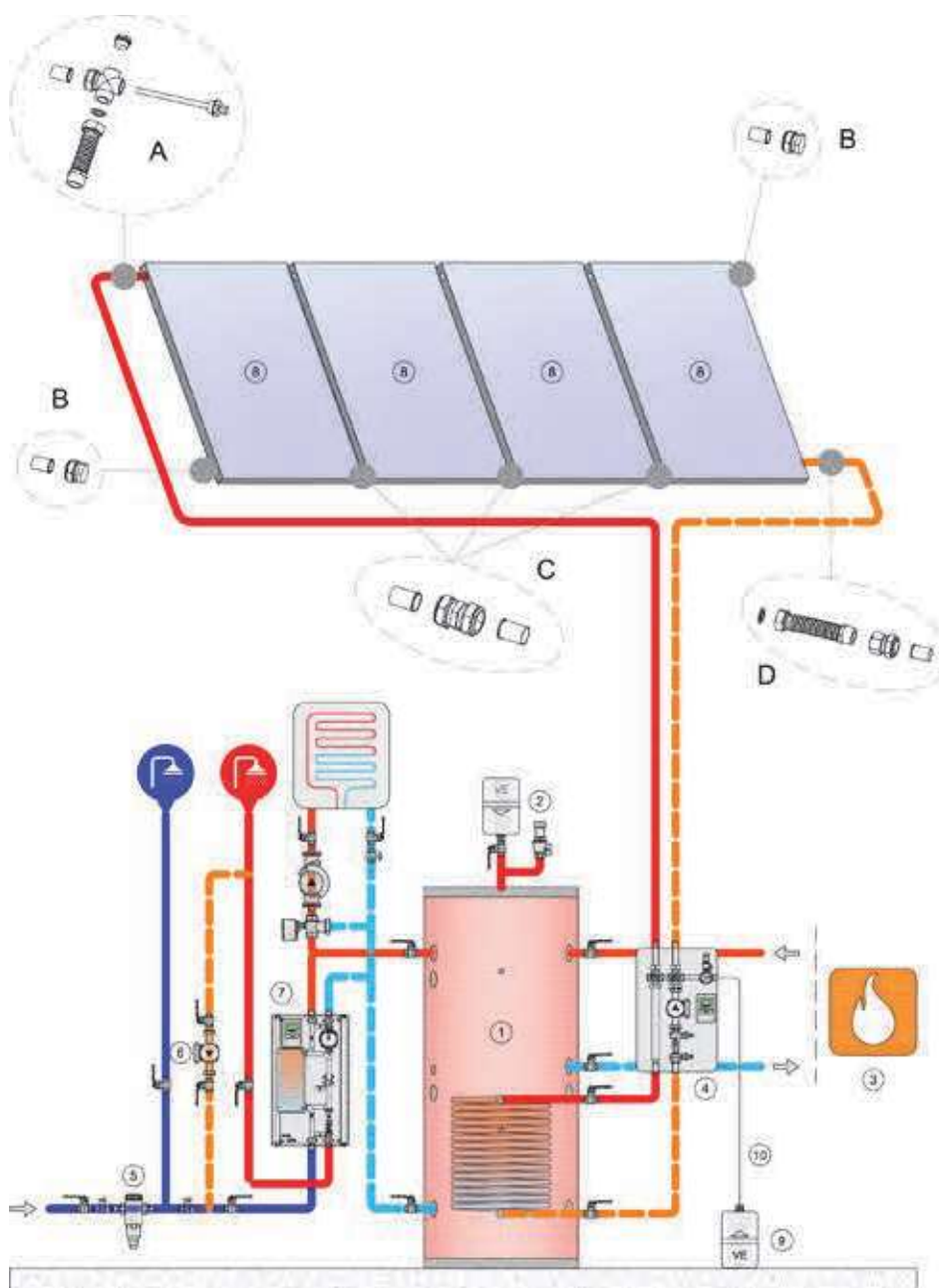
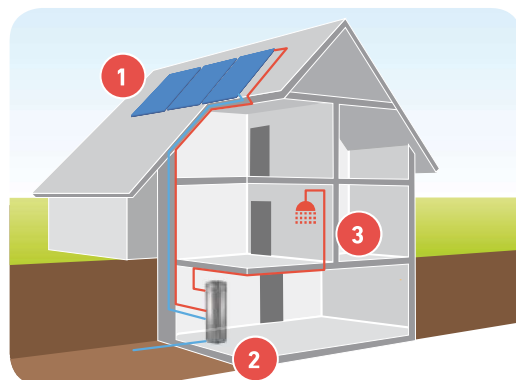
		Series Code Price Energy label Composition	Aqua Sun 3 838111117X 3 H2000+SMART2 500 x 6	Aqua Sun 3.1 838111118X 3 H2500+SMART2 500 x 7
Rif.	Number of persons*			
8	Solar collector		3xH2000 pag. 260	3xH2500 pag. 262
A+B+D	Kit for basic connections		1 piece	1 piece
C	Joint		2 pieces	2 pieces
4	Solar station for pumping and regulation	S2 SOLAR 30 - 25/6.0	pag. 268	S2 SOLAR 30 - 25/6.0 pag. 268
-	Anti-freeze liquid	20 litres	pag. 279	20 litres pag. 279
9	Expansion vessel	18 litres	pag. 279	18 litres pag. 279
10	Set for fixing the vessel	SSTOAS	pag. 279	SSTOAS pag. 279
1	Solar power water heater	SMART2 500	pag. 148	SMART2 500 pag. 148

Thermal Solar power kit for DHW production and heating – COMBI SUN

The Combi Sun kit is the solution which makes it possible to heat domestic water and water for the heating system. There are three versions of the Combi Sun system which correspond to different daily needs and different compositions/surfaces.

Principles

1. The sun heats the solar fluid in the solar collectors.
2. The solar fluid reaches the storage tank and heats the water with the exchanger.
3. The hot water in the storage tank can be used to heat domestic water and to heat the surroundings.



List of components

A) kit outlet for the assembly of the collectors

B) kit plug for the assembly of the collectors

C) connection between collectors

D) kit inlet for the assembly of the collectors

List of components

1. Fiorini domestic water storage tank

2. safety unit

3. heating from alternative source

4. return unit solar thermal system

5. bacteriostatic cold water filter

6. sanitary recirculation pump

7. DHW thermostatic mixer

8. Fiorini solar collectors

9. solar expansion vessel

10. kit to fix the expansion vessel

Thermal Solar power kit for DHW production and heating – COMBI SUN

		Series Code Price Energy label Composition		Combi Sun 4 838111120X		Combi Sun 6 838111121X		Combi Sun 8 838111122X	
				4 H2500+PFB800+SET25		6 H2500+PFB1000+SET25		8 H2500+PFB1500+SET40	
Rif.	Residence*	small		medium		large			
8	Solar collector	4xH2500	pag. 262	6xH2500	pag. 262	8xH2500	pag. 262		
A+B+D	Kit for basic connections	1 piece		1 piece		2 piece			
C	Joint	3 pieces		5 pieces		6 pieces			
4	Solar station for pumping and regulation	S2 SOLAR 30 - 25/6,0	pag. 268	S2 SOLAR 30 - 25/6,0	pag. 268	S2 SOLAR 30 - 25/6,0	pag. 268		
	Anti-freeze liquid	40 litres	pag. 279	60 litres	pag. 279	60 litres	pag. 279		
9	Expansion vessel	25 litres	pag. 279	50 litres	pag. 279	50 litres	pag. 279		
10	Set for fixing the vessel	SSTOAS	pag. 279	N.D.	pag. 279	N.D.	pag. 279		
1	Puffer storage tank	PFB 800	pag. 240	PFB 1000	pag. 240	PFB 1500	pag. 240		
7	SET 2.0 fresh water station	SET 25 2.0	pag. 218	SET 25 2.0	pag. 218	SET 40 2.0	pag. 218		

N.A. Not Available



H2000 - High efficiency flat plate solar panels with aluminium tank

H2000 high performance solar collector – 2 m² with an aluminium frame for vertical and horizontal installation

The new solar collector is made of profiles in high quality anticorrosive aluminium (Al Mg). Closing system with integrated perimeter gasket in vulcanized EPDM, resistant to temperature swings and UV rays. Solar glass with antireflex safety, high transparency and a low iron content. Insulation in qualitative mineral wool without formaldehyde and adhesives. Absorber covered in highly selective vacuum aluminium. Connections. The collector can be installed on a roof, integrated or placed on a structure. Performance and quality tested.



Features

Unique and intelligent design

Unbeatable price/quality ratio

Precise manufacturing: construction on a motorized product line

Intelligent fixing system: reduced installation time

Several installation possibilities: up to 6 connected collectors, on tile, flat roofs...

H2000 Vertical		
Gross surface	code	price
2 m ²	821120058X	

Available models	
Article	External dimensions
H2000	1730 x 1170 x 83 mm

Set for coupling collectors H2000/H2500		
	code	price
base	843070274X	
joint	843070275X	
expansion	843070277X	

Connection options

Parallel connection



Max 6 collectors

Series connection



Based on pressure drop

Combined connection



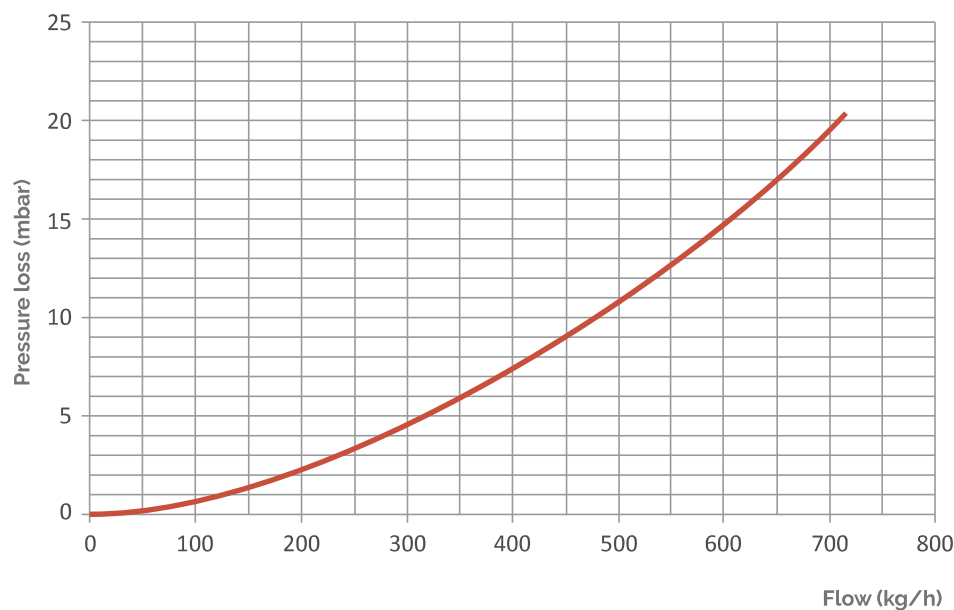
Based on pressure drop

H2000 - High efficiency flat plate solar panels with aluminium tank

Technical information

Gross surface (m ²)	2,02
Exposed surface (m ²)	1,84
Net surface (m ²)	1,84
Capacity (l)	1,56
Flow	high flow/low flow
Glass thickness	3,2 mm
Glass transmission coefficient	91%
Thickness of insulation	40 mm piano
Absorber	covered in highly selective vacuum aluminium
Absorption	95%
Emission	5%
Connections	4 x 22 mm
Operating pressure	10 bar
Testing pressure	15 bar
Max temperature	192°C
Weight	35 kg
Certificates	EN 12975 + Keymark
Warranty	10 years (glass not included)

Efficiency coefficient	Opening	Absorber
η_0	0,814	0,814
a_1	4,061	4,061
a_2	0,013	0,013



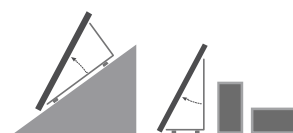
Assembly



On the roof
Horizontal, vertical
Fixing kit, frames and
accessories



Integrated
Horizontal, vertical
Set with connecting plates
and accessories



Supported
Frame for horizontal or
vertical structure

H2500 - High efficiency flat plate solar panels with aluminium tank

H2500 high performance solar collector – 2,5 m² with an aluminium frame for vertical and horizontal installation

The new solar collector is made of profiles in high quality anticorrosive aluminium (Al Mg). Closing system with integrated perimeter gasket in vulcanized EPDM, resistant to temperature swings and UV rays. Solar glass with antireflex safety, high transparency and a low iron content. Insulation in qualitative mineral wool without formaldehyde and adhesives. Absorber covered in highly selective vacuum aluminium. Connections. The collector can be installed on a roof, integrated or placed on a structure. Performance and quality tested.



Features

Unique and intelligent design

Unbeatable price/quality ratio

Precise manufacturing: construction on a motorized product line

Intelligent fixing system: reduced installation time

Several installation possibilities: up to 6 connected collectors, on tile, flat roofs...

H2500 Vertical		
Gross surface	code	price
2,51 m2	821120067X	

Available models	
Article	External dimensions
H2500	2150 x 1170 x 83 mm

Set for coupling collectors H2000/H2500		
	code	price
base	843070274X	
joint	843070275X	
expansion	843070277X	

Connection options

Parallel connection



Series connection



Based on pressure drop

Combined connection



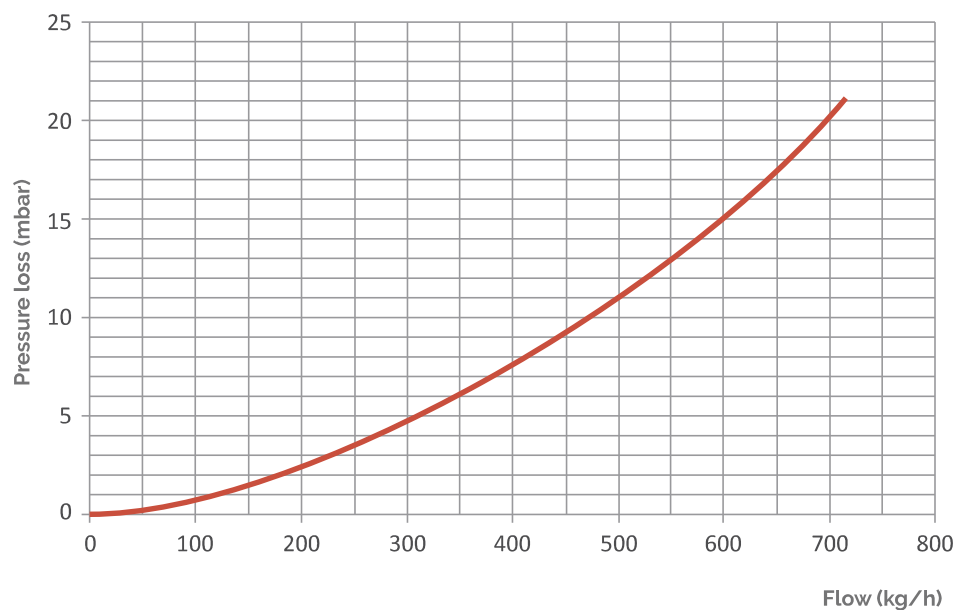
Based on pressure drop

H2500 - High efficiency flat plate solar panels with aluminium tank

Technical information

Gross surface (m ²)	2,51
Exposed surface (m ²)	2,31
Net surface (m ²)	2,31
Capacity (l)	1,95
Flow	high flow/low flow
Glass thickness	3,2 mm
Glass transmission coefficient	91%
Thickness of insulation	50 mm piano
Absorber	covered in highly selective vacuum aluminium
Absorption	95%
Emission	5%
Connections	4 x 22 mm
Operating pressure	10 bar
Testing pressure	15 bar
Max temperature	192°C
Weight	35 kg
Certificates	EN 12975 + Keymark
Warranty	10 years (glass not included)

Efficiency coefficient	Opening	Absorber
η_0	0,807	0,807
a_1	4,04	4,04
a_2	0,012	0,012



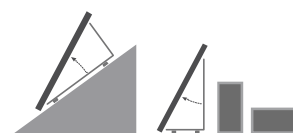
Assembly



On the roof
Horizontal, vertical
Fixing kit, frames and
accessories



Integrated
Horizontal, vertical
Set with connecting plates
and accessories



Supported
Frame for horizontal or
vertical structure

Assembly and materials

Assembly and materials

A broad range of installation solutions All models of the collector are available in several versions in terms of installation, fixing and materials. Depending on the functional characteristics and the type of roof (flat roof, pitched roof with tile, on sheet, etc.) it is possible to choose from a broad range of solutions to ensure the maximum structural strength of the system and efficient heat exchanging of the collector. Custom solutions are meant to match the solar power system with the rest of the architecture to minimize the visual impact and structural obstructions.

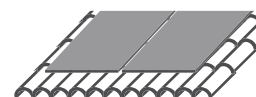
Installation	On the roof			Integrated	On a frame		
Models	On tile	On frame (roof)	Stainless steel sheet	Galvanized steel sheet	Stainless steel structure	Galvanized steel structure	Aluminium structure
H2000	✓	✓	✓	✓	✓	✓	✓
H2500	✓	✓	✓	✓	✓	✓	✓

Installation

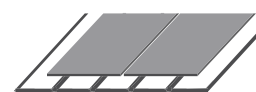


On the roof
vertical/horizontal installation kit,
frame and accessories

On tile
System for fixing the solar collector on a tiled pitched roof by means of sturdy hooks and frames.

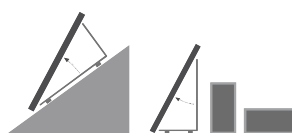
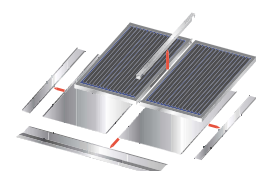


On sheet
System for fixing the solar collector on a pitched sheet roof, with resistant aluminium structures and shaped welded stainless steel clamps.



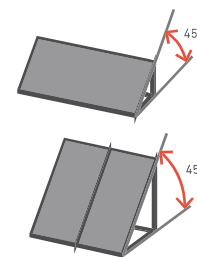
Integrated
vertical/horizontal coupling sheets
and accessories

Plates for integrated mounting, rain and snow-proof, grooved and shaped for a perfect concordance between the collector and the tiles.
























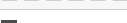





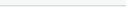


On a frame
vertical/horizontal frame

Supporting structure for mounting the solar collector in 45° from the flat surface. Suitable with flat and pitched roof.

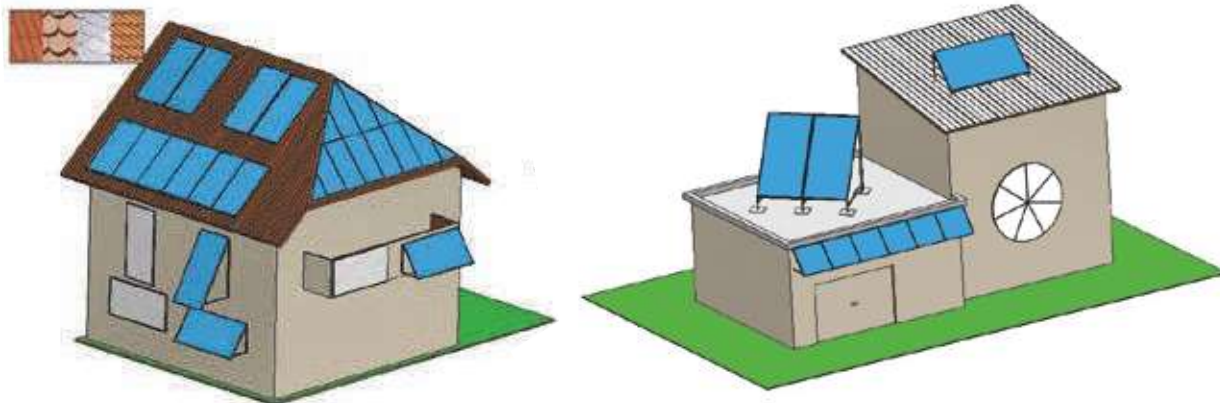


Collector fixing systems

Standard solar collector fixing systems H2000/H2500					
Arrangement		Vertical		Horizontal	
Installation	Num. Panels	code	price	code	price
On the roof	On tile		843070210X		**
			843070211X		**
			843070212X		**
			843070213X		**
			843070214X		**
			843070215X		**
	On tile/sheet		843070301X		**
			843070294X		**
			843070293X		**
			843070302X		**
			843070303X		**
			843070304X		**
On support (structure to be put on flat surfaces)	45° pitched aluminium		843070242X		**
			843070243X		**
			843070244X		**
			843070245X		**
			843070246X		**
			843070247X		**
Integrated in tile	H2000		843070368X		N.D.
			843070369X		N.D.
			843070370X		N.D.
			843070371X		N.D.
			843070372X		N.D.
			843070373X		N.D.
	H2500		843070305X		N.D.
			843070306X		N.D.
			843070307X		N.D.
			843070308X		N.D.
			843070309X		N.D.
			843070310X		N.D.

** ask for a quote

Examples of installation



MTDC Solar regulator

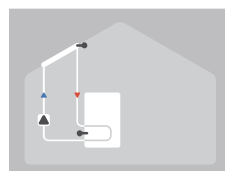
The MTDC differential controller is an electronic regulator for solar power systems. It is equipped with a large LED screen which enables an efficient control of the solar power system. A very useful wizard will guide you during the start-up of the system. Step by step the wizard program will configure your system using one of the various pre-set hydraulic diagrams indicated in the following list.

Technical data	
Temperature sensor Pt1000	3
Relay outputs 230VAC	1
0-10V or PWM outputs	1
Power supply	230 VAC
Protection Category	IP 40
Code	Price
822130020	

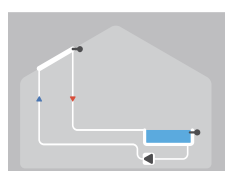


Pre-set installations

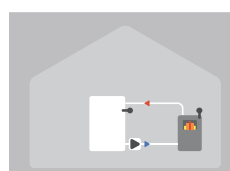
TESTED



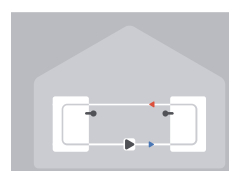
Solar + tank



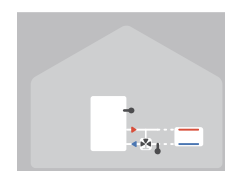
Solar + pool



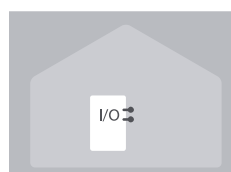
Wood-fired boiler with tank



Tank recharge



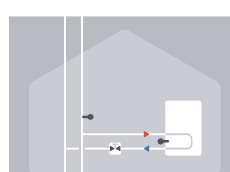
Solar with heating circuit



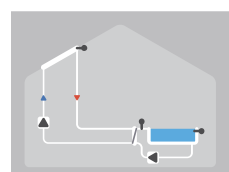
Thermostat



Universal temperature



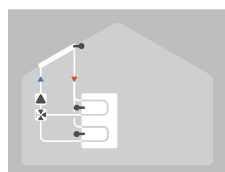
Cut-off valve



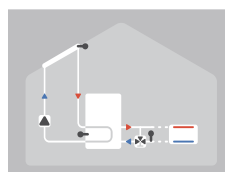
Solar with heat exchanger
(sensor on secondary) and pool



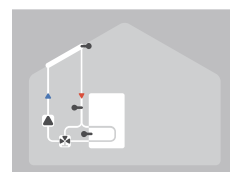
Solar with thermostat
(auxiliary heating)



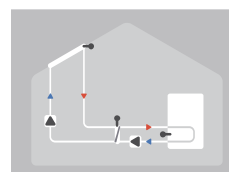
Solar with double zone tank



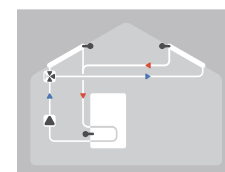
Solar with heating circuit



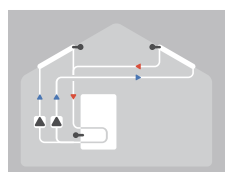
Solar with bypass



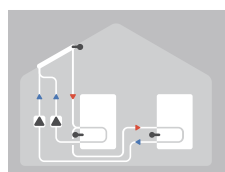
Solar with exchanger



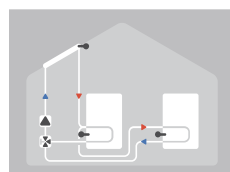
Solar with two collectors



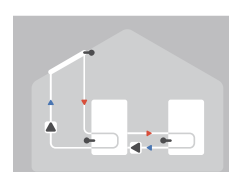
Solar with two collectors
and two pumps



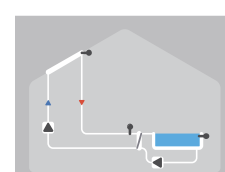
Solar with two tanks
and two pumps



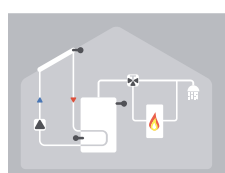
Solar with two tanks and
valve



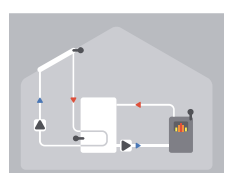
Solar with storage tank



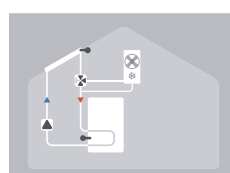
Solar with pool and
exchanger



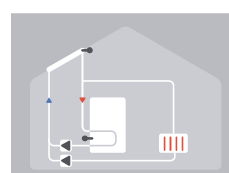
Solar with thermostat
and valve



Solar with wood-fired boiler



Solar with cooling 1
(panel cooling)



Solar with cooling 2
(panel cooling)



Solar with cooling 3
(panel cooling)

S1 SOLAR 1

Solar module

The Solar module S1 SOLAR 1 is pre-assembled, tested and can be used for small solar installations.

The unit consists of a single return circuit.
The return circuit is equipped with:

- Flow meter and flow regulator, together with fill and drain couplings
- Solar circulation pump
- Ball valve with check valve. The check valve can be deactivated by turning the handle 45° (useful when filling the device)
- Thermometer 0-120 °C
- Safety valve (6 bar) with manometer Ø50 mm 0-10 bar and screwed drain 3/4" F
- Coupling for expansion vessel 3/4" M



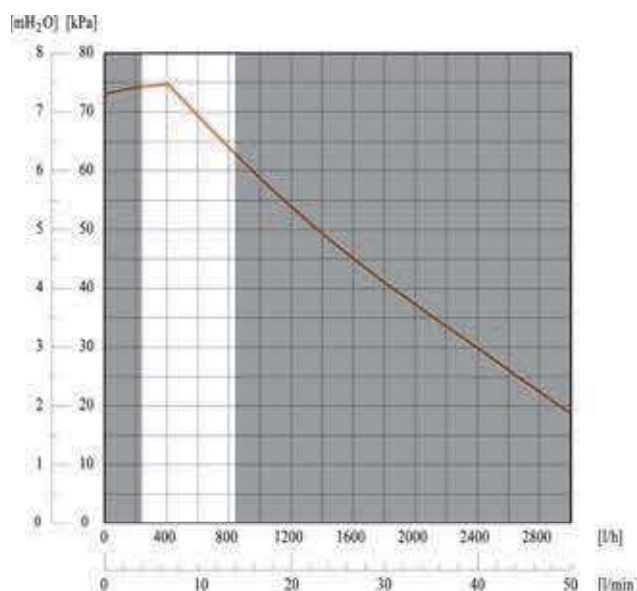
TESTED

The solar module is available in one version

Code	Model	Flow (l/min)		Power min/max W	Price	P. max	T. max
		Min.	Max.				
838110001	S1 SOLAR 1	2	12	3 / 45		6 bar	120°C(*)

For a brief period (20s) the max T is 160°C

Flow/performance curve



up to 16 m²*

* approximate value, to be verified based on the installation conditions

S2 SOLAR 30

Solar module

The Solar module S2 SOLAR 30 is pre-assembled, tested and can be used in small and medium solar installations. It is equipped with a pre-wired regulator and temperature sensors.

The unit consists of a RETURN and DELIVERY circuit. The delivery circuit comes with:

- Ball valve with check valve. The check valve can be deactivated by turning the handle 45° (useful when filling the device)
- Thermometer 0-120 °C
- Deaerator made of brass, with manual vent valve
- Piping and couplings

Return circuit comes with:

- Flow meter and flow regulator, equipped with fill and drain connections
- Solar circulation pump
- Ball valve with check valve. The check valve can be deactivated by turning the handle 45° (useful when filling the device)
- Safety valve (6 bar) with manometer
- Coupling for expansion vessel 3/4" M
- Thermometer 0-120 °C

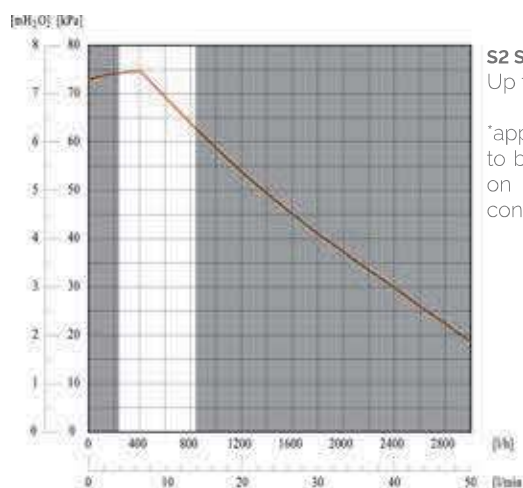


The solar module is available in two versions depending on the flowmeter

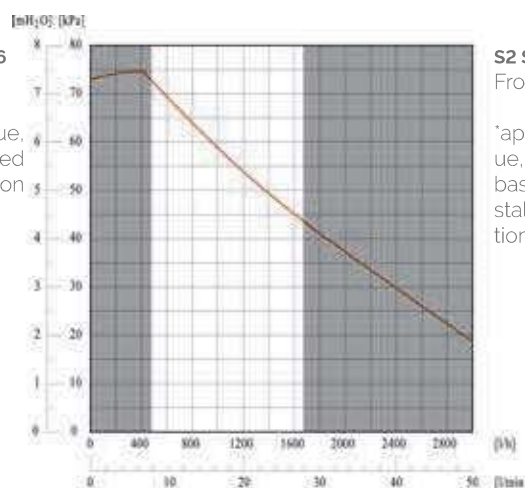
Code	Model	Flow (L/min)		Potenza min / max W	Price	max. press.	max. temp.
		Min.	Max.				
838110064X	S2 SOLAR 30 - 25/6	2	12	3 / 45		6 bar	120 °C (*)
838110065X	S2 SOLAR 30 - 25/7	8	28	3 / 45		6 bar	120 °C (*)

(*) For a brief period (20s) the max T is 160°C

Flow/performance curve



*approximate value, to be verified based on the installation conditions



*approximate value, to be verified based on the installation conditions

S2 SOLAR 2

Solar module

The two-pipe solar station consists of the following components:

Return:

- Flow regulator gauge 20-70 l/min
- high efficiency synchronous solar circulator 0-10V command
- ball valve with non-return valve 18 bar (the non-return valve can be left out by turning the handle for 45 degrees) with a thermometer handle (thermometer with blue ring; 0°C-120°C).
- T coupling for the safety unit
- 6 bar safety unit with 0-10 bar manometer - 3/4" male connection for expansion vessel. Drain outlet 1" F

Delivery:

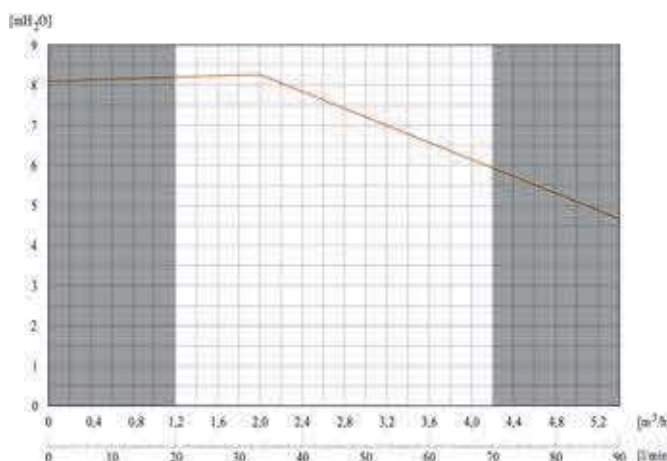
- T coupling for well probe holder
- ball valve with non-return valve 18 mbar (the non-return valve can be left out by turning the handle for 45 degrees) with a thermometer handle (thermometer with red ring; 0°C-120°C).
- coupling tube and coupling

Other features:

- EPP insulation box (dimensions: 125x250x400 mm).
- Wall mount set.
- Nominal pressure: 10 bar.
- Continuous temperature: 120°C (brief period: 160°C for 20 sec.).
- External couplings: 22 mm compression coupling and 1 1/4" female coupling.
- WILO TOP S 30/10 solar thermal pump (can be closed, does not have to be drained when serviced)
- Power: 195 / 270 / 380 W

Dimensions:

- Couplings: 1 1/4"
- Wheelbase: 125 mm
- Width with insulation: 285 mm
- Height with insulation: 500 mm



From 30 up to 90m²

*approximate value, to be verified based on the installation conditions

Code	Model	Flow (l/min)		Potenza min / max W	Price	max. press.	max. temp.
		Min.	Max.				
838110068X	S2 SOLAR2	20	70	8/130		6 bar	120°C(*)

Document to request further information on solar thermal installations

Address			
Client		Type of residence (one family, condo)	
Name		Name	
Street		Street	
Postal code/city		Postal code/city	
Telephone		Telephone	
Fax		Fax	

Requested installation		Planned cost of the installation	
<input type="checkbox"/> DHW (domestic hot water)		Budget €	
<input type="checkbox"/> Heating (room)			
<input type="checkbox"/> Heating (swimming pool)			
Hot water use		Consumer/recirculation profile	
Number of persons		Peak need	h
Hot water per person		Recirculation	<input type="checkbox"/> yes <input type="checkbox"/> no
Period of the year		Duration	h per day
<input type="checkbox"/> Connection to dish washer wanted		Total length of the pipes	m
<input type="checkbox"/> Connection to washing machine wanted			
other HW/g consumption	L/g		
Use for room heating			
Gross surface of the room	m²	Specific energy consumption	KWh/mq'a
Wanted temperature	°C	Min outside temperature	°C
Temperature at which the heating switches on	°C outdoor	Type of heating (radiator, solar panels)	
		Period of the year	
Use for heating (swimming pool)			
Length	m	<input type="checkbox"/> Indoor swimming pool	
Width	m	<input type="checkbox"/> Outdoor swimming pool	
Average depth	m	<input type="checkbox"/> With coverage	
Heating system		Position of the solar thermal central	
Wood	KW	<input type="checkbox"/> Cellar	
Fuel	KW	<input type="checkbox"/> Apartment	
Gas	KW	<input type="checkbox"/> Attic	
Heat pump	KW	Surface of the thermal central	m²
Electrical energy	KW	Height	m
Other	KW	Access to the thermal central	m x m

Document to request further information on solar thermal installations

Installation of the solar panels			
<input type="checkbox"/> Integrated in the roof	Useful size of the roof		m
<input type="checkbox"/> On the roof	Useful height of the roof		m
<input type="checkbox"/> On the façade (optional)	Height of the installation		m
<input type="checkbox"/> On tile	Shadow	<input type="checkbox"/> yes	<input type="checkbox"/> no
<input type="checkbox"/> Other	need of crane	<input type="checkbox"/> yes	<input type="checkbox"/> no
orientation of the roof		solar tubes (length, simple)	
orientation		External	m
Inclination		Internal	m
Quality of the water		Intensity of the wind	
<input type="checkbox"/> Soft		<input type="checkbox"/> Calm	
<input type="checkbox"/> Medium		<input type="checkbox"/> Low	
<input type="checkbox"/> Hard		<input type="checkbox"/> Medium	
<input type="checkbox"/> Very hard		<input type="checkbox"/> Hard	
Use		Notes	
Hot water	%		
Room heating	%		

Annual cost for heating	
DHW cost	Euro
Heating cost	Euro
Total cost	Euro
Cost per unit	Euro

Confirmation of data	
Hereby I confirm the correctness of the data provided	
Date and signature of the requester	
Privacy	
The personal data included in this form will be processed according to current laws about privacy. Please see the privacy notice, full text is available at go.fiorinigroup.it/eng/privacy Filling this form you agree to the privacy notice and allow data processing.	
Date and signature of the requester	



Accessories and Insights

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■ Fast Heaters for DHW	pag. 186
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Standard accessories for DHW storages

Storage tanks loading controller SLC

The SLC unit is a modern electronic regulator for loads of large DHW storage tanks with a high temperature precision. They are equipped with a wide display and makes it possible to program the desired temperature in the inside of the tanks on three different peak times a day. It is possible to control and command the electronic pump on devices AFK, AFW and AFK HD (up to HD 200) (0-10 V or PWM) by regulating the velocity on the ground of the difference between the measured temperature and the set point temperature. When cold water is stored the velocity of the pump is reduced in order to maximize the stratification in the tank. Numerous hydraulic programs are pre-loaded in the control unit, as you can see below.

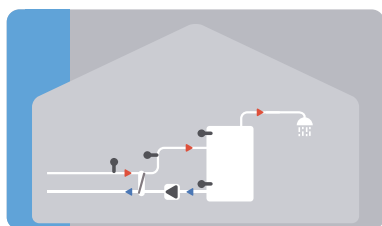
Composition

- ✓ electronic control unit
- ✓ 2 contact probes Pt1000 (R22070014)
- ✓ 1 emersion probe Pt1000 (R22070134)
- ✓ instructions

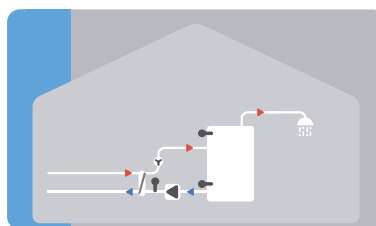
Technical data	
Inlet for the temperature probe pt 1000	6
Inlet for the grundfos VFS sensor	0-2
Outlet 230V	3
Outlet 0,0010V or PWM for the control of the high efficiency pump's velocity	1
Number of pre-set programs	5
Red/green LED light	✓
Energy gauge	✓
Crono function of the thermostat	✓
Crono function of the thermostat for the activation of the pump	✓
Anti-legionella function	✓
Memorizing the data with statistics and graphics	✓
Possibility to block the menu	✓
Universal alimentation (100...240 VAC)	✓
with reduction of the consumption in standby mode	✓



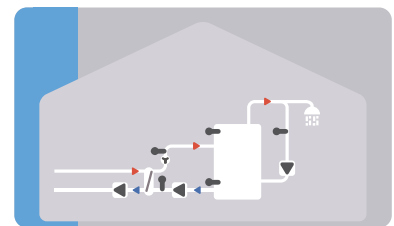
Code	Price
822120028	



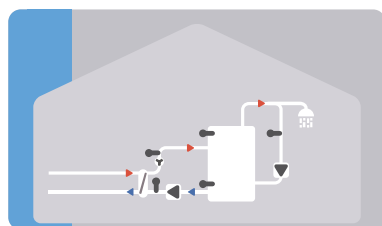
Storage load without VFS



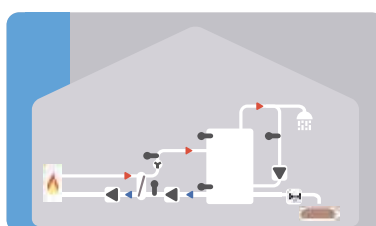
Storage load with VFS



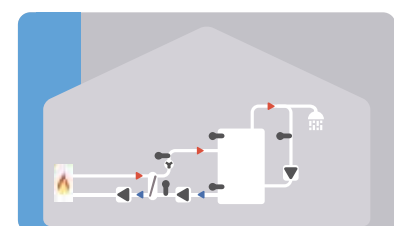
Storage load with VFS, primary pump and recirculation pump



Storage load with VFS and recirculation pump



Storage load with VFS, primary pump, anti-legionella heating and drain of sediments



Storage load with VFS, primary pump, anti-legionella heating and recirculation pump

Standard accessories for DHW storages

Magnesium anode



Capacity	Description	Code	Price
Magnesium anode 22x400 M8 without plug	FLEXY, FLEXY INOX, BOIL , BOIL INOX, SMART INOX capacity 200÷300 l	R22100003	
Magnesium anode 33x500 M8 without plug	*FLEXY, FLEXY INOX, BOIL , BOIL INOX, SMART INOX capacity 500÷5000 l 6000÷10000 l (N°2 pieces)*	R22100004	

Each installed anode needs a plug, see table below.

Plug for anode

Capacity	Code	Price
Galvanized steel plug for anode 3/4"	R01050040	
Galvanized steel plug for anode 1"	R01050041	
Galvanized steel plug for anode 1 1/4"	R01050042	
Galvanized steel plug for anode 1 1/2"	R01050066	



Magnesium anodes for SMART boilers



Capacity	Description	Code	Prezzo
200	Isolated anode 33 x 500	R22100013	
300	Isolated anode 33 x 500	R22100013	
500	Isolated anode 33 x 500	R22100013	
	Magnesium anode 22 x 400 M8 without plug	R22100003	
750	Isolated anode 33 x 500	R22100013	
	Magnesium anode 22 x 400 M8 without plug	R22100003	
1000	Isolated anode 33 x 500	R22100013	
	Magnesium anode 22 x 400 M8 without plug	R22100003	
1500	Magnesium anode 33 x 500 M8 without plug	R22100004	
	Plug for anode fitting 1 1/4"	R01050042	
2000	Magnesium anode 33 x 500 M8 without plug	R22100004	
	Plug for anode fitting 1 1/4"	R01050042	
3000	Magnesium anode 33 x 500 M8 without plug	R22100004	
	Plug for anode fitting 1 1/4"	R01050042	

Current impressed cathodic protection



Description	Code	Price
Up to 1500 litres	822100014	
From 2000 to 5000 litres	822100015	

Thermometer



Description	Code	Price
thermometer for hot water	822050001	
thermometer for cold water	822050004	

Thermostats



Description	Temperature range	Safety range	Code	Price
Thermostat	0 ÷ 90 °C	-	822010004	
Bithermostat	0 ÷ 90 °C	fix 100 °C	822010006	
Antifreeze Bithermostat	-30 ÷ 30 °C	0 ÷ 90 °C	822010007	

Standard accessories for DHW storages

Single-phase electrical heaters that can be integrated with the boilers, copper heating elements, IP44 protection category, supplied with regulation thermostat (range 20-70 °C), safety thermostat (manual reset), electric cable and Schuko plug 10-16A/250V



Code	Price	Power W	Length L mm	Connection GAS M	Temperature safety thermostat °C	Tension V
824100166		1200	365	1"1/2	95	220 V MONOFASE
824100167		2000	368	1"1/2	95	
824100168		3000	350	1"1/2	85	

Three-phase electrical heaters that can be integrated with the boilers, copper heating elements, IP44 protection category, supplied with regulation thermostat, safety thermostat (manual reset), electric cable and no plug. Thermostat range 20-70 °C



Code	Price	Power W	Length L mm	Connection GAS M	Temperature safety thermostat °C	Tension V
824100169		2000	300	1"1/2	95	400 V TRIFASE
824100170		3000	300	1"1/2	95	
824100171		4500	375	1"1/2	95	
824100172		6000	450	1"1/2	95	
824100173		9000	580	1"1/2	95	

Heads

Diameter mm	Code	Price
300	843030018X	
380	843030019X	
430	843030020X	



Tube heat exchanger and exchanger with copper spiral see pag. 183-184.



The heads are made of carbon steel, varnished for alimentary use. They are supplied with nuts, bolts and gaskets.

Gaskets with or without crossbeam



Diameter mm	Asbestos free				Asbestos free steam			
	Without crossbeam		With crossbeam		Without crossbeam		With crossbeam	
	Code	Price	Code	Price	Code	Price	Code	Price
300	R08020036		R08020037		R08060026		R08060001	
380	R08020038		R08020039		R08060027		R08060002	
430	R08020040		R08020041		R08060028		R08060003	

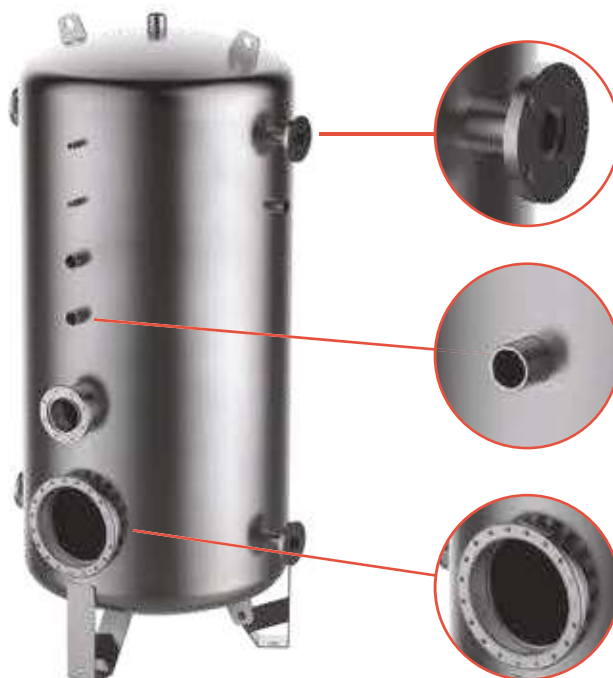
The copper coils have a gasket without cross-beam with the same diameter as the assembly plate.

The tube heat exchangers have two gaskets: one with and one without a cross-beam. Both have the same diameter as the closing head. The blind closing heads have one gasket without cross-beam with the same diameter as the assembly plate.

Special versions of DHW storages

Special executions change the conformation of the products and hence the sales code will be different depending on the special execution required. Fiorini is able to meet any out-of-the-box request quickly, providing the customer with the assistance they need to guide them to the solution that best suits their needs. Here are some examples of special executions:

- Flanged (in various materials)
- Victaulic (in various materials)
- Larger size
- Customized on request



ALUMINIUM sheet coatings

Accessory for outdoor installation.

It is mandatory to provide a wooden cage for transportation.



Packed in wooden cage

Guarantees greater product protection during transport



Accessories compatibles with product ranges: FLEXY, SMART, BOIL, PUFFER, COMBI

Standard accessories for fast heaters

Insulation kit AFK for exchanger and fittings See pag 188



Code	Description	Price
843090014X	Insulation kit for AFK	

SLC electronic control unit See pag 274



Code	Description	Price
822120028	SLC electronic control unit	

ACCESSORY only up to and including AFK HD 200, for larger sizes it is not available.

Insulation kit AFW for exchanger and fittings See pag 190



Cod.	Accessorio	Prezzo
843090091X	AFW insulation kit WP4/14	
843090092X	AFW insulation kit WP4/20	
843090093X	AFW insulation kit WP4/30	
843090094X	AFW insulation kit WP4/40	
843090095X	AFW insulation kit WP4/50	

Insulation kit for AFK-HD See pag 197

K042		K080	
Code	Price	Code	Price
821080037X		821080038X	

Standard accessories for fresh water stations

AQUAMATIC Accessories See pag 202

Code	Description	Price
829000209X	Kit resistor	
842030116X	Kit internal primary mixing valve	
842030120X	Kit external deviation valve for stratification	
842030119X	Kit recirculation pump	
817010158X	Accessory puffer 70 litres AQUAMATIC 200/300	
817010159X	Accessory puffer 90 litres AQUAMATIC 500	
838110069X	Solar station no pump	
452010010	Kit serial port RS485	
452010006	Kit web (remote control)	

SET 2.0 wall-mounted Accessories See pag 218

Code	Description	Digital outputs	Price
842030089X	External kit in series	1	
842030099X	External kit recirculation SET 2.0	1	
842030097X	External kit mixing valve set 2.0	2	
842030095X	External kit deviation valve set 2.0	1	

SET 2.0 mounted Accessories See pag 227

Code	Description	Digital outputs	Price
842030092X	External kit in series SET 2.0 DN32 models 60 - 70 -80 -100 -120	1	
842030140X	External kit in series SET 2.0 DN50 models 200	1	
842030099X	External kit recirculation SET 2.0 (no pump)	1	
842030096X	External kit deviation valve set 2.0	2	
842030098X	External kit mixing valve set 2.0	1	

Standard accessories for Solar Thermal



Drain valve

Code	Description	Price
809040007	Permanent drain valve for solar power system DN20	
809040012	Permanent drain valve for solar power system DN25	

Technical data		
	809040007	809040012
Material	stainless steel	brass
Max operating temperature	from -30°C to +200°C	180°C
Max operating pressure	10 bar	10 bar
Fitting	2 x 3/4" FF DN20	2 x 1" IG, 1 x 1/2" FE



Expansion vessel

Code	Description	Price
811010061	Expansion vessel for solar power system 18 LT	
811010062	Expansion vessel for solar power system 25 LT 10	
811010094	Expansion vessel for solar power system 50 LT	
811010065	Expansion vessel for solar power system 80 LT	

Technical information				
	811010061	811010062	811010094	811010065
Capacity	18 lt	25 lt	50 lt	80 lt
Pre-load pressure	3 bar			
Max. operating pressure	10 bar			
Fittings	1 x 3/4" AG			

Set of fittings for expansion vessel



Code	Description	Price
843070019	Set of fittings for expansion vessel	

Set of fittings for expansion vessel 18 and 25 l with brass quick-fit coupling for changing the vessel when the device is under pressure.

Included in the set:

- galvanized steel wall mount
- stainless steel flexible pipe with 2 x 3/4" IG end fittings for direct connection of expansion tank to pump
- Screws, anchors, brass reductions from 1" IG to 3/4" AG.

Pre-mixed antifreeze liquid (46%)



Code	Description	Price
830040032	Can of 10 l	
830040031	Can of 20 l	

Description	
Mix of protective liquid, anticorrosive liquid and antifreeze liquid. Ready for use, non-toxic and biodegradable	
Technical data	
Components	Propanidol and a lot of propylene glycol in a liquid solution
Colour	green
Ph	ca 7,5 a 9 (not diluted, at 20°C) (DIN 51369)
Pour point	-34° C (DIN 51583)
Boiling point	ca. / approx. +107° C (with atmospheric pressure)
Continuous temperature	max. 180° C
Vapour pressure	ca. 20 hPa (at 20° C)
Density	ca. 1,065 g/cm3 (a/at 20° C) (DIN 51757)
Viscosity/kinematics	from 6 to 8 mm2/s (a 20° C) (DIN 51562)

Standard accessories for Solar Thermal

2-way motor-driven valve



Description	Code	Price
DN25 2-way motor-driven valve, closed when not powered.	809020103	
DN32 2-way motor-driven valve, closed when not powered.	809020104	

ON/OFF motor-driven 2-way valve with red brass casing, internal elements made of brass and steel. Adjusted by electro-thermal device (manual emergency command) with an adjustment time of approximately 3 min.

Technical information			
	809020103	809020103	809020104
Max. operating pressure	10 bar		
Max. operating temperature	120°C, for briefs periods up to 140°C		
Motor	230 V - 2,5 watt		
Couplings	1 x ¾" IG 1 x ¾" FE	1 x 1" FI 1 x ¾" FE	1 x 1¼" FI 1 x 1¼" FE

Motor-driven 3-way valve



Description	Code	Price
Motor-driven 3-way valve DN20	809020237	
Motor-driven 3-way valve DN25	809020238	
Motor-driven 3-way valve DN32	809020239	
Motor-driven 3-way valve DN50	809020241	

ON/OFF motor-driven 3-way valve with red brass casing, internal parts made of brass and steel, one inlet - two outlets. Can be adjusted with an electro-thermal device (manual emergency command). The valves come with threaded brass fittings.

Technical information				
	809020237	809020238	809020239	809020241
Max. operating pressure	10 bar			
Max. operating temperature	120°C, for briefs periods up to 140°C			
Motor	230 V - 2,5 watt			
Couplings	3 x ¾" FE	3 x 1" FE	3 x 1¼" FE	3 x 2" FE

Electric actuator for valve series



Description	Code	Price
Electric actuator for valve series 645 220 V threeway, two point control	809020150	

Standard accessories for Solar Thermal



Thermostatic Mixer tap for domestic water

Description	Code	Price
Thermostatic Mixer tap for domestic water 35-60°C-1"	809020151	
Thermostatic Mixer tap for domestic water 35-60°C-1" 1/4	809020152	

Single burn-proof mixer tap with red brass casing for integration in hot water piping with a set of fittings. Independent adjustment and water temperature limitation without additional delivery, continuous adjustment between 30 and 70°C.

Technical information	
Max. operating pressure	10 bar
Max. operating temperature	100°C
Couplings	3 x 1" FE
Fittings	3 x 3/4" FE

SLC controller see pag 274



Code	Description	Price
822120028	SLC controller	

Tank treatments

Bluetech

Bluetech is an innovative treatment, which is obtained from thermo-setting resins. It offers a lot of advantages in comparison to traditional treatments:

- excellent resistance and stability under high temperature
- excellent adhesion to the carbonized steel and high elasticity
- hermetically closed
- effective barrier against cathodic delamination
- long life span

It is specifically designed for coating the inside of our water heaters and Domestic Hot Water tanks (DHW) and can be used with drinking water. Bluetech is conform with DM 174/2004 and therefore suitable for use with drinking water as prescribed by DLgs 31/2001 (att.dir. 98/83/CE).

Properties

The following data apply to a coating on 3 mm thick carbonized steel sheets as in the standard conditions.

Application	Electrostatic
Firing	20 min/200°C
Film thickness	100 ÷ 140 µm
Look	Smooth / Glossy
Pencil hardness	H ÷ 2 H
Color	Blue RAL 5002

Stainless steel

In some cases when chlorides are present, even stainless steel can be damaged due to corrosion. In order to eliminate this risk our water heaters are made with special austenitic steel, such as AISI 316L (low carbon) and for more aggressive water for special versions, AISI 316 Ti (with Titanium). We use AISI 316L .4404 EN 10088-2 steel for installations with drinking water (suitable for drinking water in accordance with DM 174/2004).

Glass-lining

The solution guarantees protection against corrosion. The enamel is vitrified, by firing it at more than 800°C. The enamel is different from other kinds, i.e. the chemical composition is inorganic (no carbon) and there are chemical links. Glass-lining is only applied to tanks of a medium capacity. The enamel is inorganic (DIN 4753.3) and therefore suitable for use with drinking water (DM 174/2004)



User conditions

If you want to properly use the storage tanks and prevent malfunctions or damage, you should respect the following limitations:

- a) the storage tank has to be equipped with an efficient cathodic protection.
- b) The quality requirements for drinking and food-grade water has to be in accordance with DLgs 31/01 (att. Dir 98/83/CE) and in particular they should respect the following parameters.

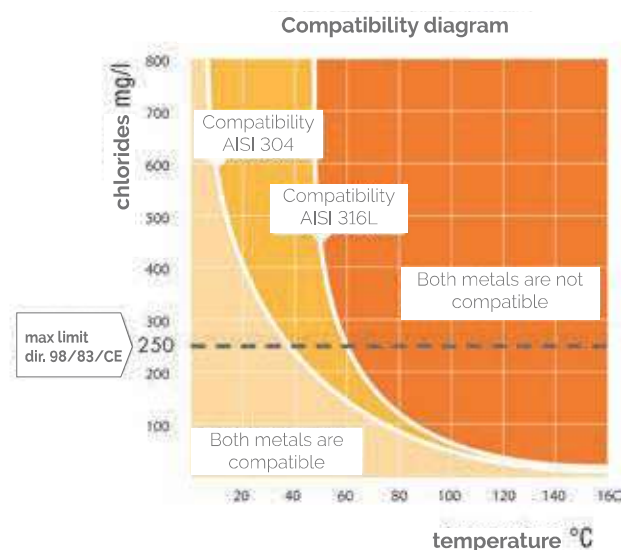
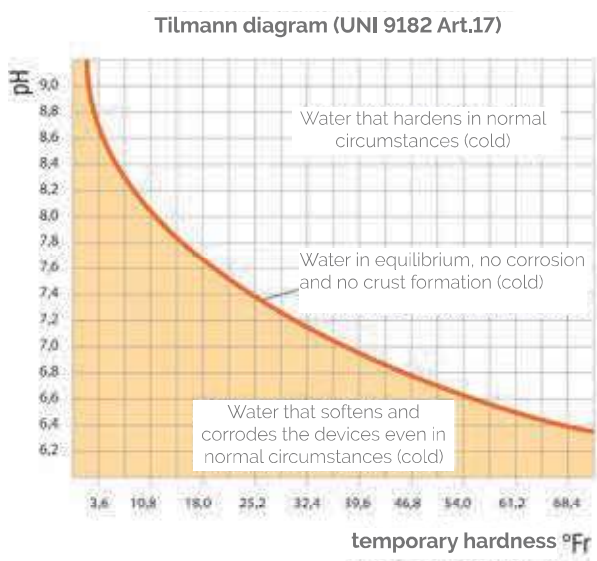
Hydrogen-Ion concentration pH (*)	6,5 ÷ 9,5
Electrical conductivity $\mu\text{S cm}^{-1}$ (a 20°C)	< 2500
Chlorides mg/L ci	< 250
Sulphates mg/L SO ₄	< 250
Total hardness °Fr (*)	required min. 15

(*) The water is treated according to the Tillmann diagram to satisfy the hygienic requirements and to ensure an equilibrium (no crust formation, no hardness). The prescribed treatments (UNI 8065) cannot hinder the use of the water for food preparation and have to be carried out with the right devices. In case of softening or desalination the total hardness of the treated water cannot be less than 15°Fr (DM 443/90)

- c) The max operating temperature should always be respected. It should be kept in mind that the water aggressiveness soars when the temperature increases, especially above 60°C.

Water and usage

The different types of water, hard water and soft water, are classified on the basis of their Ph value and their temporary hardness. The compatibility of AISI 304/316 L steel is based on the presence of chlorides and the water temperature.



Available protection equipment

Overpressure protection

To prevent undesirable effects caused by overpressure, it is recommended to use protective devices, such as a safety valve. Since water is incompressible and it expands when heated, an adequate expansion system should be installed which can prevent a rupture in the water heater. We suggest you respect the ISPEL norms (collection R-Cap R.1.A) which state that expansion systems in heaters with water for consumption can be created with a pressure relieve valve, a counterweight or a spring with a diameter calculated with the following formula:

$$d \geq \sqrt{\frac{V}{5}}$$

V = volume of the heater in litres
D = diameter of the valve orifice (minimum 15 mm)

N.B. The valve's calibration pressure should not exceed the max operating pressure of the water heater.

Expansion vessel

To prevent a continuous drainage by the safety valve, chalk formation and strain on the water heater, you should also provide a closed expansion vessel with a non-toxic valve (for food-grade water). The volume should not exceed 10 % of the storage tank's volume.

Device to soften water hammering

When the water flow is stopped brusquely or suddenly, that can cause "pressure waves", which can damage or rupture the device. Because of this, all systems for chilled and hot water distribution have to be equipped with a device to soften water hammering, either mechanical (with a spring) or even better hydro pneumatic (permanent or resettable air cushion) (UNI 9182 Art. 15).

Antifreeze protection

If the storage tank is exposed to temperatures below zero for extended periods, the device should be protected with heating devices or a continuous flow which makes sure that the water does not stay still. (UNI 9182 Art. 20.4.3.)

Electrical protection

To protect the users against possible fault currents, the metallic mass should be properly floor-grounded. (as by law DM 37/08)

Cathodic Protection against corrosion

Corrosion is an electro-chemical phenomenon which especially affects water heaters because in water tanks which are constantly refilled the softness of water increases very much when the temperature increases (especially above 60°C). Therefore, it is recommended to provide 'cathodic protection'.

Magnesium Anodes

In order to make the storage tanks cathodically protected, one or more sacrificial magnesium anodes are supplied. Those protect the structure against corrosion. Our anodes are produced in a particular Magnesium alloy of the AZ 63 type and guarantee physiological innocuousness, electrode potential ($\leq -0,9$ V) and loss of mass ($\leq 30 \text{ g} \cdot \text{m}^{-2} \cdot \text{d}^{-1}$) in accordance with the DIN 4753-6 norms.

Correx® Impressed Current Anode

Permanent cathodic protection can be realized with a Correx Impressed Current Anode. Since the Correx is not subject to corrosion, it is strongly advised to use it for the protection of ZANI tanks and heaters that work with highly aggressive water (even those which are already installed). An electrical socket near the water heater is required and, in case of a power outage, the current should be re-engaged and sustained. Cables cannot be tampered with or modified. An instruction manual is supplied with the product.



Regulation and precaution

Below the suggestions and information are described on how to properly manage and use the devices in accordance with the DM 37/08 law.

Hot water storage

Heat generators used for the production of hot water for hygienic and domestic use by various users in a residential environment have to have particular dimensions in accordance with the UNI 9182 technical norms. They have to be equipped with a hot water storage tank with an adequate capacity (DPR 412/93 Art. 5.7)

Drinking Water

The quality requirements for drinking water used for food preparation have to be in accordance with D Lgs 31/01 (Dir. 98/83/CE)

Tanks

The tanks for fuel and diesel for thermal installations have to be in accordance with the norms emitted by the Department of the Interior 28-04-05.

Couplings

The couplings between the piping and the devices (water heater, storage tank...) have to be equipped with flanges or with a three piece union coupling (UNI 9182 Art. 20.3.7)

Storage tank dimensions

The dimensions have to be considered based on: the total amount of water during the peak period, the duration of the pre-heating period, the temperature of the cold water, the distributed hot water and the stored hot water. (UNI 9182 Art. 9.3.1)

Separate generators

The central production of thermal energy for the air conditioning of places and the production of hot water for hygienic and domestic use by various users have to be executed by separate heat exchangers (DPR 412/93 Art. 5.6)

Floor-grounded

Electrical devices have to be floor-grounded and have to be equipped with differential circuit breakers or an equivalent protective system (DM 37/08)

Anti-legionella protection

To eliminate the presence of the legionella bacterium the World Health Organization has suggested as follows (WHO Bulletin OMS, vol.681990)

- heat the water with a storage temperature of 60°C
- ensure that the water never reaches a temperature below 50°C.

Antifreeze protection

Because frozen water has a greater volume, the internal pressure in the closed storage tanks would cause damage and ruptures. In order to prevent this possibility the device has to be produced and managed in such a way that the temperature never hits below 0°C.

Recirculation

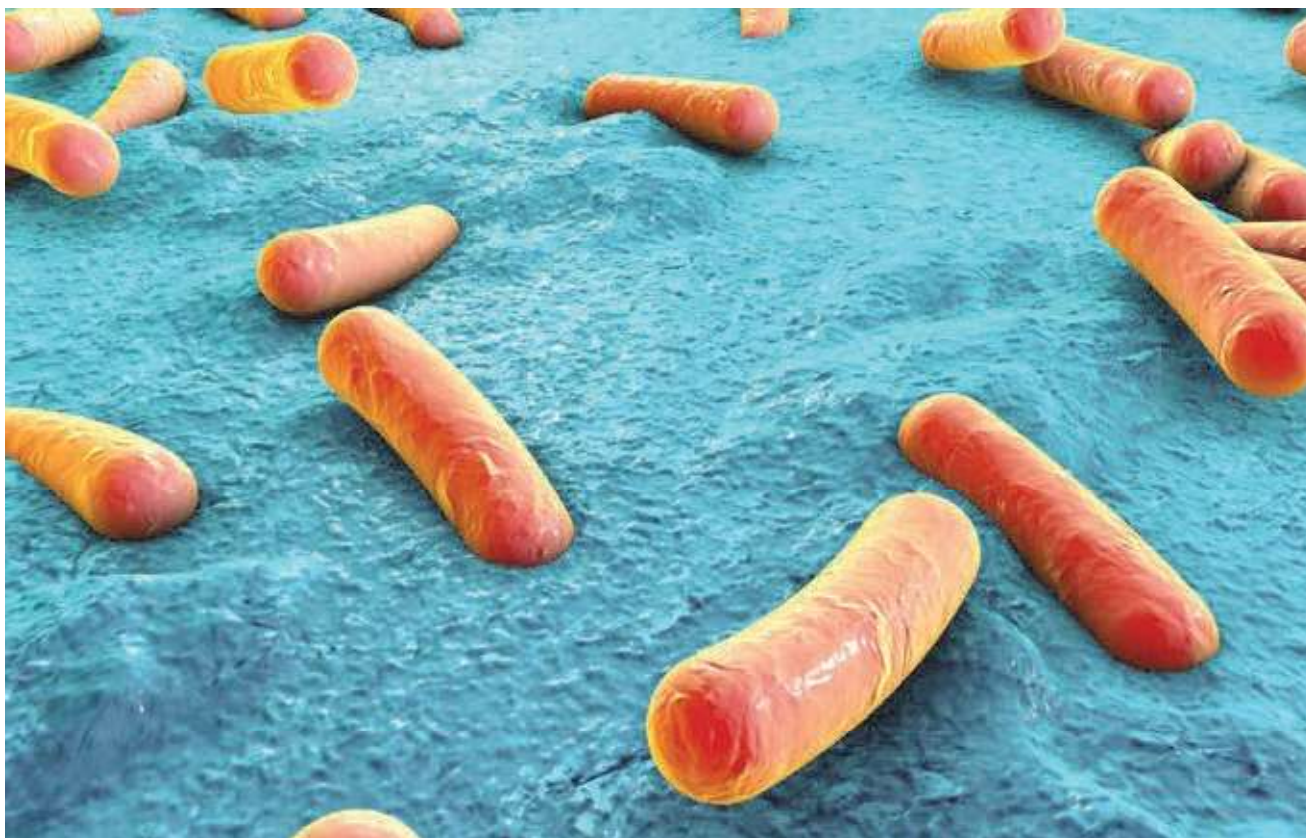
In case of central distribution, a recirculation system has to be provided. In this way the water is continuously in movement and the consequences of heat loss in case of stagnation are prevented.

Distribution temperature

The heat exchangers for the central production of hot water for hygienic and domestic use by various users in a residential setting have to be designed and managed in a way to ensure that the water temperature, measured at the entry point of the distribution system, does not go above 48°C, with a 5°C tolerance. (DPR 412/93 Art. 5.7)

Storage temperature

(UNI 9182 – appendix L) Even though the norms recommend storage temperatures of up to 65°C, we advise not to exceed 60°C in order to save energy, prevent chalk formation and reduce electrochemical corrosion. In order to not exceed the desired temperature, the boiler has to have the right dimensions. Moreover, (appendix U) it is forbidden to send water with a temperature over 60°C through galvanized steel tubes.



Guidelines for Legionella prevention and control

Environmental Conditions

The conditions that favour the development and proliferation of Legionella bacteria are the following:

- Water temperature between 25°C and 42°C
- Aerobic environment
- Presence of nutritive elements (slag, biofilm, iron ions, and limestone)

Methods for preventing and controlling water system contamination

Short-term measures

In the absence of structural interventions, the following short-term measures must be implemented:

- Decalcification of the lesser worn elements through immersion in a solution and subsequent disinfection
- Replacement of couplings, tap filters, worn shower heads and flexible tubes

In carrying out the above specified procedures, Legislative Decree 81/2008 and its amendments must be followed.

Long-term measures

› Heat shock

Consists in raising water temperature to 70°C-80°C for three consecutive days, making sure that it flows out from all dispensing points for at least 30 min. per day. Verify that the temperature reaches or exceeds 60°C at the distal points of the system.

Advantages: does not require any special equipment and, therefore, can be immediately implemented.

Disadvantages: while this procedure is considered effective, it requires a high consumption of energy.

› Heat disinfection

This is easy to apply to systems with a double adjustment control for the water temperature. The production temperature for DHW is increased to 65° C inside the heaters (primary adjustment). Water recirculation is carried out at 55-60° C throughout the entire distribution system, preferably for at least 30 min. per day.

Advantages: in systems equipped with a double temperature control system, it can be immediately implemented.

Disadvantages: this procedure requires a high consumption of energy. In the event of installations where hot water is produced and distributed at 48°C-50° C, the Legionella bacteria can colonize both the

heaters, as well as the distribution and recirculation networks.

› Filtration at point-of-use

Micro-filtration allows to eliminate *Legionella* in the water in output at the point-of-use by employing a mechanical barrier (0.2 µm). It is a localized treatment system and easy to install.

› UV irradiation

UV rays are able to inactivate the bacteria by dimensionally reducing the thymine in DNA, therefore, preventing replication. This is an alternative method of effective disinfection in proximity of the point of application. Since this method does not have a residual effect, it is not suitable alone to treat an entire building, since *Legionella* persists in the biofilm, in dead spots, and in the stagnant sections of the system.

Advantages: It can be easily installed in pre-existing water systems.

Disadvantages: UV irradiation is effective if the density of the fluid is limited and if the water is scarcely turbid.

› Hyperchlorination shock

Advantages: Hyperchlorination shock is a strong disinfecting treatment.

Disadvantages: It is a systemic disinfecting method that is, however, temporary.

› Continuous hyperchlorination

Advantages: Continuous hyperchlorination is a general disinfecting method that guarantees a residual concentration of disinfectant throughout the entire water distribution system, in order to minimize the colonization of *Legionella* at distal points.

Disadvantages: Chlorine is corrosive and can cause damage to the pipes. It is also necessary to prevent potable DHW from being used (especially when preparing food and hot beverages), and the user must be notified.

› Disinfection with chlorine dioxide

Chlorine dioxide has been successfully used in aqueducts and subsequently applied in controlling *Legionella* contamination in domestic water production plants. Chlorine has the advantage of being more active against biofilm.

Advantages: The action does not influence the water's pH level and reduces the growth of biofilm.

Disadvantages: It causes the formation of inorganic by-products (chlorite and chlorate) from disinfection.

› Ozonation

Ozone is an excellent biocide capable of irreversibly damaging the DNA of microorganisms. It does not present any residual effect, therefore, it cannot be used to systemically treat the system. It has a minimum impact on biofilm, produces by-products and, at high quantities, can damage pipes. Its effective-

ness seems moderately influenced by the pH levels and temperature of the water.

› Copper-silver ionization

Metals such as copper and silver are known bactericides. The effect achieved is mainly due to the action on the cell wall of the microorganism, which causes a distortion in the permeability of the cell.

Advantages: This method can be easily applied and is not influenced by water temperature. Furthermore, due to an accumulation of copper in the biofilm, the bactericide effect persists for a few weeks even after the treatment system is deactivated, reducing the possibility of a recolonization. To date, the formation of by-products from disinfection has not been detected.

Disadvantages: Since the concentration of copper and silver ions are subjected to fluctuations, their levels must be systematically verified, along with the pH level of the water (optimum value: 6-8). Both free residual chlorine and corrosion inhibitors can alter the concentration of copper ions, reducing its effectiveness. This technique is not suitable for treating water mains in stainless steel, galvanized steel, and copper because of the redox reaction that can be triggered between the pipes and the disinfectant.

› Disinfection with hydrogen peroxide and silver ions

This treatment is carried out using a stable and concentrated solution containing hydrogen peroxide and silver ions, exploiting the bactericide action of each component and the synergy that develops between them. The use of this disinfectant is relatively recent and requires further experimental confirmation.

Advantages: the oxidizing action of hydrogen peroxide is less aggressive than that exerted by chlorine dioxide or chlorine. To date, the formation of inorganic and organic by-products has not been reported. The concentration of silver ions is extremely modest and, if well-managed, does not have a polluting effect.

Disadvantages: Currently, exhaustive evidence is not available regarding the dynamic behaviour of this type of disinfectant over time. Since the concentrations of hydrogen peroxide and silver ions are subjected to fluctuation, their levels must be systematically verified. This technique is not suitable for treating water mains in galvanized steel, since zinc is capable of removing silver through a chemical reaction.