RED

Water heaters heat pump with storage tank

- HIGH EFFICIENCY
- RENEWABLE ENERGY
- SILENT FAN
- ENERGY SAVINGS
- ECOLOGICAL GAS
- INTEGRATED SOFTWARE MANAGEMENT
- EASY INSTALLATION

WALL INSTALLATION

COMPACT AND QUIET

RENEWABLE ENERGY PRODUCT

A2B ACCORRONI E. G.
Climate Technology

RED

Water heaters heat pump with storage tank

The water heaters heat pumps RED 120 A2B Accorroni Energy Group are designed for the production of domestic hot water for domestic and commercial use.
Due to their large storage, the units can satisfy most contemporary withdrawals as bathroom and kitchen.
The operation of the heat pump is used to transfer the heat from the outside air to the water contained in the tank and increasing the temperature up to 55 ° C.
Only a little quantity of electricity is required for the operation of the compressor. In fact the quantity of heat produced by the heat pump cycle is 3 - 4 times higher than that used for the operation of the compressor.
The water heater heat pump RED is composed of two parts: an outdoor unit that can be installed also to the wall, comprising the compressor, the heat exchanger-evaporator and the fan, and the indoor unit, formed by the tank wrapped with a heat exchanger-condenser and an electronic control.
The two parts are connected to each other with copper piping isolated in which the refrigerant flows.
The storage tank is made of steel protected by high-quality enamel; inside the accumulation is added to a magnesium sacrificial anode with electronic management of the consumption to further improve the protection from corrosion.
The thermal insulation to maintain the temperature of domestic hot water is provided by layer polyurethane foam covered externally by means of a steel plate which has been coupled one layer of epoxy material.
All water heaters are equipped with an electric heater which can be activated in case of need.
Some advantages compared to traditional electric water heaters are listed below:

MAXIMUM SAVINGS
RED 120 has a coefficient of performance (COP) equal to 3.4 (heating water from 15 °C to 55 °C; with 25 °C ambient temperature that allows to achieve an energy saving of 70% in a year).

EASY INSTALLATION
thanks to its compact size it is possible to install the new water heater in a simplified manner also in the replacement of old water heaters.

REASONABLE INVESTMENT
thanks to the low power consumption, the payback time for this system is reduced further.

ELECTRONIC EXPANSION VALVE
continuously adjustable valve that guarantees the highest efficiency of the heat pump water heaters even at low temperatures outside.

INNOVATIVE CONDENSATOR
RED 120 is equipped with a heat exchanger in aluminum wrapped externally to the storage tank with a high exchange surface.

ELECTRONIC CONTROL
RED 120 has an intelligent management with multiple integrated functions and built-in self-test.

THERMAL CYCLE ANTI LEGIONELLA
RED 120 automatically operates the electrical resistance to the heat treatment anti Legionella to ensure the hygiene of the water heater.

IMPROVED EFFICIENCY
Due to the thickness of the insulation eco-foam, characterized by one of the best coefficients of thermal resistance, RED 120 has very small heat losses.

RED

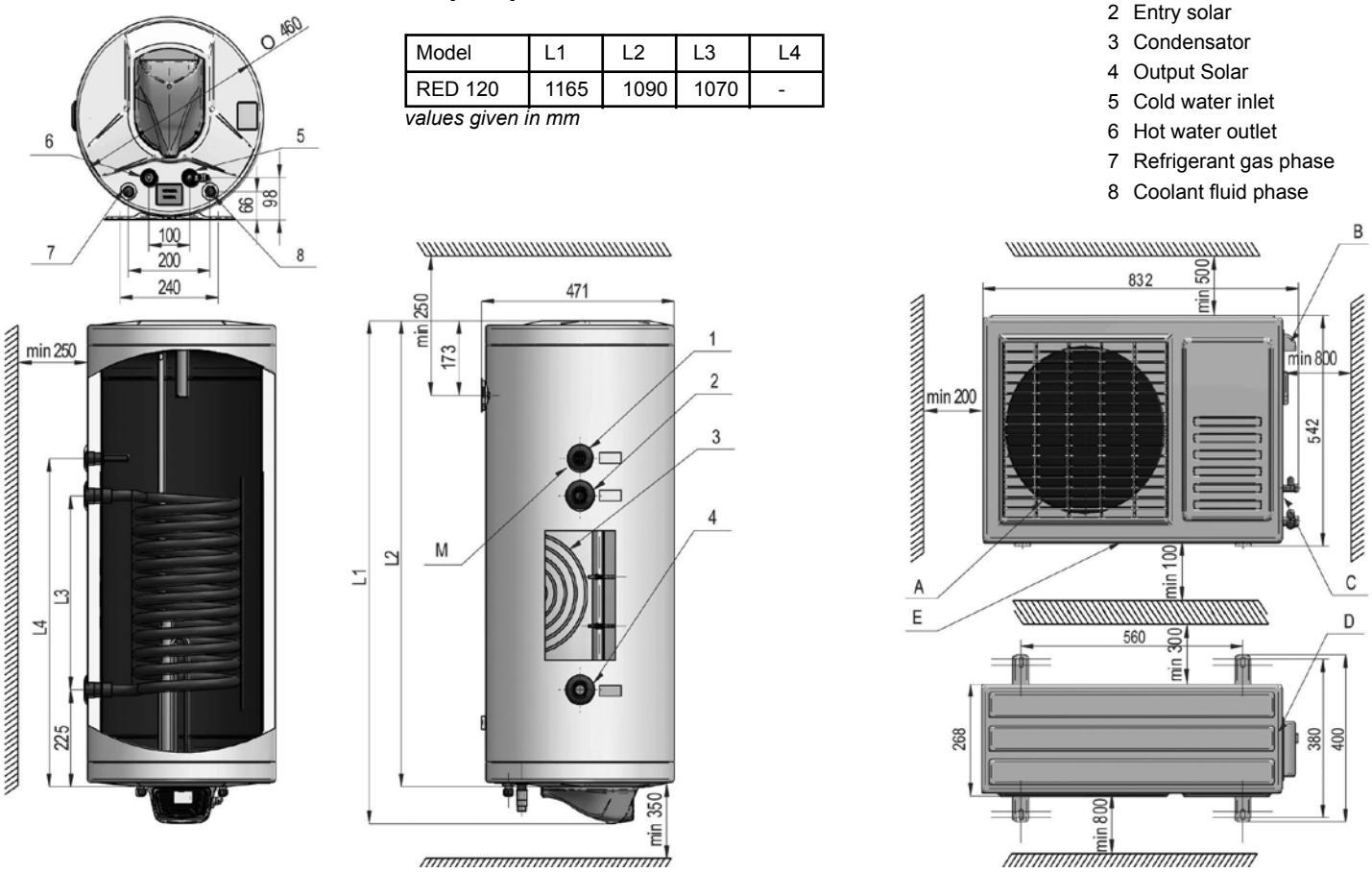
Water heaters heat pump with storage tank

Dimensions of water heaters heat pump RED 120

Model	L1	L2	L3	L4
RED 120	1165	1090	1070	-

values given in mm

1 Thermostat attachment
2 Entry solar
3 Condensator
4 Output Solar
5 Cold water inlet
6 Hot water outlet
7 Refrigerant gas phase
8 Coolant fluid phase



Technical data table for water heater heat pump RED 120

Model	U.M.	**RED 120**
Nominal volume of water heaters	l	120
Heat pump heating capacity	W	3000
Electrical resistance heating capacity	W	2000
Rated Voltage		230V/1/50Hz
C.O.P. (35 °C)*		3,40
Recovery times (from 15 °C to 55 °C)	min	105
Heat pump nominal electric power	W	780
Heat pump maximum electrical power	W	1020
Max total power	W	3020
Start current	A	21,15
Refrigerant R417A	kg	0,8
Operating Temperature	°C	-10 ÷ +40
Max pressure with refrigerant	MPa	2,7
Min pressure with refrigerant	MPa	0,7
Max pressure with tolerable refrigerant	MPa	2,8
Water tank nominal pressure	MPa	0,8
Outdoor unit protection of water from all directions	m^2	IPX4
Indoor unit protection against vertical water drops		IPX1
Sound level of the outdoor unit	dB(A)	49
Indoor unit weight	kg	50
Outdoor unit weight	kg	28

** Outdoor air temperature 25 °C - 15 °C hot water (inlet) 55 °C (output)*

GREEN

Water heater with heat pump mono bloc storage tank with or without solar heat exchanger

- HIGH EFFICIENCY
- RENEWABLE ENERGY
- SILENT FAN
- ENERGY SAVINGS
- ECOLOGICAL GAS
- INTEGRATED SOFTWARE MANAGEMENT
- EASY INSTALLATION

SUPER COMPACT

MODULAR SISTEM

AVAILABLE MODELS 300 - 300 S - 302 S

A2B ACCORRONI® E. G. Climate Technology

GREEN

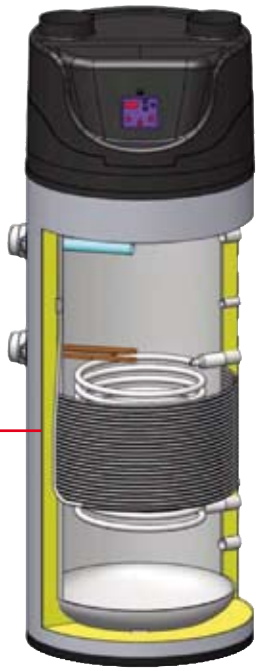
Water heater with heat pump mono bloc storage tank with or without solar heat exchanger

Following major investments in the development of new technologies for the use of renewable energy and energy saving, A2B Accorroni E.G. has created a new range of mono bloc heat pump water heater high efficiency series 300 GREEN - GREEN 300S - GREEN 302 S.
The water heater heat pump GREEN is the ecological evolution of the traditional water heater, which uses a renewable energy system that absorbs heat from the outside air directly.
This innovative system allows to obtain hot water at 60 °C with coefficients performance (C.O.P.) average > 3.
The water heater heat pump GREEN is characterized by easy installation, silent operation and very low maintenance requirements.

TECHNICAL SPECIFICATIONS OF THE WATER HEATER HEAT PUMP GREEN

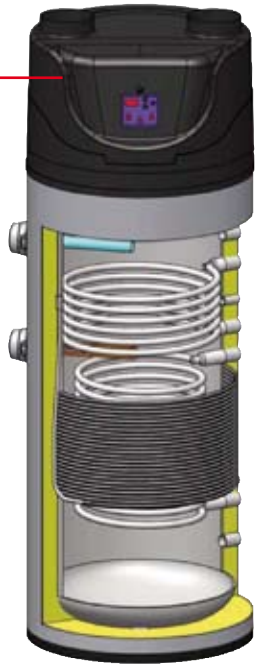
- Condenser wrapped externally to the boiler protected from any phenomenon of fouling and that prevents contamination of gas - domestic hot water
- Additional heat exchanger for possible integration system with solar thermal, biomass or boiler (GREEN S GREEN 302 S version)
- Tank made of steel and internally treated with glass process to double layer
- Magnesium anode corrosion
- Outer jacket made of polyurethane foam with a high coefficient of thermal insulation
- High efficiency rotary compressor that uses environmentally friendly 134A GAS
- Automatic electrical heater thanks to a special sensor outside temperature
- Centrifugal fans with inverter placed directly on top of the accumulation together to other components of the thermodynamic circuit of the heat pump that communicate with the outside through special PVC insulated pipes

GREEN 300
Water heater heat pump
Single block



GREEN 300 S
Water heater heat pump mono block with serpentine for integration of sun thermal

GREEN 302 S
Water heater heat pump mono block with double serpentine for integration of sun thermal on biomasses or boiler

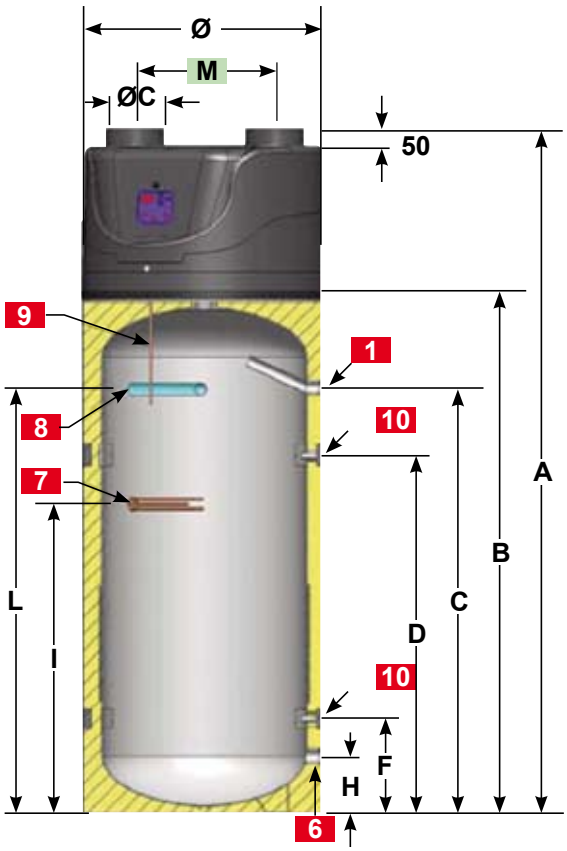


Model	Code
GREEN 300	**37010100**
GREEN 300 S	**37010200**
GREEN 302 S	**37010300**

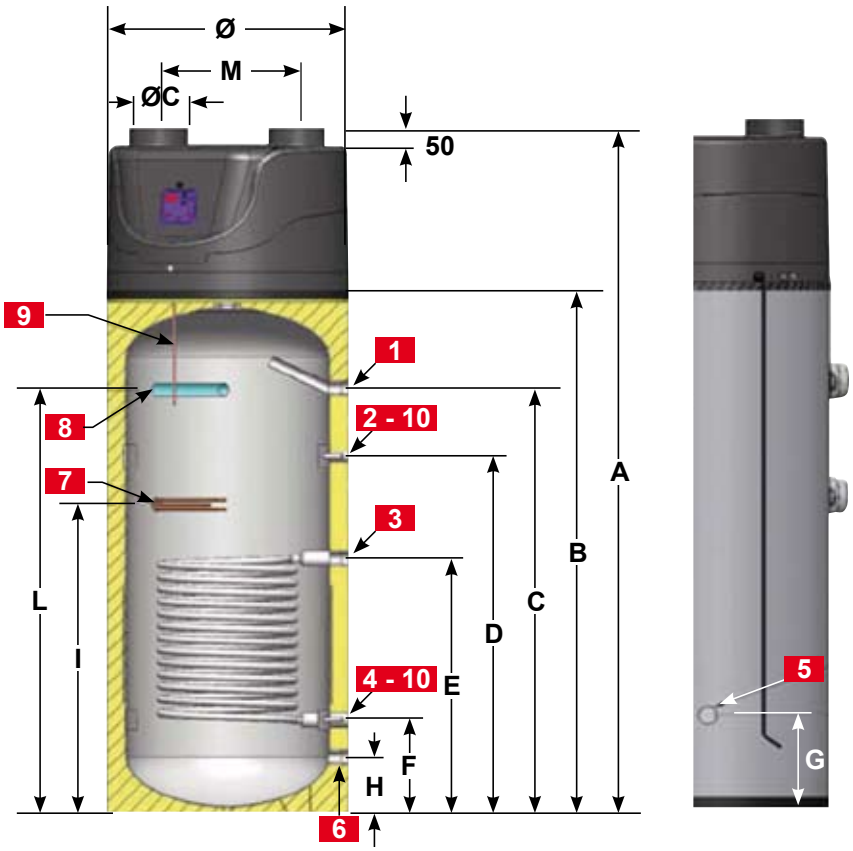
GREEN

Water heater with heat pump mono bloc storage tank with or without solar heat exchanger

Dimensions water heater on heat pump GREEN 300 - GREEN 300 S - GREEN 302 S



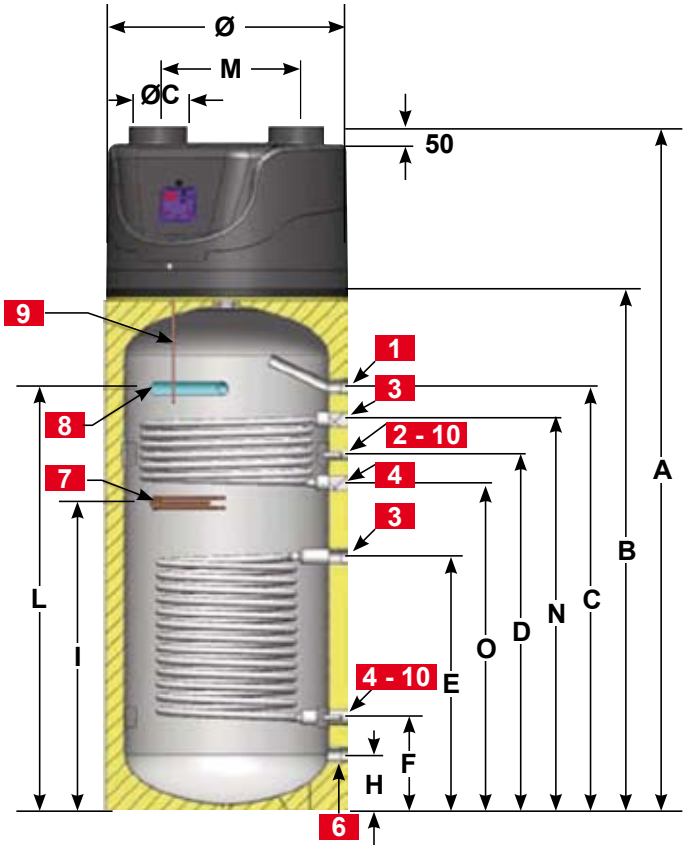
GREEN 300



GREEN 300 S

	U.M.	300	300 S	302 S
A	mm	1845	1845	1845
B	mm	1410	1410	1410
C	mm	1150	1150	1150
D	mm	965	965	965
E	mm	-	690	690
F	mm	-	255	255
G	mm	-	365	365
H	mm	155	155	155
I	mm	835	835	835
L	mm	1145	1145	1145
M	mm	425	425	425
N	mm	-	-	1060
O	mm	-	-	890
Øc	mm	160	160	160
Ø	mm	660	660	660

N.	DESCRIPTION	DIMENSIONS
1	Hot water	1”
2	Heating flow	1”
3	Alternative Energy Flow	1”
4	Back to Alternative Energy	1”
5	Condensate drain	Ø 20 mm
6	Cold water	1”
7	Electrical resistance	1” 1/4
8	Anode	1” 1/4
9	Control probe	Ø 12 mm
10	Control probe	Ø 12 mm



GREEN 302 S

GREEN

Water heater with heat pump mono bloc storage tank with or without solar heat exchanger

Table of technical data water heaters heat pump GREEN 300 - GREEN 300 S - GREEN 302 S

Model	U.M.	GREEN 300	GREEN 300 S	GREEN 302 S
Thermo power*	kW	2,43		
Absorbed power*	kW	0,64		
COP		3,25		
Electrical supply		230V/1/50Hz		
Absorbed current	A	3,19		
Time for heating**	h	5,42		
Energy for heating**	kWh	3,46		
Stand by consumption**	W	38		
Class of risk**		L		
COP DHW		2,64		
Temperature rif.	°C	55		
Max quantity of water to use**	l	379		
Thermo power electrical heater	kW	1,50		
Absorbed current electrical heater	A	6,52		
Max absorbed power heat pump+electrical heater	kW	2,14		
Max absorbed current heat pump+electrical heater	A	9,71		
Storage capacity	l	275	268	264
Max pressure of work	bar	6		
Max air flow	m^3/h	450		
Min air flow	m^3/h	137		
Diameter air ducts	mm	160		
Max duct length	m	10		
Solar heat exchanger surface	m^2	-	1,5	-
Biomass exchanger - boiler	m^2		1,5	0,6
Max pression of exercices	bar	10		
Leak of charge solar heater***	kPa		38	-
Leak of charge biuomass exchanger	kPa		38	22
Empty weight	kg	112	127	145
Exercise weight	kg	397	398	400

* *Data ref. ISO 255-3*

** *Data ref. EN 16147*

*** *Water flow 600 l/h*

1) *Ambiance temperature 15°C - DHW temperature beginning 10 °C*

2) *Stand by ambiance temperature 15 °C - Water temperature 55 °C*

GREEN THERMODYNAMIC

water heater
thermodynamic heat pump

- INTEGRATED DIRECT AND INDIRECT SUN ENERGY
- HIGH EFFICIENCY
- RENEWABLE ENERGY
- SILENT
- ENERGY SAVING
- ECOLOGICAL GAS
- INTEGRATED SIMPLE PROGRAMMING

HYBRID PRODUCT

RENEWABLE ENERGY

HEAT PUMP + SOLAR THERMO DYNAMIC

A2B ACCORRONI® E. G. Climate Technology

GREEN THERMODYNAMIC

water heater
thermodynamic heat pump

GREEN THERMODYNAMIC is an innovative system for the production of sanitary hot water based on the operation of the classic heat pump connected to a thermodynamic solar panel, able to pick up any type of solar and environment energy (principle of Carnot):

- Energy from direct and diffuse solar radiation
- Energy from air convection and wind
- Energy from conducting air, rain and snow

This product can improve both the energy performance of the conventional heat pump that of the classical solar thermal collector.

GREEN THERMODYNAMIC born to run all year round in all weather conditions and in every hour of the day, both day and night.

The thermodynamic panel is made of anodized aluminium anti-corrosion and can be installed in any position both horizontal and vertical to the roof or hanging on a wall.

This particular technology allows the capture of energy in both sides of the panel thanks to the environmentally friendly gas R134A that circulates inside.

However, to take advantage of the sunlight, the ideal position is to the south with inclination between 30 ° and 90 ° whereas the more solar radiation to be directed more Its performance will increase.

You have the following configurations:

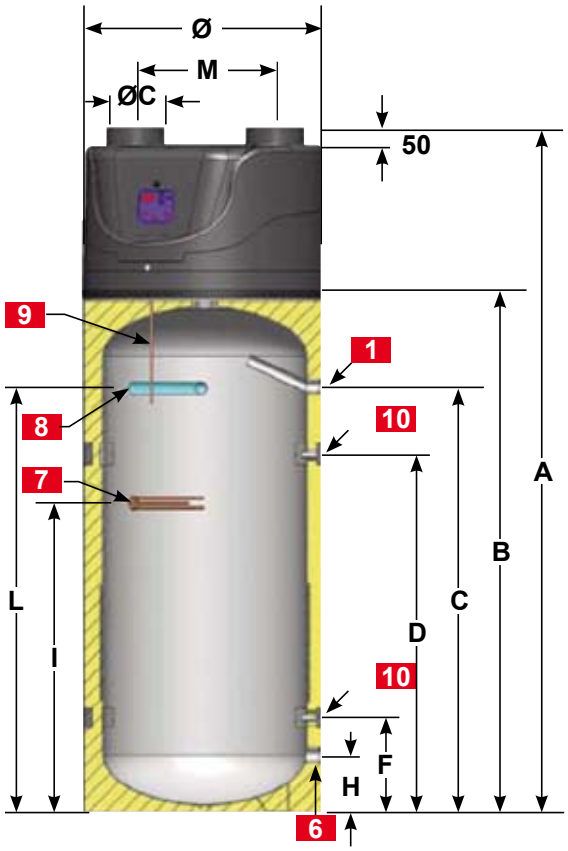
1 GREEN THERMODYNAMIC standard with a thermodynamic solar panel 2000 x 800 mm
2 GREEN THERMODYNAMIC S with a thermodynamic solar panel 2000 x 800 mm and auxiliary heat exchanger for use in combination with wood or pellet boiler or gas
3 GREEN THERMODYNAMIC with 2 double thermodynamic solar panels by 2000 x 800 mm
4 GREEN THERMODYNAMIC S 2 with double thermodynamic solar panels by 2000 x 800 mm and auxiliary heat exchanger for use in combination with wood or pellet boiler or gas.
The model with 1 solar panel are recommended for families of 5 members. The model with 2 panels (double) for 6 or 8 persons.

Model	Code
GREEN THERMODYNAMIC	**37020100**
GREEN THERMODYNAMIC S	**37020200**
GREEN THERMODYNAMIC DOUBLE	**37020300**
GREEN THERMODYNAMIC DOUBLE S	**37020400**

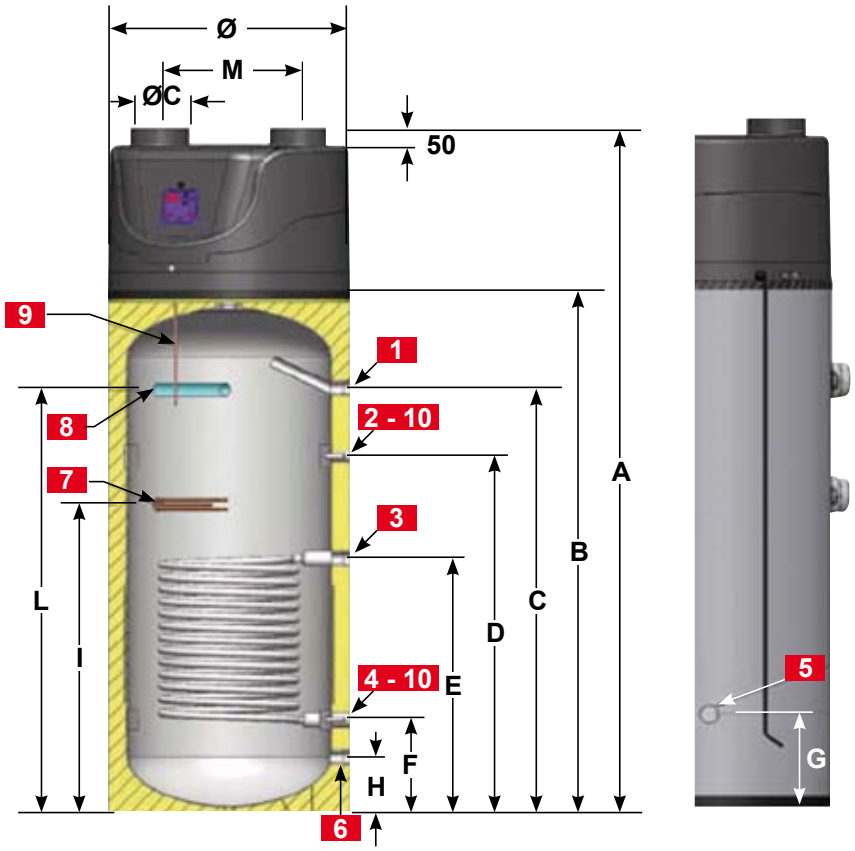
GREEN THERMODYNAMIC

water heater
thermodynamic heat pump

Dimensions water heaters heat pump GREEN THERMODYNAMIC



GREEN THERMODYNAMIC

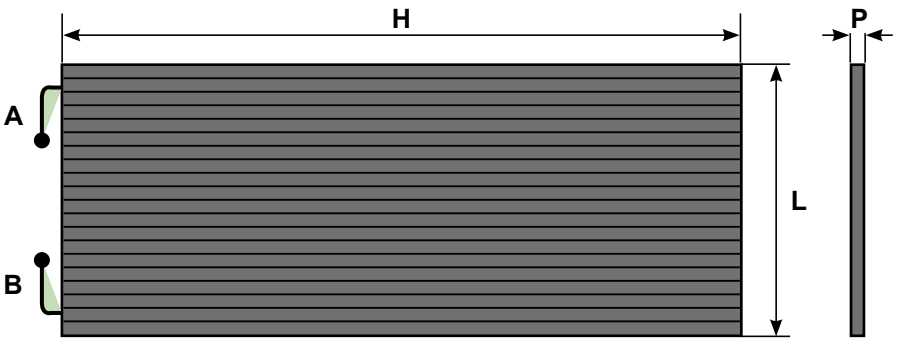


GREEN THERMODYNAMIC S

MODEL	U.M.	GREEN THER.	GREEN THER. S
A	mm	1845	1845
B	mm	1410	1410
C	mm	1150	1150
D	mm	965	965
E	mm	-	690
F	mm	-	255
G	mm	-	365
H	mm	155	155
I	mm	835	835
L	mm	1145	1145
M	mm	425	425
Øc	mm	160	160
Ø	mm	660	660

N.	DESCRIPTION	DIMENSIONS
1	Hot water	1”
2	Heating flow	1”
3	Alternative Energy Flow	1”
4	Return alternative energy	1”
5	Condensate drain	Ø 20 mm
6	Cold water	1”
7	Electrical resistance	1” 1/4
8	Anode	1” 1/4
9	Control probe	Ø 12 mm
10	Control probe	Ø 12 mm

Dimensions thermodynamic panel



L	mm	800
H	mm	1800
P	mm	20
A	Ø	3/8” SAE
B	Ø	1/4” SAE
Peso	kg	7,3

GREEN THERMODYNAMIC

water heater
thermodynamic heat pump

Technical data table GREEN THERMODYNAMIC - GREEN THERMODYNAMIC S

DESCRIPTION	U.M.	G.T.	G.T.S
Capacity	l	273	268
Surface of auxiliary serpentine	m^2	-	1,5
Required flow to the serpentine 80/60 ° C	m^3/h	-	1,6
Production DHW 80/60 ° C - 10/45 ° C (DIN 4708)	m^3/h	-	1,6
Maximum operating pressure of the boiler	bar	6	
Maximum operating pressure of the auxiliary serpentine	bar	10	
Power supply		230V/1/50Hz	
Max water temperature	°C	60	
Electric power resistance	W	1500	
Thermal power (average)	W	2000	
Power consumption (average)	W	500	
Refrigerant charge		R134A/1050	
Sound level	dB(A)	46	
Maximum length of refrigerant pipes	m	8	
Maximum height difference compressor and thermodynamic panel	m	5	
Weight thermodynamic panel	kg	7,3	
Weight storage tank to empty	kg	109	124
Weight storage tank in exercise	kg	334	395

GREEN SOLAR

SOLAR hybrid water heater on heat pump with integrated thermo solar

- SOLAR THERMAL ENERGY
- HIGH EFFICIENCY
- RENEWABLE ENERGIE
- SILENT
- ENERGY SAVING
- ECOLOGICAL GAS
- SIMPLE INTEGRATED PROGRAMMING

HYBRID PRODUCT

ON RENEWABLE ENERGY

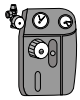
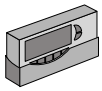
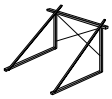
HEAT PUMP + THERMO SOLAR

A2B ACCORRONI E. G.
Climate Technology

GREEN SOLAR

SOLAR hybrid water heater on heat pump with integrated thermo solar

GREEN SOLAR is a system on renewable energy for the production of sanitary hot water, which takes advantage of the thermal energy produced by the heat pump air / water in conjunction with a solar heating plant of the latest generation.
This system is managed by an electronic digital control thanks to which you can give always priority to the most renewable energy source, or in the presence of a certain quantity of radiation, the heat pump will be replaced by the solar thermal collector.
In water heaters GREEN SOLAR are present from series all components for the realization of a solar thermal system (see table) that allows the circulation of the heat-carrier fluid (water glycol) from the solar collector to the heat spiral exchanger immersed inside the tank GREEN 300 S.

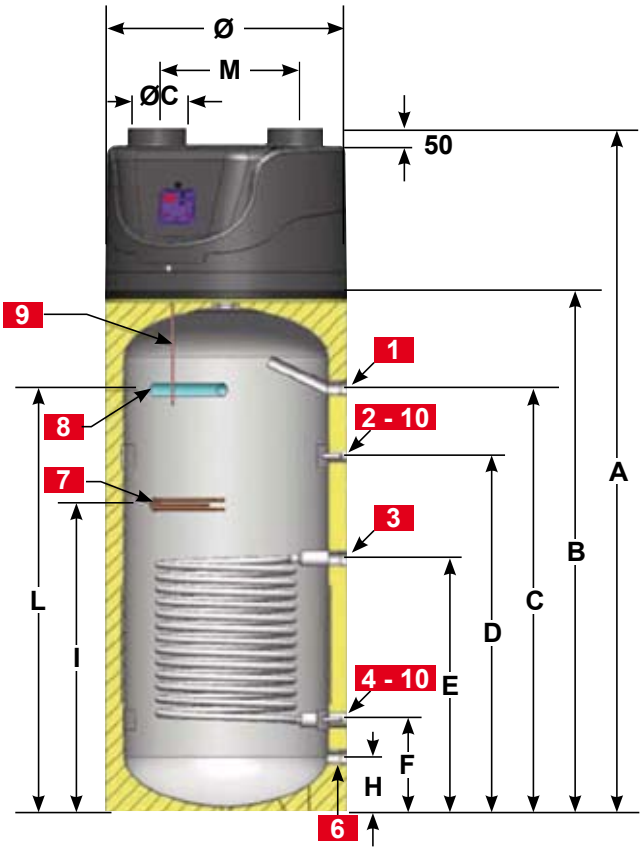
	GREEN SOLAR 1 Pitch Roof	GREEN SOLAR 1 Flat Roof	GREEN SOLAR 2 Pitch Roof	GREEN SOLAR 2 Flat Roof
 Solar collector SELECTIVE 2.5	X	X	X X	X X
 Solar station UNIT-2	X	X	X	X
 Solar box CONTROL MULTI	X	X	X	X
 Single support flat roof		X		X X
 Single support pitch roof	X		X X	
 Expansion vase 18 liter	X	X		
 Expansion vase 24 liter			X	X
 Kit fittings strings n. 1 collector	X	X		
 Kit fittings strings n. 2 collector			X	X

Model	Code
GREEN SOLAR 1 Pitch Roof	**37030100**
GREEN SOLAR 1 Flat Roof	**37030200**
GREEN SOLAR 2 Pitch Roof	**37030300**
GREEN SOLAR 2 Flat Roof	**37030400**

GREEN SOLAR

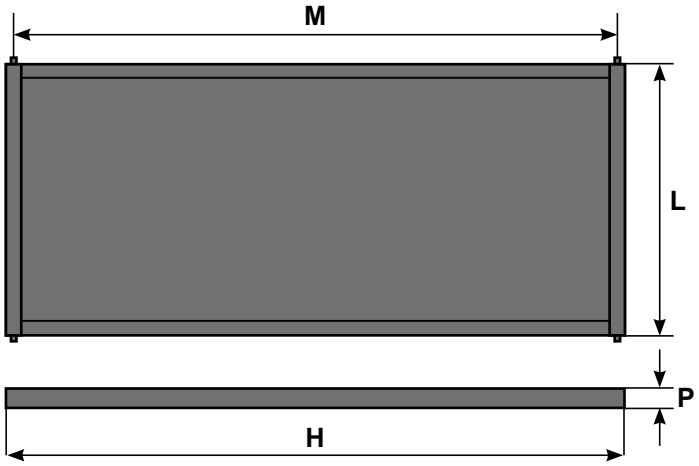
SOLAR hybrid water heater on heat pump with integrated thermo solar

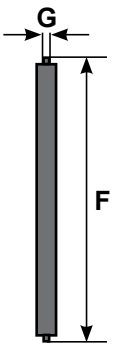
Dimensions GREEN SOLAR



A	1845 mm	H	155 mm
B	1410 mm	I	835 mm
C	1150 mm	L	1145 mm
D	965 mm	M	425 mm
E	690 mm	Øc	160 mm
F	255 mm	Ø	660 mm
G	365 mm		

N.	DESCRIPTION	DIMENSIONS
1	Hot water	1”
2	Heating flow	1”
3	Alternative Energy Flow	1”
4	Back to Alternative Energy	1”
5	Condensate drain	Ø 20 mm
6	Cold water	1”
7	Electrical resistance	1” 1/4
8	Anode	1” 1/4
9	Control probe	Ø 12 mm
10	Control probe	Ø 12 mm





M	1880 mm
H	2007 mm
L	1290 mm
F	1340 mm
P	100 mm
G	22 mm

Solar collector SELECTIVE 2.5

TECHNICAL SPECIFICATIONS

- Frame made of dark brown painted aluminium with wool rock thermal insulation of high density (thickness 45 mm)
- Solar catch plate with a grid with copper tubes Ø 22 mm
- Absorber from aluminium plate with a titanium treatment, and ultrasonic welding
- Prismatic tempered glass, high-prevalence and anti-reflex

GREEN SOLAR

SOLAR hybrid water heater on heat pump with integrated thermo solar

Table of technical data GREEN SOLAR water heater on heat pump

Thermal Power*	2,43 kW
Power consumption*	0,64 kW
COP	3,25
power supply	230V/1/50Hz
current consumption	3,19 A
Warm-up time**	5,42 h
Energy heating**	3,46 kWh
Standby consumption**	38 W
Class of use**	L
COP DHW	2,64
Reference temperature	55 °C
Maximum quantity of used** water	379 l
Thermal power electrical resistance	1,50 kW
Current consumption electrical resistance	6,52 A
Max input power Heat Pump + resistance	2,14 kW
Max Current consumption Heat Pump + resistance	9,71 A
Storage volume	268 l
Max operating pressure	6 bar
Maximum air flow	450 m^3 /h
Minimum air flow	137 m^3 /h
Diameter air duct	160 mm
Maximum length of air duct	10 m
Solar heat exchanger	1,5 m^2
Maximum operating pressure	10 bar
Pressure drops solar heat exchanger***	38 kPa
Empty weight	127 kg
Operating weight	398 kg

Data according to ISO 255-3

*** Data in accordance with EN 16147*
**** Water flow 600 l / h*

1) *Ambient temperature 15 °C*
Initial hot water temperature 10 °C

2) *Stand by ambient temperature 15 °C*
Water temperature 55 °C

Solar collector SELECTIVE 2.5

Absorbing surface net	2,30 m^2
Surface of opening area	2,34 m^2
Total surface collector	2,58 m^2
Efficiency	0,71 η
Coefficient of loss	3,87 W/m^2K
Absorption	95 %
Emission	4,70 %
Recommended flow / panel	130 l/h
Water capacity / collector	2 l
Max operating pressure	10 bar
Stagnation temperature	192 °C

Solar Station UNIT-2

Flow	2-12 l/min
Prevalence	6-7 kPa
Operating temperature	120 °C
Max temperature	160 °C
Manometer scale	0-10 bar
Thermometer scale	0-120°C
Type circulator	Wilo Star 25/6
Degree of protection	IP 44
connections	3/4” M
Electric feeding	230V/1/50Hz
Dimensions (LxPxH)	227x150x425

Solar box CONTROL MULTI

Output	n. 4
Hydraulic diagrams	n. 20
Operating Temperature	0-40 °C
Absorption	4 W
Degree of protection	IP 40
Electric feeding	230V/1/50Hz
Dimensions (LxPxH)	156x47x108

GHIBLI PDC

Single Unit Heat Pump R 410 A

- HIGH EFFICIENCY ENERGY
- RENEWABLE ENERGY
- LOW TEMPERATURE
- SILENT FAN
- AUTORESTART
- ECOLOGICAL GAS
- COMPACT DIMENSIONS
- EASY INSTALLATION
- NO EXTERNAL UNITS

NO OUTDOOR UNIT

SUPER COMPACT

MAXIMAL SILENCE

A2B ACCORRONI E. G. Climate Technology

GHIBLI PDC

Single Unit Heat Pump R 410 A

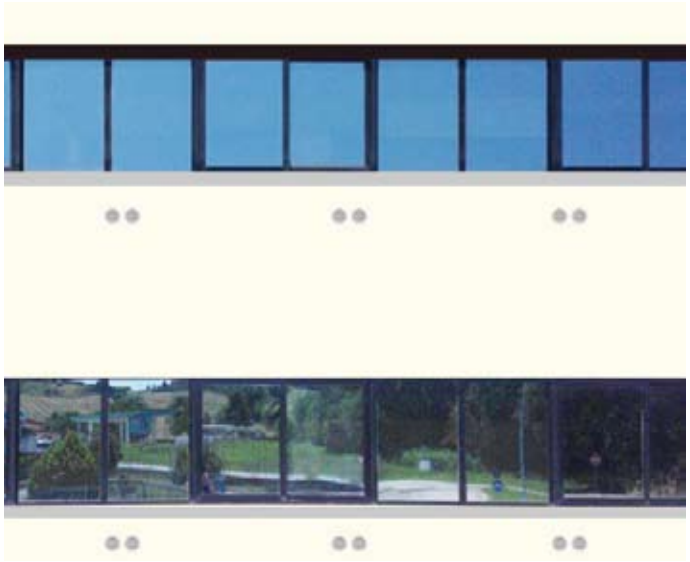
1. The most compact model currently on the market with only 660 mm wide.
2. Maximum noiseless thanks to the use of larger diameter fans (more than 96 mm) and operating at low speed and the radial EBM made in Germany fan to external exchange with a large diameter (greater than 220 mm) running at low rpm.
3. Grooved copper tubes heat exchangers with aluminium wings on large surface and with hydrophilic treatment to increase the exchange, improve the drainage of the condensate and reduce the aging.
4. Summer condensation evaporation, with indoor humidity up to 50/60%, thanks to the direct STEAMING on the hot battery through a specific distributor, without the need for a pump (similar to a refrigerator).
5. Elimination of the output for the condensate drain due to the integrated condensate drain along the air intake hole.
6. You need only 2 holes for inlet / outlet air.
7. Very low presence of vibrations through the use of twin rotary compressors (rotary double rotor) and the spring mounting which provide greater efficiency and less noise.
8. Galvanized steel structure with high thickness to eliminate any vibration of the moving parties (compressor, fans).
9. Air-conditioned flow upward for better distribution in the environment without causing direct flows annoying to people.
10. Condensation control, a device that allows operation in cooling dehumidification mode even at low outdoor temperatures, by controlling the temperature of the external heat exchanger connected to a sensor that modulates the outdoor fan.
11. Defrosting system with external sensor which allows defrosting only by low temperatures, when it is necessary to improve the efficiency of the heat pump and allowing winter use (combining with the appropriate kit for winter low temperatures up to -11 °C).
12. Extraction of simplified air filter for periodic cleaning.
13. Front panel for easy access for inspection and extraordinary maintenance.
14. Electronic control installed on the left side and out of the air flow and condensate for improve the reliability and facilitate the replacement of fuses or internal parts.
15. Protection grill on the air intakes designed to perfectly fit the pipes flow / air outlet with a diameter of 160 mm.
16. Pipes unions dedicated for use on mobile homes.
17. Auto restart included, in the event of a power failure the machine will continue to operate while keeping the functions previously set.
18. Optional hydrostat for starting, in winter, if the real humidity is higher than the settled one.
19. Emergency control box on the machine, to work even without remote control.
20. Pad Control: remote control that replicates the same functions as the remote control.
21. Electrical Resistance additional (optional kit) 1.1 kW activated by the external sensor + 2 °C for very cold climates.

Model	Code
GHIBLI PDC 9	**35350010**
GHIBLI PDC 11	**35350020**
GHIBLI PDC 13	**35350030**

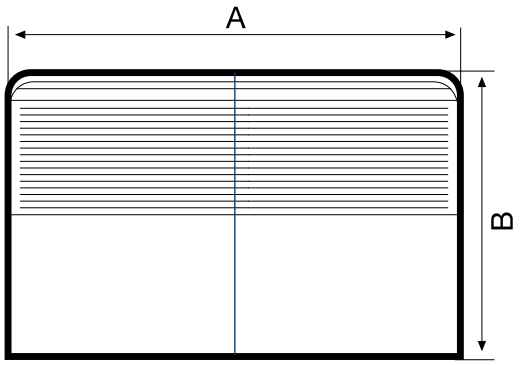
GHIBLI PDC

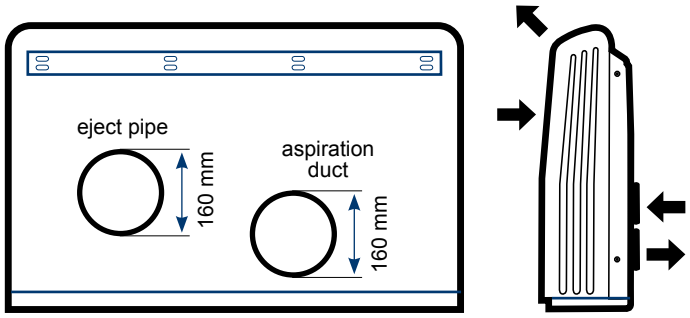
Single Unit Heat Pump R 410 A

NO EXTERNAL UNITS



Dimensions GHIBLI PDC





MODEL	A	B	C	Weight
	mm	mm	mm	kg
GHIBLI PDC 9	660	660	255	40
GHIBLI PDC 11	660	660	255	42
GHIBLI PDC 13	960	660	255	52

technical data table GHIBLI PDC

Model	U.M.	GHIBLI PDC 9	GHIBLI PDC 11	GHIBLI PDC 13
Cooling power	kW	2,35	2,84	3,35
Consumption	W	900	1.090	1.288
E.E.R.	W/W	2,61	2,60	2,61
Heat Output	kW	2,56	2,94	3,59
power Consumption	W	850	977	1.190
C.O.P.	W/W	3,01		
Air Flow	m3/h	350	380	450
Refrigerant		R410A		
Compressor		Rotary		
Supply		230/1/50Hz		
Sound Level (1)	dB (A)	39/54	39/55	39/56
Dehumidification	l/h	0,6	0,8	1,1

(1) Yields refer to machine built-in

Edge of the outdoor wall - max fan speed - without grill - full options - frame with insulating acoustic

NOTE:

A2B Accorroni E.G. LTD
Via d'Ancona, 37 - 60027 Osimo (An) - Phone 071 723991 - Fax 071 7133153
Web site: www.accorroni.it - e-mail: a2b@accorroni.it