

BOLLY® 1 PDC

POLYWARM® COATED TANK FOR DHW ACCUMULATION SPECIFIC FOR COMBINATION WITH HEAT PUMP



APPLICATION

Production and storage of domestic hot water (DHW). All the connections are aligned on the front and on the back for quick and easy installation.

MATERIAL

Mild steel Polywarm® coated (Attestation ACS - SSICA - EN 16421 - WRAS)

EXCHANGE MODULE

Counter-flow heat exchanger system with heat load from the top

INSULATION

HARD: High thermal insulation with ecological polyurethane hard foam. HARD FOAM (CLASS "A" MODELS): rigid polyurethane foam for high thermal insulation with a vacuum sheet of highly insulating material. Grey PVC external lining.

CATHODE PROTECTION

Magnesium anode.

DRAIN

External confluence through drain connection.

GASKET- FLANGE PLATE

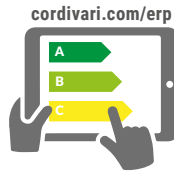
Silicone gaskets suitable for water intended for human consumption (tested according to 98/83/CE); Inspection flange.

WARRANTY

5 years (tank). See general sales conditions and warranty for electrical parts.

ACCESSORIES AND SPARE PARTS


See Accessories section for the entire list.



On line ErP label tool




BOLLY® 1 PDC WB

Model	HARD FOAM INSULATION Art. Nr.	Heat pump max output [kW]	ENERGY EFFICIENCY CLASS 
300	3104162330022	15	B
500	3104162330023	22	C
800	3104162330024	26	B



BOLLY® 1 PDC WB CLASS A

Model	HARD FOAM INSULATION Art. Nr.	Heat pump max output [kW]	ENERGY EFFICIENCY CLASS 
300	3104162330025	15	A
500	3104162330026	22	A

ACCESSORIES

Thermometer

Art. Nr.	
5032240000107	
5 units box	



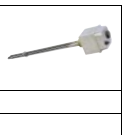
Titanium electronic anode

Art. Nr.	Model
5200000000008	300
5200000000009	500
5200000000011	800



Electric immersion heater

Art. Nr.	Output [kW]
5240000000051	1,5
5240000000052	2
5240000000053	3



HEAT MANAGER kit + electric resistance with probe and 3m cable

Art. Nr.	ELECTRICAL RESISTANCE
5240000000074	1,5 kW
5240000000075	2 kW
5240000000076	3 kW



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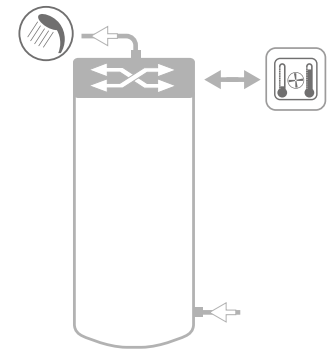
STORAGE EXCHANGE MODULE

Pmax	Tmax	Pmax	Tmax
10 bar	90 °C	10 bar	110 °C

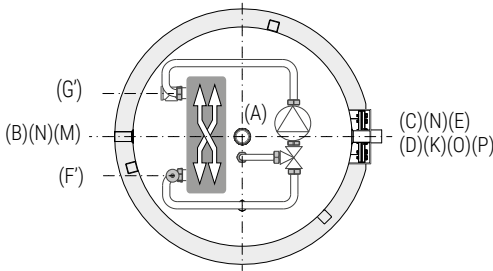
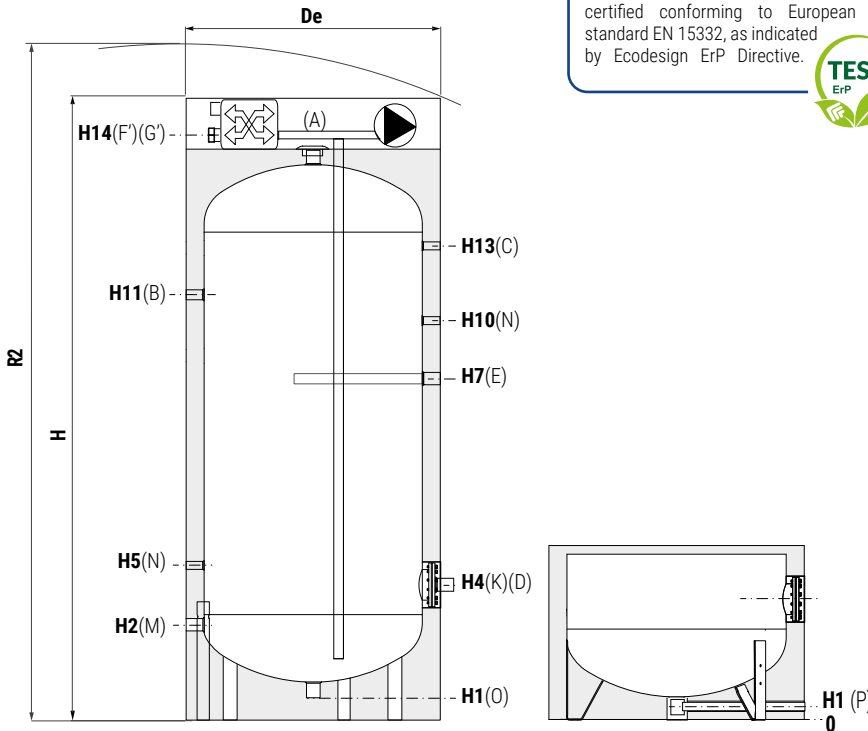


—CORDIVARI® Lab

TÜV Rheinland Energie und Umwelt GmbH states that test procedures and Cordivari LAB are certified conforming to European standard EN 15332, as indicated by Ecodesign ErP Directive.



See TECHNICAL SUPPORT chapter for example of installation



- A** Domestic hot water outlet 1"1/4 G F

- B** Recirculation 1" G F

- C** Connection for instrumentation 1/2" G F

- D** Connection for electric immersion heater

- E** Connection for magnesium anode 1"1/4 G F

- F'** Primary circuit inlet

- G'** Primary circuit outlet

- K** Flange for inspection

- M** Domestic cold water circuit inlet 1" G F

- N** Connection for instrumentation 1/2" G F

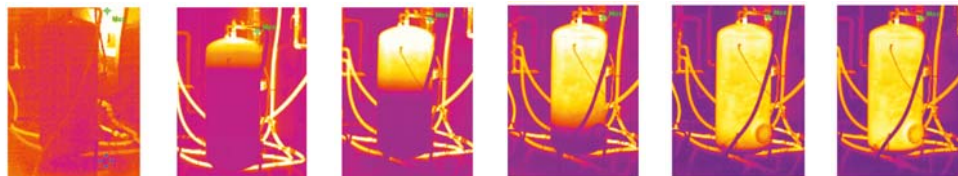
- O** Drain

- P** Drain (Only for models > 500)

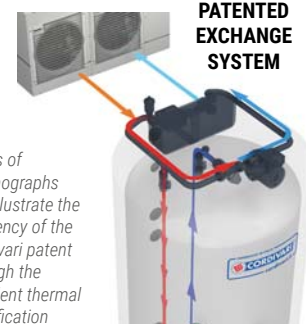
Model	Volume [lt]	De	H	R2	H1	H2	H3	H4	H5	H6	H7	H8
300	291	650	1680	1810	71	241	//	381	431	//	871	//
500	497	750	1970	2115	71	266	//	411	466	//	1076	//
800	789	900	2360	2530	101	338	//	483	548	//	1243	//

Model	H9	H10	H11	H12	H13	H14	O-P	K	D	F'-G'
300	//	991	1101	//	1221	1522	1"1/4	Øi1200e180	1"1/2	1"
500	//	1196	1331	//	1476	1812	1"1/4	Øi1200e180	1"1/2	1"
800	//	1573	1598	//	1788	2196	3/4"	Øi1200e180	2"	1"

- -30% reduction of the D.H.W. production time for major comfort
- 70lt of DHW (45 °C) in only 15 min, with the possibility of heating only the necessary volume of water
- More time for the heat pump to be dedicated to heating or cooling
- Energy focused where needed: all the energy produced with the heat pump concentrated in the upper part of the tank.



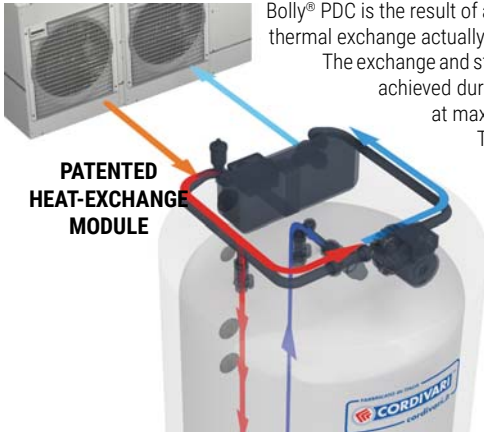
Series of thermographs that illustrate the efficiency of the Cordivari patent through the excellent thermal stratification



PATENTED EXCHANGE SYSTEM

BOLLY® PDC

TECHNICAL DATA AND EXAMPLE OF INSTALLATION



Bolly® PDC is the result of a continuous research aimed to develop a unique calorifier in its field. It is in fact the only patented system of thermal exchange actually on the market, specifically conceived for installation with heat pumps.

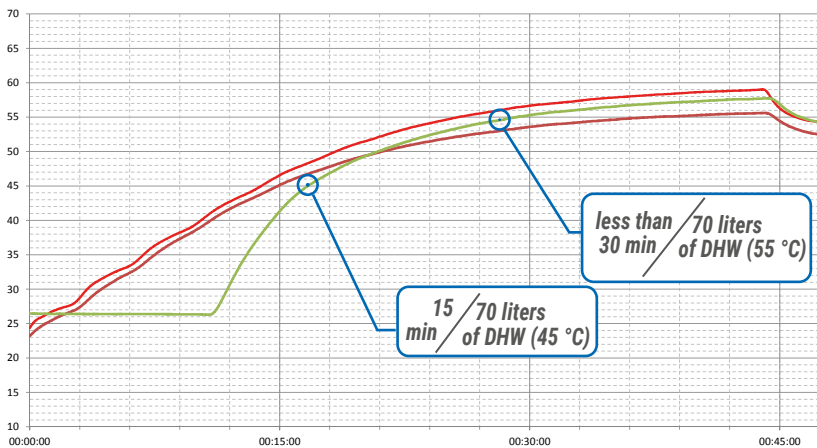
The exchange and stratification system is conceived to self-balance: only part of the heated water, proportionate to the temperature achieved during the thermal exchange, is pushed in the tank from the top. This way the water added in the upper part is at maximum desired temperature while fresh water coming from the lower part of the tank goes to the exchanger.

This leads to many advantages such as the increased efficiency of the heat pump C.o.p, the achievement of a perfect thermal stratification, that allows to profit immediately of the hot water. This also allows to heat only part of the tank reducing energy waste.

The innovative Bolly® PDC, combined with a heat pump, thanks to the new patented exchange group is able to guarantee 30 % higher performances compared to a generic, traditional calorifier in terms of ignition time and thermal exchange efficiency.

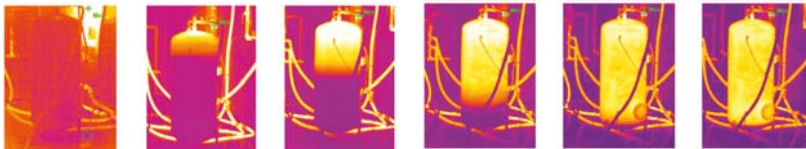
Laboratory tests and researches conducted on the stratification process confirm that the use of Bolly® PDC in a heat pump installation means an increased comfort and about a 15% reduction of electric consumption while extending the generator lifecycle, reducing its on/off.

Bolly® PDC (model 500), connected to 12kW heat pump



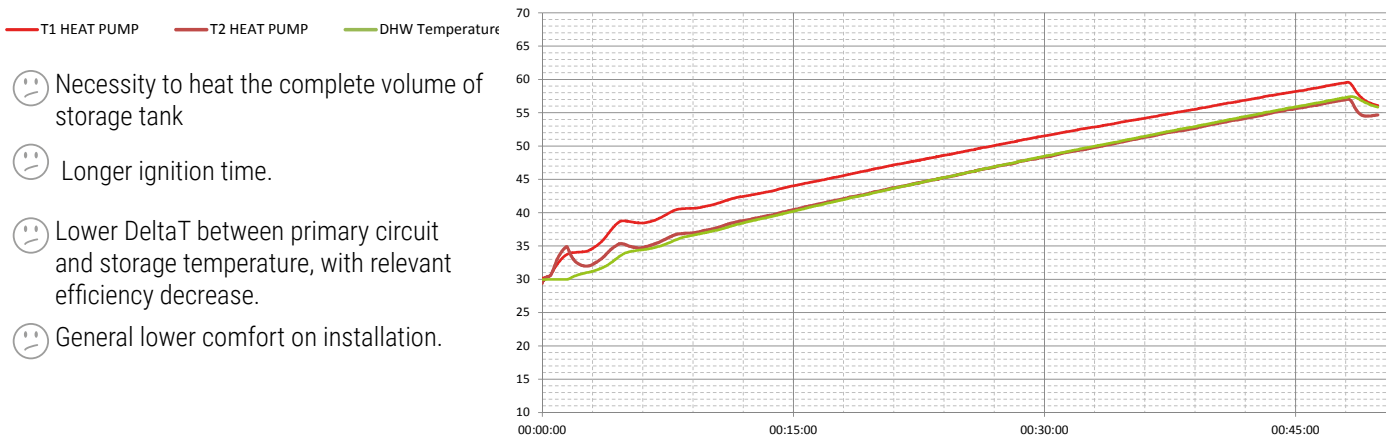
— T1 HEAT PUMP — T2 HEAT PUMP — DHW Temperature

- 😊 -30% ignition time and consequent better efficiency of HP in heating/cooling phase.
- 😊 70 L. of DHW at 55 °C in just 30 minutes, with possibility to heat only the necessary required water volume.
- 😊 Optimizing the time necessary for the HP for heating and cooling the room.
- 😊 The energy produced by Heat pump is concentrated in the Domestic hot water in the upper part of the storage volume

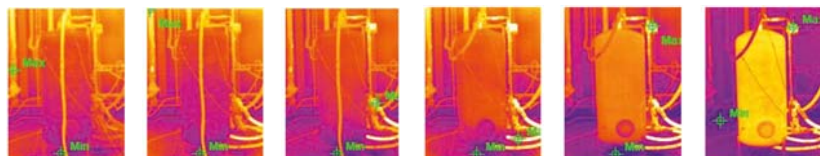


BOLLY® PDC
Upper loading and improved thermal stratification thanks to the patented heat exchanger group.

Standard tank (model 500 with fixed coil exchanger) heating, connected to 12kW heat pump



- ☹️ Necessity to heat the complete volume of storage tank
- ☹️ Longer ignition time.
- ☹️ Lower DeltaT between primary circuit and storage temperature, with relevant efficiency decrease.
- ☹️ General lower comfort on installation.



Standard Calorifiers with no thermal stratification device needs always to be heated completely before using the DHW



The peculiarity of the Bolly® PDC heat exchange module consists in the possibility of loading the thermal power in the DHW storage from above, in order to prepare hot water for the user at the right temperature after few minutes of operation. Obviously, the quantity of DHW available will depend on the actual time of operation, the initial temperature of the sanitary cold water, and the thermal output of the generator.

The typical operating condition of an hydronic heat pump generator is to provides 55 °C at the primary inlet with 5 °C deltaT on the return side. The presence of a thermostatic mixer on the domestic circuit allows the appliance to adjust the performance and the efficiency in the heating phase. With the mixer at minimum (in practice with the mixer excluded) the maximum performance is obtained in terms of exchangeable output at the beginning of the heating process (values shown in the catalog). But under these conditions, as the temperature rises on the secondary side the exchanged output will go down.

Much more interesting is to examine the behavior of the exchange module with the mixer in position "2" which corresponds to primary at 55 °C and production of DHW at 50 °C, with the peculiarity that this value of 50 °C is independent from the temperature of the cold water.

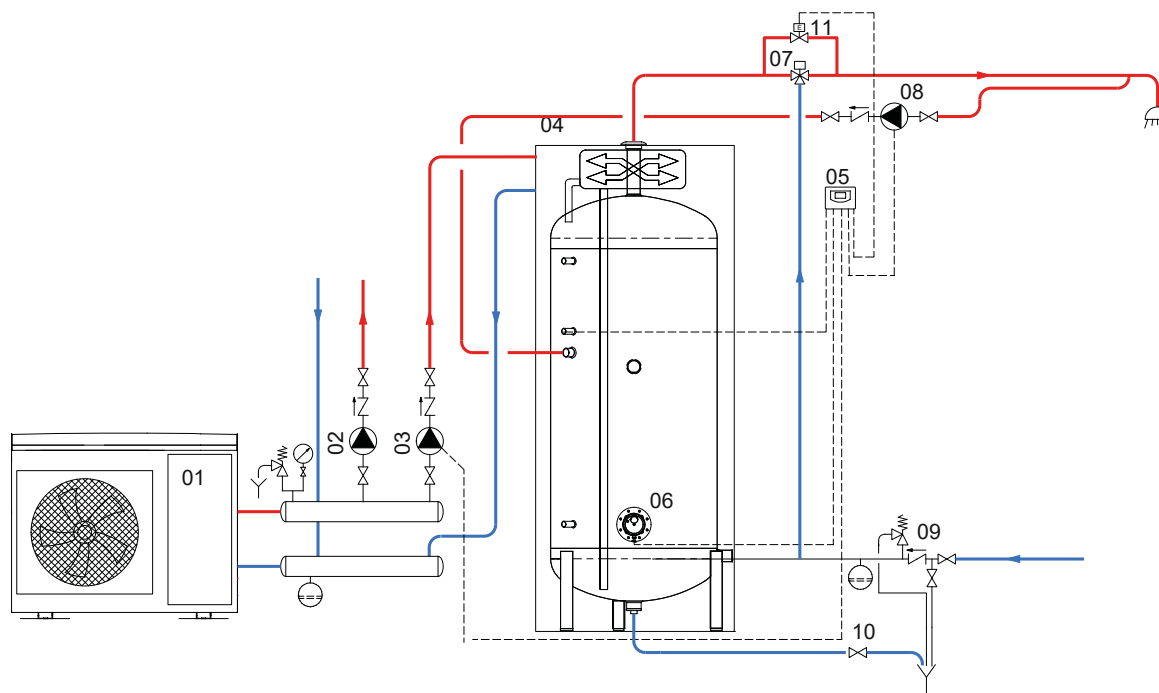
Under these conditions the exchanged output remains constant for all the time necessary to heat the storage volume and, independently of the initial storage temperature. Summing up:

- **Primary Inlet= 55 °C**
- **Mixer position = 2**
- **DHW inlet temperature into the storage from exchange module = 50 °C**
- **Bolly® PDC 300 Exchangeable output = 15 kW**
- **Bolly® PDC 500 Exchangeable output = 22 kW**
- **Bolly® PDC 800 Exchangeable output = 26 kW**
- **DeltaT at primary = 5 °C (return to Generator 50 °C)**

Under these conditions the producibility of DHW (and therefore the storage heating time) will depend on the initial storage temperature which corresponds to the network water temperature.

Model Bolly® PDC	Primary circuit inlet temperature T1 [°C]	Mixer position	Output [kW]	Initial storage temperature 10°C		Initial storage temperature 20°C		Initial storage temperature 25°C	
				DHW production at 50°C [lt/min]	Storage heating time [min]	DHW production at 50°C [lt/min]	Storage heating time [min]	DHW production at 50°C [lt/min]	Storage heating time [min]
300			15	5,1	57	6,8	43	8,2	36
500	55	2	22	6,8	73	9,1	55	10,9	46
800			26	8,8	89	11,8	67	14,2	56

EXAMPLE OF INSTALLATION WITH BOLLY® 1 PDC



01	Generator (Heat pump)	04	Bolly® 1 PDC	07	Thermostatic mixing valve	10	Blowdown valve
02	Heating system circulation group	05	Electronic control /thermostat	08	D.H.W. recirculation group	11	By-pass solenoid valve
03	D.H.W. circulation group	06	Electric immersion heater (optional)	09	Hydraulic safety group		

The following schemes are purely illustrative. To realize the installation, always refer to a qualified technician.