VINDSOL

Harnessing the nature's energy for you

Next Generation

Thermodynamic Solar Heat Pump

Complete Water Heating Solutions

THE ONLY SOLAR PANEL

That heats water even

AT NIGHT AND WITHOUT SUNLIGHT.

The **Vindsol Thermodynamic Solar Heat Pump** is a combination of two technologies that are incomplete on their own, namely the heat pump and the solar thermal collector. While heat pumps are efficient equipment, the heat they generate from their renewable component is dependent on changes in the temperature of the environment. On the other hand, solar thermal collectors are excellent sources of heat on hot and sunny days but are inefficient when there is no sun.

The Vindsol Thermodynamic Solar Technology overcomes the limitations of both of these technologies by using a cooling liquid, either R134a or R407c, which covers a closed circuit. This liquid is used to extract thermal energy from various climate factors such as sun, rain, wind, and environmental temperature.

During this process, the liquid gains heat in a more favorable way than a heat pump. After this stage, the heat is transferred to an exchanger with the help of a small compressor, which heats the water. The liquid cools down, and the circuit is repeated.

This system works even when there is no sun, at night, hail, rain, wind, or shine, unlike traditional solar thermal systems. The system's energy consumption is comparable to a fridge compressor that circulates the liquid, without any additional ventilators or defrost cycles, which can result in unnecessary energy consumption, as is the case with heat pumps.

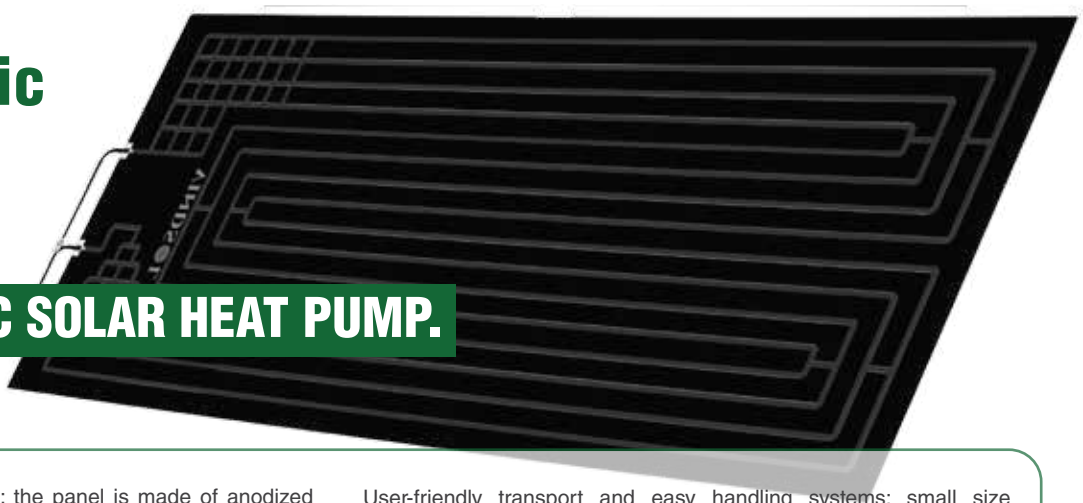
HOT WATER FOR YOU...

Any time
Any where
Any Weather

Thermodynamic Solar Panel

The Soul of

THERMODYNAMIC SOLAR HEAT PUMP.



Life span of more than 5-10 years: the panel is made of anodized aluminum 2 mm, which ensures The following properties

- Great toughness at high and low temperatures.
- High surface hardness.
- Resistance to abrasion and weakening.
- High protection against dust and dampness.
- Corrosion Resistant

Latest Generation Thermodynamic Solar Collector: It is a roll-bond panel with double channel through which the fluid refrigerant circulates, being able of providing high performance at night and in adverse climate conditions.

User-friendly transport and easy handling systems: small size 2 m x 0.8 m.

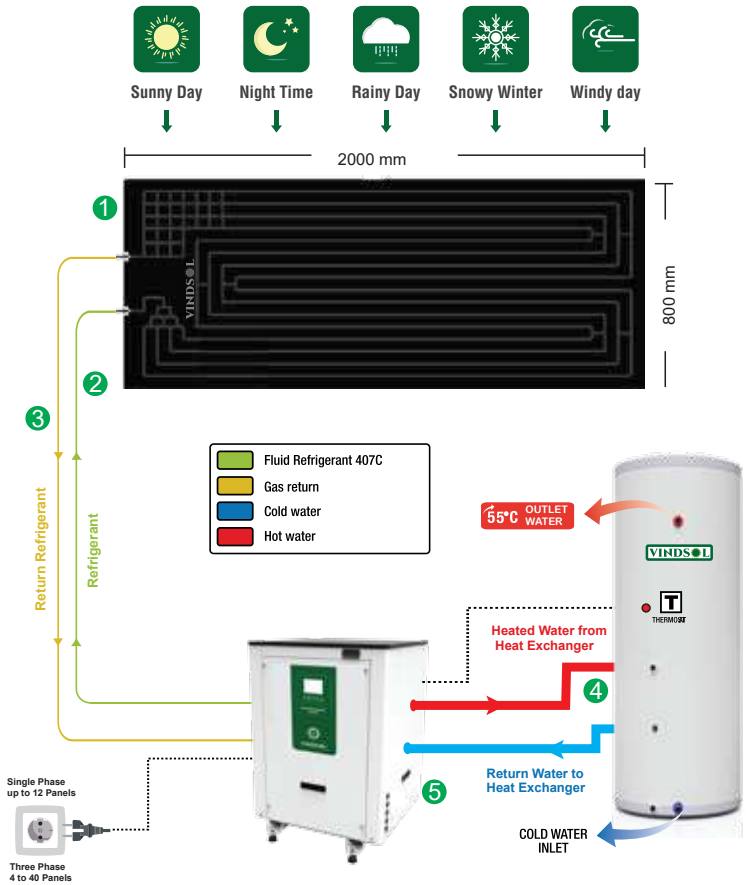
Versatility: easy integration on facades, roofs or any other surface. It is not necessary to reinforce structures as it is a lightweight panel, 8 kg.

Optimized solar catchment area: both sides of the panel, 3,20 sqm.

No need to be south orientated (Northern Hemisphere). Vindsol recommends to orientate the collector as much as possible to the sun and exposed to the elements, such as wind and rain.

Regular maintenance is not necessary.

Thermodynamic Solar Heat Pump Working



Stage 1 A thermodynamic panel is fitted to the outside of the property, usually on a south facing wall or roof.

Stage 2 The fluid refrigerant enters the panel at -10ºC that changes its state due to the heat previously captured from the ambient temperature which is present in the direct and diffuse solar radiation, external air by natural convection, wind effects and rainwater.

Stage 3 The hot gas comes out of the panel and goes into the compressor that increases the refrigerant gas temperature up to 120ºC

Stage 4 The heat is released into the water tank through a heat exchange coil to a maximum temperature of 55° C.

Stage 5 As it cools after transferring heat, the refrigerant condenses into liquid and flows through the expansion valve that measures the amount of the liquid refrigerant that will be sent to the panel. Thus the cycle starts all over again.

The system uses a small amount of electricity to run but mostly relies on the ambient heat outside. For every unit of electricity used, the system will generate 3 - 6 units of heat for your home.

mini series
Domestic Range

DOMESTIC HOT WATER

New solar thermodynamic heat pumps series for the domestic hot water production. These system include one or more solar thermodynamic panels installed outdoors, able to extract solar energy and the available energy of the surrounding environment.

- Fluid Refrigerant : 134A.
- Compressor : Rotary Specially designed Heat pump specific compressors from HITACHI / TOSHIBA
- Heat Exchanger: Built In High efficiency Tube in Shell Heat Exchanger
- Electric power consumption: 650 W / 990 W
- Heating temperature 55-60 Deg

The Vindsol TDHP is equipped with innovative technology that ensures outstanding performance. With this system, you can enjoy hot water up to 55ºC for sanitary use, central heating, and swimming pools while minimizing CO2 emissions and saving up to 80% on your energy bill.

mega series
Commercial Range

COMMERCIAL LARGE Volume HOT WATER

The Thermodynamic Solar Heat Pump system are capable of heating any hot water volume thanks to the exceptional power and high performance of the system, guaranteeing safety and comfort. For heating large volume of hot water it has proven to be the most efficient and cost-effective system in public and private entities, hotel resorts, shopping centres, industries, schools…

- Fluid Refrigerant : R407c.
- Compressor : Scroll Specially designed for Heat pump specific compressors from EMERSON COPELAND
- Heat Exchanger: Built In High efficiency Tube in Shell
- Electric power consumption: 650 W / 990 W
- Heating temperature 55-60 Deg

mini series Domestic Range

MODEL		MiNi1-200	MiNi1-300	MiNi2-300	MiNi2-500	MiNi4-500
Thermodynamic Solar Panel Collector						
Material		Anodized Aluminium alloy				
Dimensions (L x W x D)	mm.	2000x800x20	2000x800x20	2000x800x20	2000x800x20	2000x800x20
Maximum working pressure	bar	12	12	12	12	12
Test pressure	bar	15	15	15	15	15
Maximum exposure temp.	°C	100	120	120	120	120
Minimum running temp.	°C	5	5	5	5	5
Qty	No	1	1	2	2	4
Thermodynamic Box						
Width / Height / Depth	mm.	500 /450 /380	500 /450 /380	500 /450 /380	500 /450 /380	500 /450 /380
Absorbed power (Average/Max)	W	650	650	890	890	890
Thermal power (Average/Max)	W	3490	3490	4750	4750	4750
Electrical support power	W	1500	1500	2000	2000	2000
Compressor Type	-	Rotary				
Compressor Noise Level	dB.	45	45	45	45	45
Circulation Pump		Builtin Hot water circualtor Pump				
Refrigerant						
Cooling Fluid *	- / gr.	R134a	R134a	R134a	R134a	R134a
Piping Material	-	Copper (DHP ISO1337)	Copper (DHP ISO1337)	Copper (DHP ISO1337)	Copper (DHP ISO1337)	Copper (DHP ISO1337)
Line of liquid	pol.	1/4”	1/4”	3/8"	3/8"	3/8"
Line of aspiration	pol.	3/8”	3/8”	1/2"	1/2"	1/2"
Storage Water Heater						
Volume	lts	200	300	300	500	500
Type of internal Tank		MS with Porcelain Blue Enamelled				
Hydraulic joints (Cold | Hot | TPR valve | Recirculation)	Pol.	3/4” Male | 3/4” Male 1/2 Female | 3/4” Female				
Maximum pressure	bar	7				
Test pressure	bar	8				
Maximum water temperature	°C	60				
Water temperature	°C	55				
ELECTRIC BOARD						
Power feed	V/Hz.	230 Single Phase / 50	230 Single Phase / 50	230 Single Phase / 50	230 Single Phase / 50	230 Single Phase / 50
Controller		Next Gen PCB controller	Next Gen PCB controller	Next Gen PCB controller	Next Gen PCB controller	Next Gen PCB controller

Installation

THERMODYNAMIC UNIT	4 Panels	6 Panels	8 Panels	12 Panels	16 Panels
Input Power	3 Phase 415 Volt, 50 Hz or Single Phase 230 Volt, 50 Hz				3 Phase 415 Volt, 50 Hz
Compressor	Copeland Scroll				
Electric Power Kw *	0.9-1.8	1.2-2.2	1.4-2.6	1.9-3.1	3.2-5.2
Calorific Heat Kw	3.6-7.3	4.9-9.7	5.5-11.3	9.2-16.7	14.2 -24.2
Refrigerant Gas Type	R407c				
System Charge Kg	1.5	1.6	1.8	2	2.8
Liquid Line	Copper, Ø 1/2"	Copper, Ø 1/2"	Copper, Ø 1/2"	Copper, Ø 1/2"	Copper, Ø 3/4"
Suction Line	Copper, Ø 5/8"	Copper, Ø 5/8"	Copper, Ø 3/4"	Copper, Ø 7/8"	Copper, Ø 7/8"
Expansion Valve	Danfoss Saginomiya / SANHUA				
Pressure Controllers, HP and LP	Yes, HP = 2.5 MPa Max., LP = 0.2 MPa Min.				
Advanced Next Gen Digital Controller	LCD	LCD	LCD	LCD	LCD
Shell In Tube Heat Exchanger	YES	YES	YES	YES	YES
Water Pump	NO	NO	NO	NO	NO
Liquid Receiver	YES	YES	YES	YES	YES
Fully Protected Control Panel Circuit	YES	YES	YES	YES	YES
Sight Glass	YES	YES	YES	YES	YES
Suction Accumulator	YES	YES	YES	YES	YES

For updated and detailed technical specification please contact us.

Installation

Heat Pump Comparison

Thermodynamics Heat Pumps

VS

Solar Thermal Water Heater

- Work with Sun, Wind, Air, Rain or even at Night
- Higher Overall Year Performance
- Solar Panel Made of Aluminium / No Glass or Fragile Materials = Hail Resistance
- No Refilling Required
- No Overheating Problems = Long Life Span
- No Freezing Problems = No Defrost Cycles
- Solar Panel Passed Salty Environment Exposure Test = Longer Life
- Solar Panel With Hydrophobic Flexible Painting Performs Auto-Cleaning
- Performance Does Not Decrease with Time
- Thermodynamic Solar Panel Weights Only 8Kg = Easier to Transport and Install
- May be Installed South, East or West or On a Roof or Façade from Horizontal to Vertical
- Less Area of Collectors Required

- Works Only with Sun
- Average Overall Year Performance
- Solar Panel Made of Glass and other Materials
- Requires Glycol Mixture to be Added at Least Once per Year
- Overheating = Solar Panels Blow Up or Permanent Damage = Low Life Span
- Freezing Problems = Solar Panels Blow Up or Permanent Damage = Low Life Span
- Solar Collector Short Life Span when Installed in Salty or High Humidity Environments
- Solar Collector Performance Decrease with Dirt = Efficiency Drop = Cleaning Required
- Solar Collector Performance Decrease with Time
- Solar Collector Dry Weight from 35Kg to 100Kg
- Must be Installed South Facing with a Specific Tilt Angle
- Large Area Required to Install the Collectors

INSTALLATION AND AFTER SALE SERVICE

Our aim is that you are so impressed with the installation to your property that you recommend

Vindsol Thermodynamics Heat Pumps

Our installation team will come equipped with all the essential equipment needed for a quick and effective installation process. Typically, the installation of a Vindsol TDHP system takes only one day; however, if new cylinders need to be fitted, the process may take longer than a day.

Vindsol run full training courses for the installation of this system. Technical support is always available to installers through phone, live chats and various technologies to support installers throughout installations.

The installation of Vindsol TDHP is limited to only qualified engineers. Upon completion of the installation, registering it online will generate a warranty certificate that will be issued directly to the end customer.

VINDSOL

Harnessing the nature's energy for you

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the NEXT generation

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