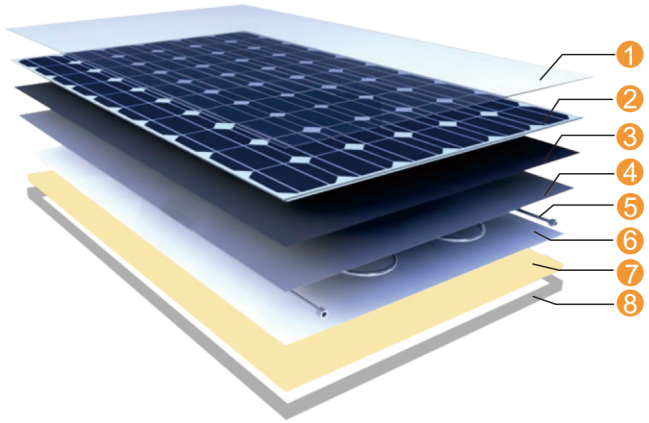
SOLARSOL

The hybrid solar panels are designed for simultaneous generation of electricity and hot water.

This solar panel is the combination of PV module and thermal solar collector and in brief is called PV-T panel.

KEY FEATURES

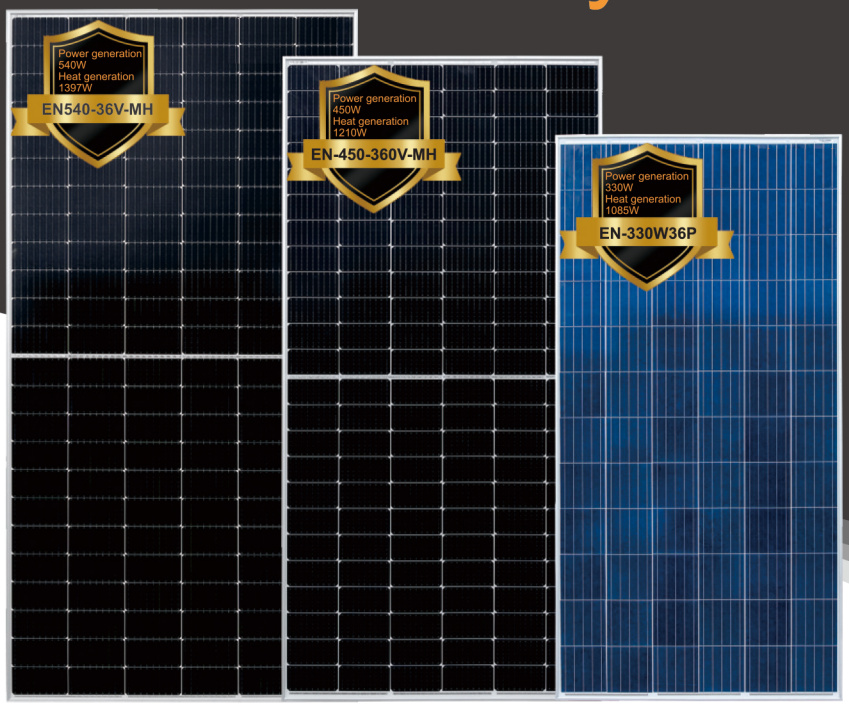
- Saving the roof area by combination of electric and thermal.
- Raising up 10%-15% efficiency of electricity output.
- internal cooling circulation extend the lifespan.
- Hot water output 40-85 celsius degrees.
- A simple low cost ,low maintenance energy solution able to facilitate the world's zero-carbon strategy.
- High wind&snow load strength.
- Applicalion widely. Payback fast for energy investment



1. Tempered glass
2. Solar cells
3. EVA
4. Seal board
5. Heat conduct pipe
6. Heat exchange plate
7. Insulation
8. Alloy frame

SOLARSOL

Hybrid PVT



Electricity generation

Front side

Premium photovoltaic system

Three type of solar cells, polysilicon,and half cut mono-crystalline

Hot water production

Rear side

Cooling of the panel and reuse of waste heat in the form of hot water generated by a patented heat exchanger

WARRANTY

ENSUN SAFE

10 years process quality assurance

12 years 90% power output guarantee

25 years 80% power output guarantee

QUALITY & SAFETY

- CE marking
- IEC 61215 & 61730 n°16429 Rev.2
- SOLAR KEYMARK
- CEC listed / UL 1703 n°702139 / ICC-SRCC n °10002099

COMPATIBLE PANEL FOR APPLICATION

DHW

Floor heating

Heating&Cooling

IDEA SOLUTION FOR

Hospital

Residential

Hotel

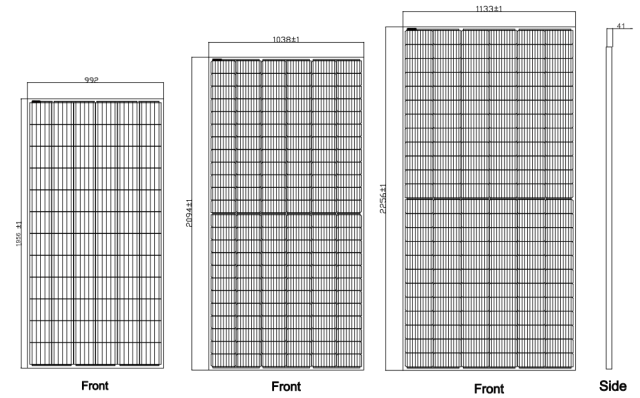
Commercial

School

Pool

SOLARSOL

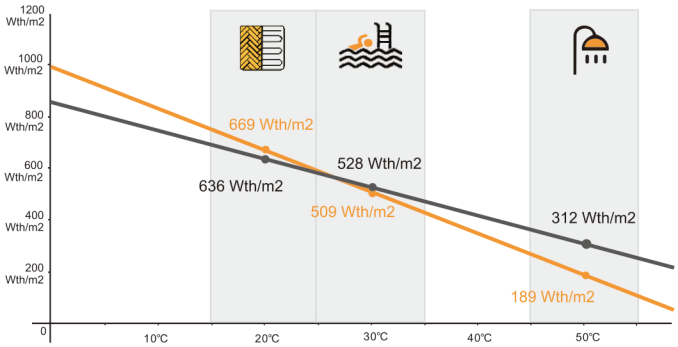
Engineering Drawings



Photovoltaic characteristics

Model Type	EN-330W36P	EN450-36V-MH	EN540-36V-MH
Henght	1960 ±1	2094±	2256±
Width	992 ±1	1038±	1133±
Thickness	41 ±1		
Insulated			
Empty / full weight	35/35.9kg	37.5/38.5kg	44/45.1kg
Number of cells	72	144	144
Cell type	Poly-5BB	Mono-9BB	Mono-10BB
Connectors	MC4/MC4 compatible		
Cable length	1000mm		
Maximum load	5400 Pa(snow)/2400 Pa (Wind)		
Frame / Backsheet	Anodised aluminium		

Thermal power output as a function of the temperature of the water in the panel and by application



Performances derived from values a0,a1(wind u=1m/s)in STC conditions (T=25°C , G=1000W/M2)

Photovoltaic characteristics

Model Type	EN-330W36P	EN450-36V-MH	EN540-36V-MH
Nominal power	330W	450W	540W
Output power tolerance	0~+3W		
Module efficiency	16.97%	20.7 %	21.12%
Rated voltage(V_{mpp})	37.26	41.5	41.76
Rated current(I_{mpp})	8.86	10.85	12.93
Open circuit voltage(Voc)	45.64±3%	49.30±3%	49.70±3%
Short-circuit current(Isc)	9.33±3%	11.60±3%	13.72±3%
Voltage temperature coefficient(μVoc)	-0.300%/°C	-0.270%/°C	-0.285%/°C
Current temperature coefficient (μIsc)	+0.060%/°C	+0.048%/°C	+0.045%/°C
Power temperature coefficient(μPmpp)	-0.400%/°C	-0.350%/°C	-0.350%/°C
Maximum system voltage	1500/1000V	1500V	1500V
Maximum reverse current	20A	20A	25A
NMOT	45+/-2°C		
Application class	A++		

STC conditions (AM 1.5-1000 W/M2 - 25°C)
Measurement tolerance:+/-3%

Thermal characteristics

Model Type	EN-330W36P	EN450-36V-MH	EN540-36V-MH
Thermal power	1085W	1210W	1397W
Heat exchanger area	1.90m^2	2.17m^2	2.54m^2
Heat exchanger volume	0.9L	1.0L	1.1L
Max operating pressure	0.8mpa		
Flow rate	0.4L/s		
Hydraulic inlet / outlet	DN 15		
Insulated			
Stagnation temperature	70°C	75.6°C	75.6°C
Optical efficiency a_0	58.9%	58.2%	58.2%
Coefficient a_1	16.0 W/K/m2	10.8 W/K/m2	10.8W/K/m2
Coefficient a_2	0 W/(m2.K2)		
Operating temperature	-40°C~+85°C		

Thermal power calculated with wind u=0 m/s,DT=0,G=1000W/m^2
The coefficients a_0,a_1,and a_2 result from EN 9806:2017 certification tests for solar collectors without glazing carried out by KIWA for a wind speed u=1m/s:$a_0=n_0-c_6*u'$; $a_1=c_1+c_3 * u'$; u'=u - 3