

E -PVT 2,0 – Hybrid collector

Collector E-PVT2,0 – is a combination of a flat solar collector and a photovoltaic module with polycrystalline silicon cells with a power of 315W. By using a bionic exchanger, the waste heat is used for initial domestic hot water (DHW) heating, as well as for supporting a swimming pool installation and heating pumps. Whereas the photovoltaic module converts the solar energy into electricity.

The temperature rise of each photovoltaic module reduces its generated electrical power. The power drops by about 0,5% for each kelvin temperature rise. The power characteristics given for PV cells in technical data refer to the module's standard temperatures, namely 25Celsius degrees. Therefore, in working conditions with high insolation the actual power of a standard module can be even 20% lower.

By installing a thermal system in a hybrid PV-T collector, heat is received through a cooling liquid flowing through the collector. Through heat dissipation, the thermal system increases its' efficiency of converting solar radiation into electricity, and also supplies a large amount of thermal energy. The hybrid collector E-PVT 2,0 is a technological progres in increasing the efficiency of photovoltaic modules while converting solar energy into thermal and electric energy.

Advantages of a hybrid collector E-PVT 2,0:

Higher annual efficiency of electrical Energy production, in comparison to standard photovoltaic modules,

The possibility of using the thermal part of the collector for an initial domestic hot water (DHW) heating, as well as for supporting a swimming pool installation and heating pumps,

Roof area saving and a significantly reduced mounting costs,

Two in one! One device ensures production of electricity and heat,

Lower investment cost for installations using PV-T collectors than for traditional devices (liquid thermal collectors and photovoltaic modules)



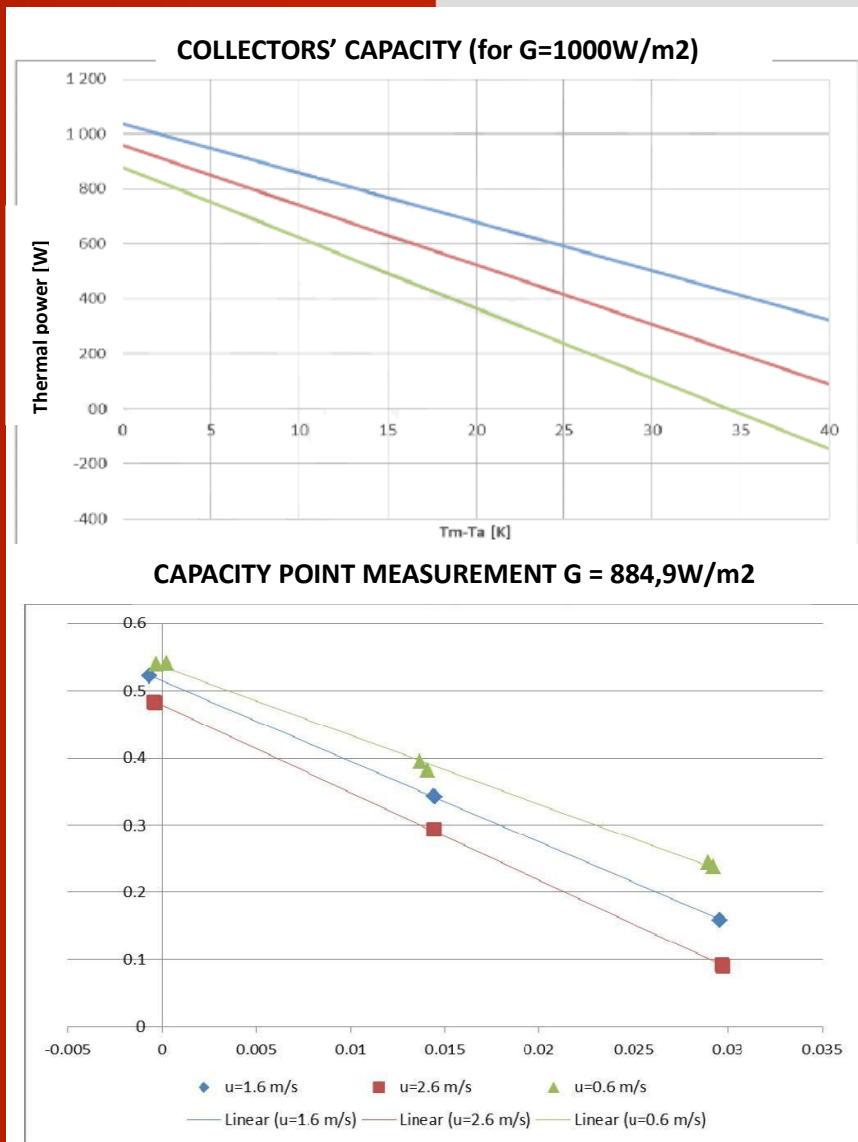
Collector E-PVT 2,0:	Symbol	Unit	Value
Width	A	mm	1006
Height	B	mm	2007
Depth	C	mm	85
Surface	S	m ²	2,02
Mass	m	kg	37
Casing	Patented aluminium profile		
Glass thickness	4,0 mm		

Thermal parameters

Peak power (at 1000W/m ²)	Q	W	1037
Absorber type	Aluminium exchanger Roll-Bond		
Aperture Surface	S _n	m ²	1,86
Width	a	mm	954
Height	b	mm	1953
Collector efficiency	η	%	55,5
Coefficient	b _u	W/(m ² K ²)	0,051
Coefficient	b _{1a}	W/(m ² K ²)	9,547
Coefficient	b _{2a}	W/(m ² K ²)	1,389
Max.work pressure	P _{max}	bar	6
Stagnation temperature (depending on wind speed)	T _{st}	for 0,5m/s=80°C for 1,5m/s=70°C for 3,0m/s=60°C	
Liquid capacity	V	dm ³	1,2

Electrical parameters

Peak power (przy 1000 W/m ²)	P _{max}	W	315
Type of cells	Polycrystalline		
Number of cells		szt	72
Cell size		mm	156 x 156
Rated current	I _{mpp}	A	8,37
Short-circuit current	I _{sc}	A	8,80
Nominal voltage	V _{mpp}	V	37,92
Open-circuit voltage	V _{oc}	V	45,27
Warranty for a hybrid collector	5 years		
Warranty for photovoltaic module	10 years		
Peak power summary (at 1000 W/m ²)	Q _{max}	W	1352



Key:

T_m - average coefficient temperature

T_a - ambient temperature

G - solar radiation intensity