

Camel-Plasma PVT hybrid collector

Producer: Plasma doo; PV modules: PiKCELL Group; Solar thermal absorber: Camel Solar doo

PVT collectors provide both electrical and thermal energy.

Electrical power is around 20% more than standard PV panel during summer period plus 3 to 4 times more thermal power compare with electrical power from PV standard module.

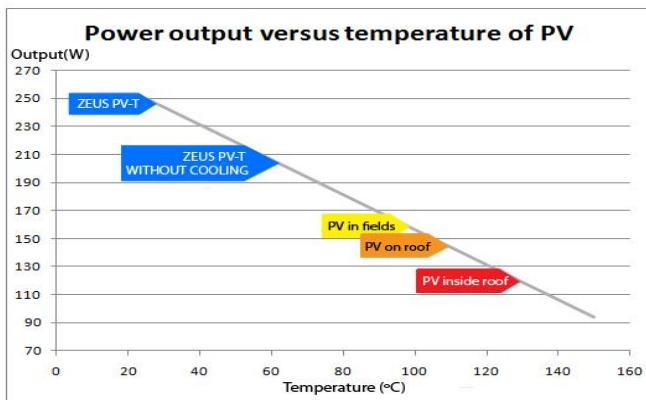
Introduction with PVT: The greater part of the absorbed solar radiation by photovoltaic is converted into heat (at about 70% - 80%), small part reflected and the rest into electricity. As result of that cell temperature of PV is increasing. This effect reduces PV electrical efficiency. (**picture a).**

In **façade or inclined roof installation** on buildings the thermal losses are reduced due to the thermal protection of PV rear surface and PV modules operate at higher temperatures.

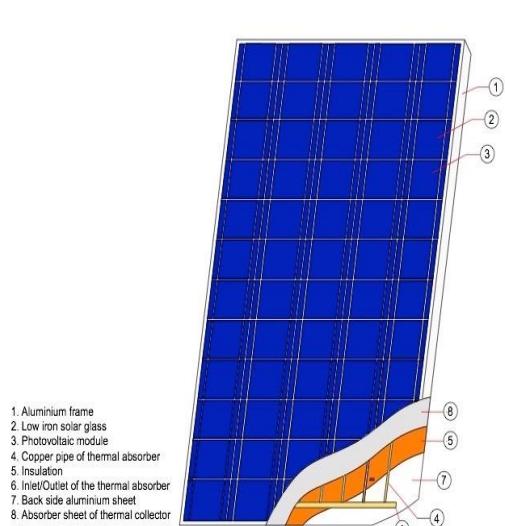
This undesirable effect can be partially avoided by **PVT hybrid collector (pictures b and c)** applying a suitable heat extraction with a fluid circulation, keeping the electrical efficiency at a satisfactory level.

PVT collector divided in two groups:

- Glazed: PV panel** with additional glass above PV panel which produce more thermal power and
- Unglazed: PV panel** without additional glass, which produces more electrical power.



a)



b)



c)

Test center



Test center has two separate equipment's and software's for measurement's and on line monitoring nearly all parameter's of PVT collectors: Solar radiation, ambient temperature and conditions, temperatures in boilers, in let and out let temperatures on PVT, I (Amperes), U (Volts) and power out put (W) from every PVT .
Based of these measurement's bellow are technical characteristics of PVT.

Technical characteristics of C-P PVT collector:

MODEL

	C-P PVT
Photovoltaic part	Dimensions
	Weight
	Type of frame
	Front side
	Number of PV cells
	Type of PV
	Dimensions of PV cells
	Max. el .Power Pmax ,Hybrid PVT)
	Module Efficiency
	Nominal Operating Cell Temperature
	Temp. Coeff. Of Pmax (TK Pmax)
	Temp. Coeff. Of Voc (TK Voc)
	Average el. power output (kWh/year)
	Gross area
Thermal part	Pic thermal power per collector
	Average thermal power per PVT coll./y
	Type of medium
	Quantity of medium
	Absorber Sheet
	Register
	Insulation

Solar key mark certification is on procedure.

Installed PVT systems

