

Technical data of flat solar collectors EM1V/2,0 for vertical mounting

EM1V/2,0 - flat solar collector with a double harp absorber made of copper, designed for vertical mounting. Solar collector ENSOL EM1V/2,0 is designed for the change of the solar radiation energy into the useful heat energy used for preparing domestic hot water, heating swimming pool, or supporting the source of heat in heating installation.

Collector's housing construction is based on a rigid frame bent from the special aluminium profile patented by ENSOL company. At the bottom the housing is closed with aluminium sheet, whereas the cover is made of special, high-transmission solar glass. The manner of fixing the glass ensures tightness of housing and minimizes the thermal tensions.

The main part of the collector is an absorber, the plate of which is made of copper sheet covered with the high selective eta plus coat in order to ensure high level of solar radiation absorption, which results in obtaining high efficiency of the energy conversion process).

Absorber's plate is welded by means of ultrasonic welding with the system of copper tubes, in which the medium circulates.

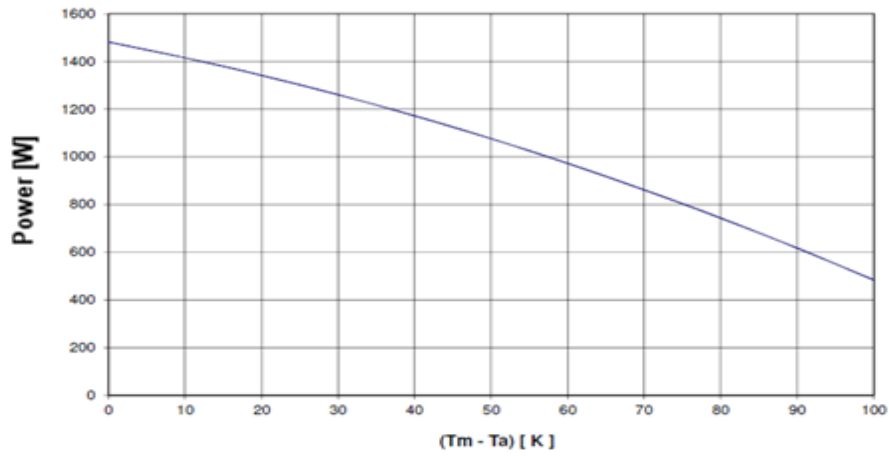
Heat losses were minimized by application of lower and lateral insulation made of mineral wool of low heat conduction.

Specially designed assembly sets made of stainless steel are used for trouble free and secure mounting of collectors to roof constructions with different angle of roof slope inclination.

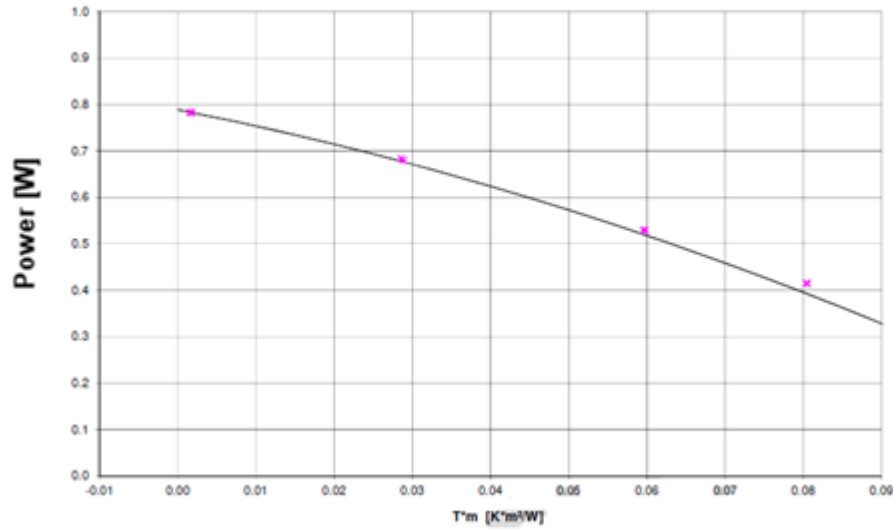


Flat collector	Symbol	Unit	Value
Width	A	mm	1006
Height	B	mm	1988
Depth	C	mm	85
Weight	m	kg	40
Surface	S	m ²	2,0
Optical efficiency	η_0	%	78,9
Coefficient	a1	W/(m ² K)	3,327
Coefficient	a2	W/(m ² K)	0,020
Connection: Cu pipe	Ø	mm	22
Casing	Aluminium profile		
Cover	Solar glass 4,0mm		
Absorber			
Kind of an absorber	Cu sheet with a thickness of 0,2 mm		
Selective layer	Blue Tec eta plus		
Technology	ultrasonic welding		
Absorption coefficient	α	%	95
Emission coefficient	ϵ	%	5
Width	a	mm	964
Height	b	mm	1946
Absorber surface	Sb	m ²	1,876
Active surface	Sn	m ²	1,876
Amount of fluid	V	dm ³	1,8
Balance temperature	Tr	°C	208
Guaranteed minimal heat yield	kWh/m ² * year		525
Flow: recommended allowed	l/h l/h		approx. 60-90 50-220
Insulation	mineral wool		
Conduction coefficient	λ	W/mK	0,035
Thickness of the insulation layer			
Bottom	d	mm	40
Side	d	mm	10

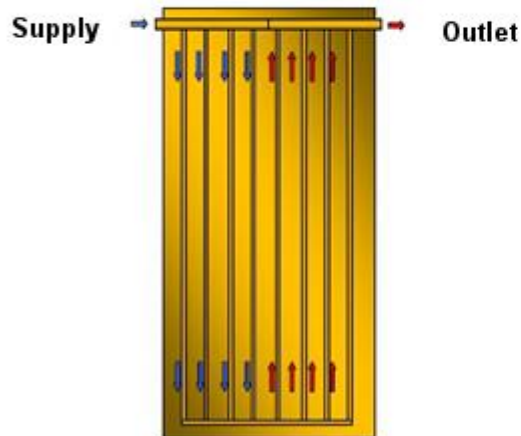
Efficiency of the collector for $G=(1000W/m^2)$



Collector's efficiency curve (for $G=100W/m^2$)



Flow of the factor through the absorber of the collector



Dimensions of the collector

