

Technical data of the flat solar collectors

Ensol ES1H/2,0S and ES1H/2,0B

Ensol solar collector is designed for changing energy of solar radiation into useful thermal energy used for preparing warm service water, heating swimming-pools or supporting heat source in heating system.

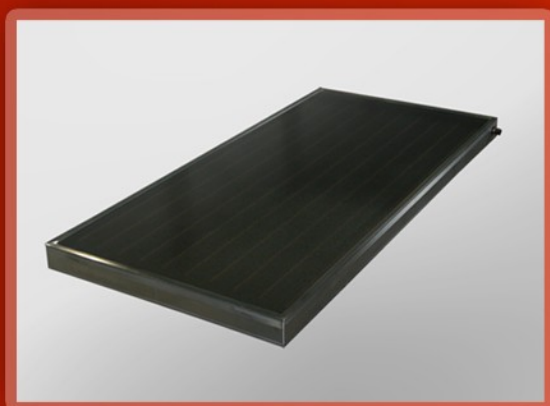
Collector's housing construction is based on a rigid frame bent from the special aluminium profile patented by ENSOL company. At the bottom the housing is closed with aluminium sheet, whereas the cover is made of special, high-transmission solar glass. The manner of fixing the glass ensures tightness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

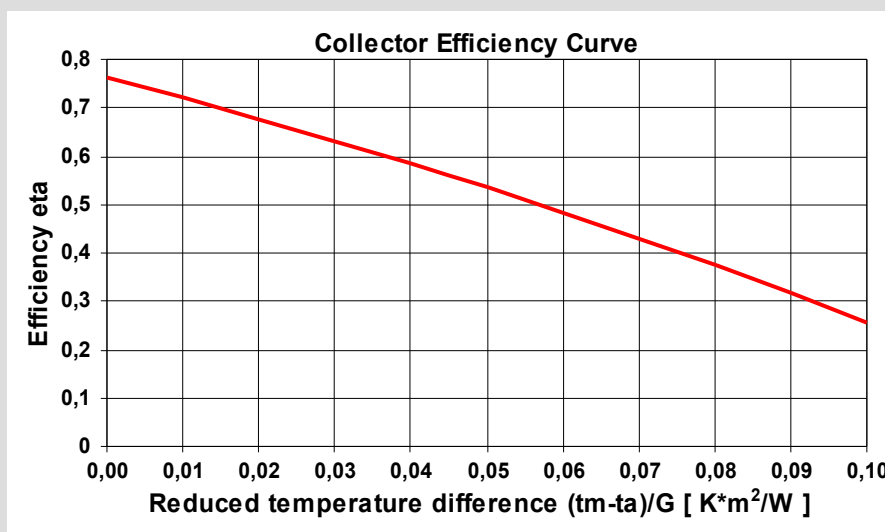
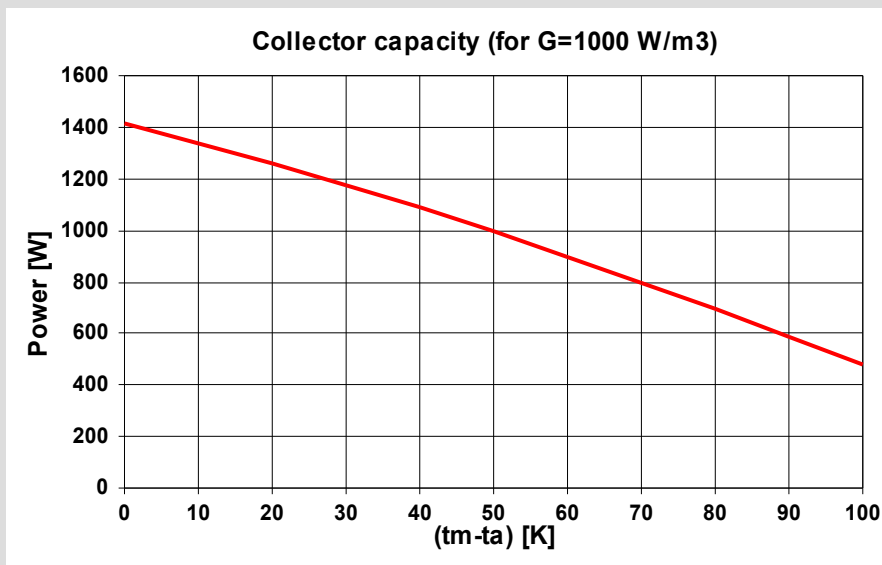
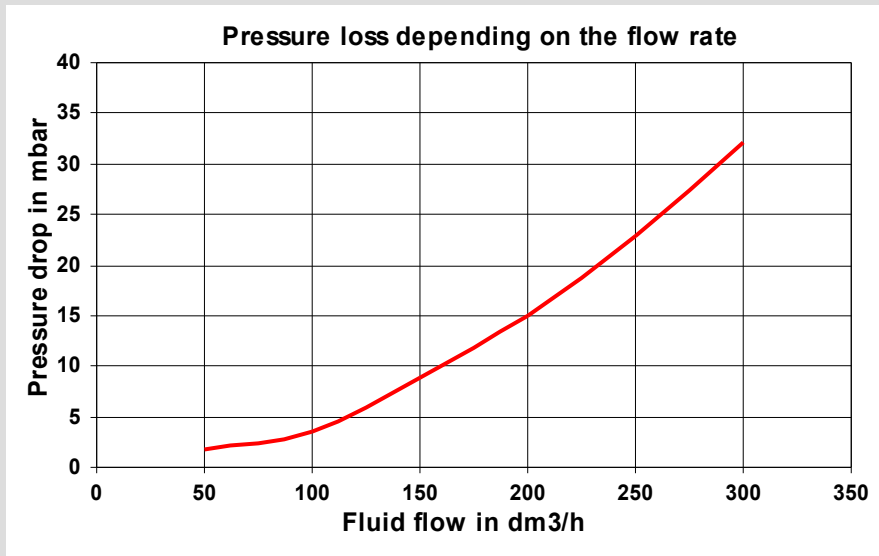
Flat collectors with prismatic glass have certificate of compatibility with norm DIN EN 12975-2:2006 conducted by TÜV Rheinland Immissionsschutz und Energiesysteme GmbH and the international Solar Keymark certificate issued by DIN CERTCO. These collectors have also been inscribed on the prestigious BAFA list enabling to get grants in some European Union countries.

*) depending on version



Flat collector:	symbol	unit	value
width	A	mm	1006
height	B	mm	2007
depth	C	mm	85
weight	m	kg	38
surface	S	m ²	2,02
optical efficiency	η_0	%	77
Coefficient	a1	W/(m ² K)	4,034
Coefficient	a2	W/(m ² K ²)	0,010
Connection: copper housing	\emptyset	mm	22
cover	Solar glass, 4mm in thickness		
Absorber:			
absorber's type	Copper sheet, 0,2mm in thickness		
selective layer	BlueTec, Eta plus, Sunselect		
production technology	ultrasonic welding*, soldering*		
absorption coefficient	α	%	95
emission coefficient	ϵ	%	5
width	a	mm	990
height	b	mm	1990
absorber's surface	S_b	m ²	1,97
active surface	S_n	m ²	1,86
liquid content	V	dm ³	1,8
balance temperature	T_r	°C	208
guaranteed minimal thermal output	kWh/m ² · year		525
Flow: recommended permissible	l/h		ok. 60 50-220
Insulation mineral wool			
conduction coefficient	λ	W/mK	0,035
thickness of the insulation layer:			
lower	d	mm	40
lateral	d_1	mm	10

*) depending on version



Legend:
 tm - average temperature of liquid
 ta - ambient temperature
 G - solar irradiance