

ES2V/2,0S AI and ES2V/2,0B AI – flat solar collector with meander absorber, made entirely of aluminium, designed for vertical mounting.

Solar collector ENSOL ES2V/2,0S AI and ES2V/2,0B AI is designed for changing energy of solar radiation into useful thermal energy used for providing warm service water, heating swimming pools or supporting a heat source in a heating system.

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

The main part of the collector is an absorber, the plate of which is made of aluminium sheet covered with a high selective coat in order to ensure a high level of solar radiation absorption, which results in obtaining high efficiency of the energy conversion process. The absorber's plate is connected by means of ultrasonic welding with the copper tubes system, in which the medium circulates.

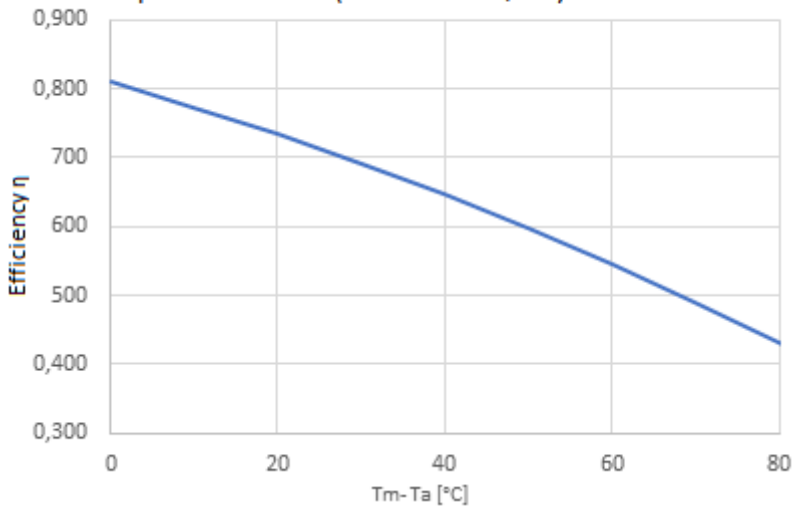
Heat losses were minimized by application of lower and lateral insulation made of mineral wool of low heat conduction. Specially designed assembly sets made of aluminium and stainless steel are used for trouble-free and secure mounting of collectors to roof constructions with different angles inclination.

Flat collectors ES2V/2,0S AI and ES2V/2,0B AI. have certificate of compatibility with norm **DIN EN 12975-2:2006** conducted by TÜV Rheinland Immissionsschutz und Energiesysteme GmbH and **Solar Keymark certificate**.

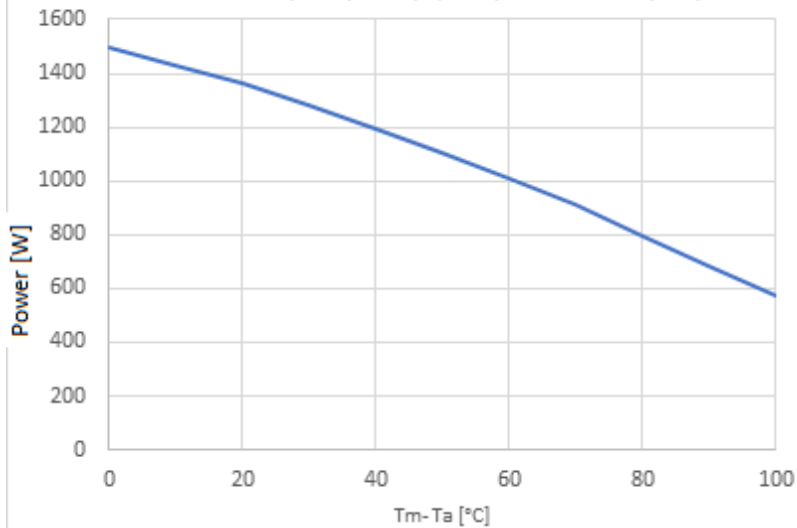


Flat collector:		Symbol	Unit	Value	
Width		A	mm	1006	
Height		B	mm	2007	
Depth		C	mm	85	
Weight		m	kg	39	
Surface		S	m ²	2,019	
Collector efficiency ES2V/2,0 AL (for G = 1000 W/m ²)					
T _m -T _a	0K	10K	30K	50K	70K
Power	1499W	1433W	1281W	1106W	908W
Parameters relative to the area of the aperture					
Optical efficiency	η ₀ , a	%	80,9		
Coefficient	a1	W/(m ² K)	3,442		
Coefficient	a2	W/(m ² K ²)	0,016		
Coefficient of angle of incidence					
IAM (K _a =50°)		-	0,87		
Connection: aluminium tube		∅	mm	22	
Housing		Aluminum profile			
Cover		Tempered solar glass, 4mm thick			
Absorber:					
Absorber's type		Hydraulic system Al – Al. sheet			
Absorber sheet coating		High selective layer			
Execution technology		Ultrasonic welding			
Absorption coefficient		α	%	95	
Emission coefficient		ε	%	5	
Width		a	mm	953	
Height		b	mm	1955	
Absorber's surface		S _b	m ²	1,863	
Aperture surface		S _n	m ²	1,853	
Liquid content		V	dm ³	1,8	
Stagnation temperature		T _s	°C	185	
Flow:					
Recommended		l/h	60-90		
Permissible		l/h	50-190		
Lower insulation		Mineral wool 40 mm thick			
Lateral insulation		Melamine foam 8 mm thick			
Guarantee		10 years			
Solar Keymark		011-7S1617 F			

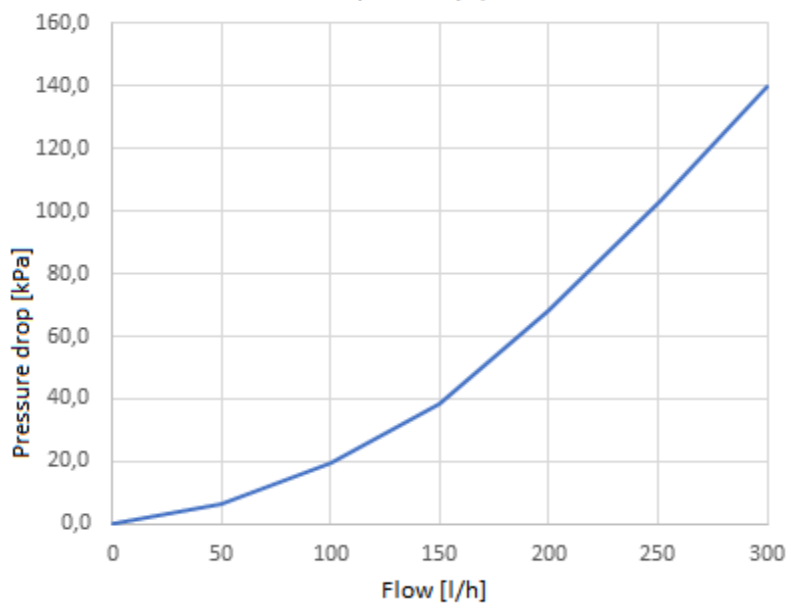
Collector efficiency curve ES2V/2,0AI related to the aperture surface (for $G=1000 \text{ W/m}^2$)



Collector capacity ES2V/2,0 AI (for $G=1000 \text{ W/m}^2$)



Pressure drop in ES2V/2,0AI collector



Pressure drop chart for water at temperature 15°C

The key:

t_m – average liquid temperature;

t_a – environment temperature;

G – intensity of solar radiation