Energetyka Solarna ensol Sp. z o.o.

Technical data of the flat solar collectors ES2V/2,52S AL-AL i ES2V/2,52B AL-AL for vertical installation

ES2V/2,52S Al - Al and ES2V/2,52B Al - AL – flat solar collector with meander absorber, made entirely of aluminium, designed for vertical mounting.

Solar collector ENSOL ES2V/2,52S AL-AL and ES2V/2,52B AL-AL 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 copper 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 laser welding with the copper tubes system, in which the medium circulates. Meander absorber ensures steady heat removal through the circulating medium.

Heat losses were minimized by application of lower and lateral insulation. 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/2,52S AL-AL and ES2V/2,52B AL.-AL have certificate of compatibility with norm **DIN EN 12975-2:2006** conducted by TÜV Rheinland Immissionsschutz und Energiesysteme GmbH and the **Solar Keymark certificate.**

Flat collector:	Symbol	Unit	Value
Width	A	mm	1120
Height	B	mm	2250
Depth	C	mm	85
Weight	m	kg	47
Surface	S	m^2	2,52

Collector efficiency ES2V/2,52 Al-Al (for G = 1000 W/m2)						
Tm-Ta	0K	10K	30K	50K	70K	100K
Power	1884W	1794W	1592W	1362W	1104W	664W

Parameters relative to the area of the aperture			
Optical efficiency	ηo, hem	%	82,2
Coefficient	a1	$W/(m^2K)$	3,701
Coefficient	a2	$W/(m^2K^2)$	0,0152
Parameters relative to the gross area			
Optical efficiency	ηo, b	%	74,9
Coefficient	a1	$W/(m^2K)$	3,44
Coefficient	a2	$W/(m^2K^2)$	0,014
Coefficient of angle of incidence	IAM (K_d=30°)	-	0,99
Connection: aluminium copper	ø	mm	22
Housing	Aluminum profile		
Cover	Tempered solar glass, 4mm thick with anti-reflective coating		
Absorber:			
Absorber's type	Hydraulic system Al – Al. sheet		
Absorber sheet coating	High selective layer		
Execution technology	Laser welding		
Absorption coefficient	α	%	95
Emission coefficient	ε	%	5
Width	a	mm	1066
Height	b	mm	2197
Absorber's surface	S_b	m^2	2,34
Aperture surface	S_n	m^2	2,34
Liquid content	V	dm^3	2,1
Stagnation temperaturę	T_s	°C	210,0
Flow: Recommended Permissible	 l/h l/h		ok. 75-105 50-150
Lower insulation :	Mineral wool 50 mm thick		
Lateral insulation	Melamine foam 8 mm thick		
Guarantee	10 years		
Solar Keymark	011-7S3113 F (till 2027-03-31)		

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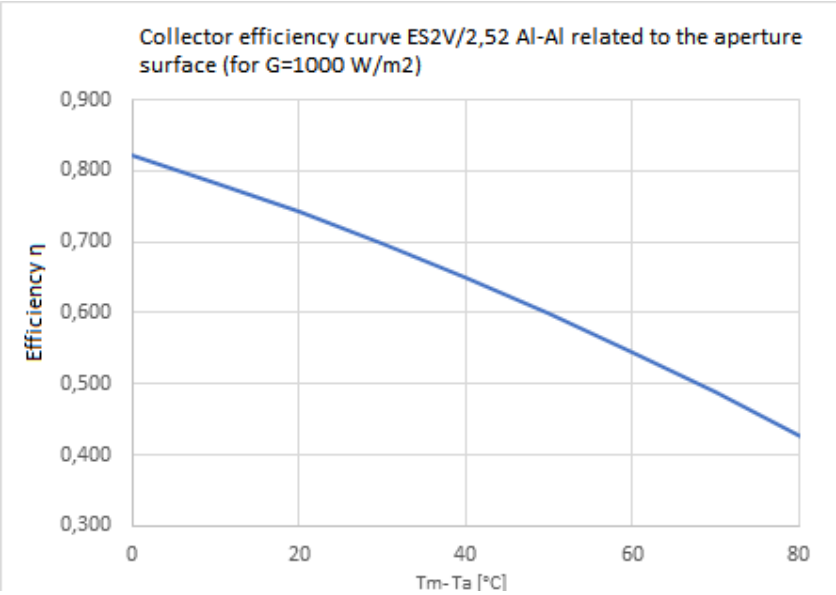

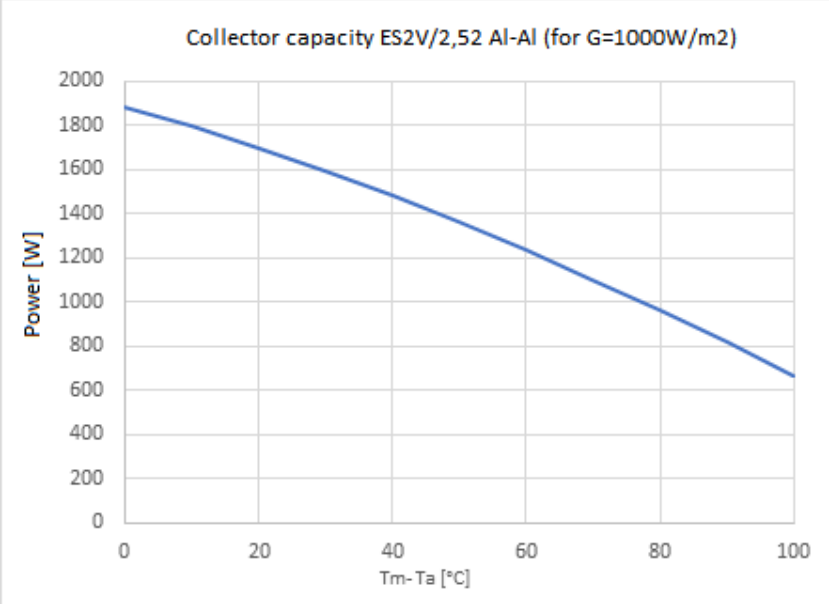

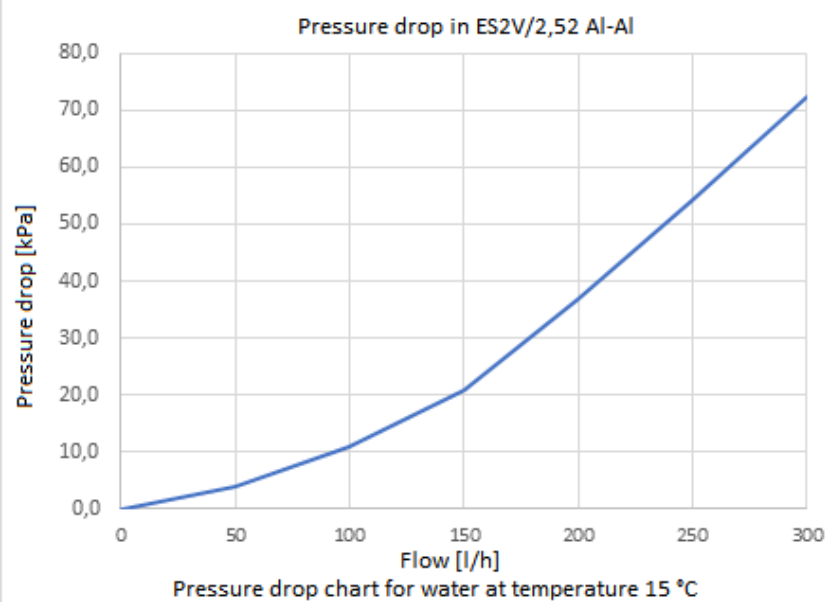

The key:

tm – average liquid temperature;

ta – environment temperature;

G – intensity of solar radiation