Energetyka Solarna ensol Sp. z o.o.

Technical Data for flat solar collectors
Ensol ES2V/2,65S i ES2V/2,65B for vertical mounting

ES2V/2,65S AL-CU and ES2V/2,65B AL-CU – flat solar collector with meander absorber, made of copper and aluminum, designed for vertical mounting.

ENSOL Solar collector ES2V/2,65S AL-CU and ES2V/2,65B AL-CU 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 the high selective 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 laser welding with the system of copper tubes, 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/2,65S AL-CU and ES2V/2,65B AL-CU B** have certificate of compatibility with norm **DIN EN 9806:2014-03 and DIN EN 12975-1:2011-01** conducted by TÜV Rheinland Immissionsschutz und Energiesysteme GmbH and **Solar Keymark certificate**.

Flat collector:	Symbol	Unit	Value
Width	A	mm	1120
Height	B	mm	2356
Depth	C	mm	85
Weight	m	kg	49
Surface	S	m^2	2,65

Collector efficiency ES2V/2,65 Al-Cu (for G=1000W/m2)					
Tm-Ta	0 K	10 K	30 K	50 K	70 K
Power	2087 W	1988 W	1766 W	1515 W	1235 W

Parameters relative to the area of the aperture			
Optical efficiency	ηo,hem	%	85,2
Coefficient	a1	$W/(m^2K)$	3,922
Coefficient	a2	$W/(m^2K^2)$	0,015

Parameters relative to the gross area			
Optical efficiency	ηo,hem	%	79,1
Coefficient	a1	$W/(m^2K)$	3,641
Coefficient	A2	$W/(m^2K^2)$	0,014
Coefficient of angle of incidence	IAM (K_d=50°)	-	0,87
Connection: copper tube	ø	mm	22
Housing	Aluminum profile		
Cover	Tempered solar glass, 4mm thick		
Absorber:			
Absorber's type	Hydraulic system Cu - Al sheet		
Absorber sheet coating	High selective layer		
Technologia wykonania	Laser welding		
Absorption coefficient	α	%	95
Emission coefficient	ε	%	5
Width	a	mm	1066
Height	b	mm	2303
Absorber's surface	S_b	m^2	2,45
Aperture surface	S_a	m^2	2,45
Liquid content	V	dm^3	2,2
Stagnation temperature	T_s	°C	192
Flow: Recommended Permissible	 l/h l/h		ok. 75-105 50-150
Lower insulation :	Mineral wool 40 mm thick		
Lateral insulation	Melamine foam 8 mm thick		
Guarantee	10 years		
Solar Keymark	011-7S2637 F (do 2026-03-31)		

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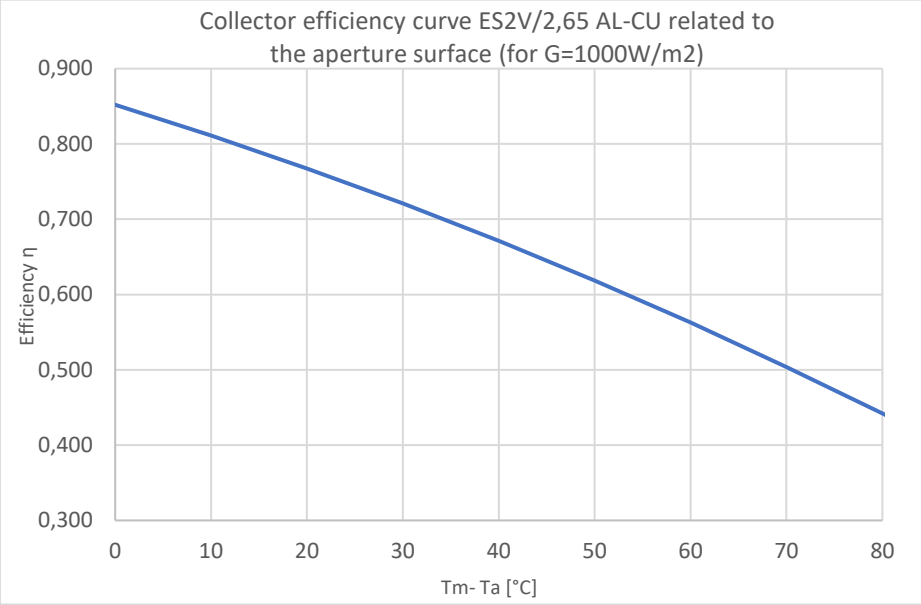

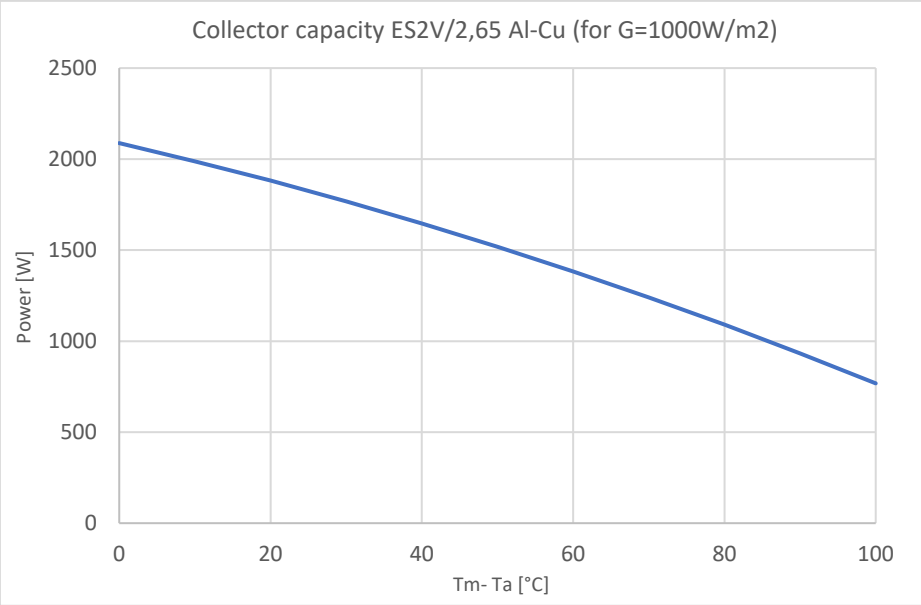

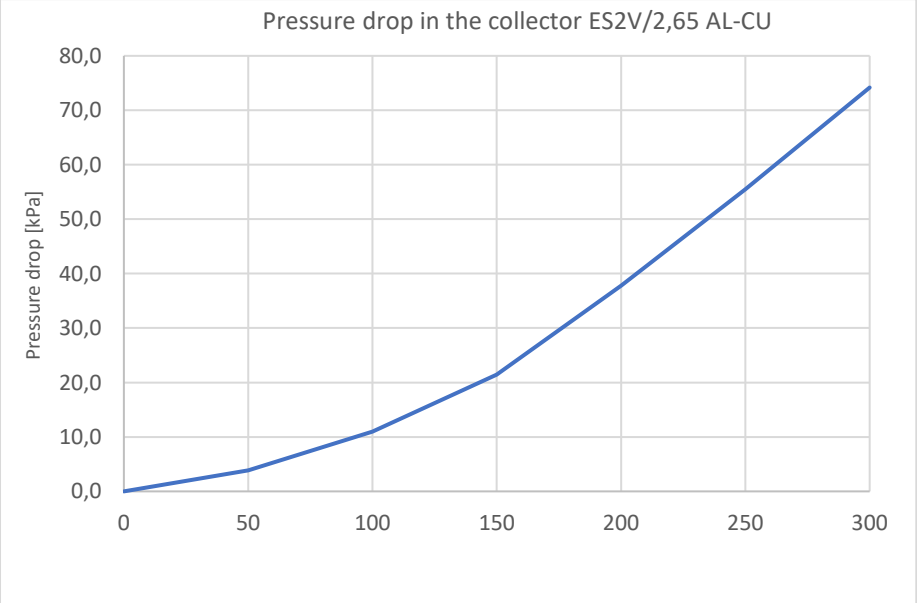

The key:

tm – average liquid temperature;

ta – environment temperature;

G – intensity of solar radiation