

Technical data of the flat solar collectors ES2H/2,65S AL-CU i ES2H/2,65B AL-CU for horizontal installation

ES2H/2,65S AL-CU and ES2H/2,65B AL-CU – flat solar collector with meander absorber, made of copper and aluminium, for horizontal installation.

Ensol solar collector type ES2H/2,65S AL-CU and ES2H/2,65B AL-CU 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.

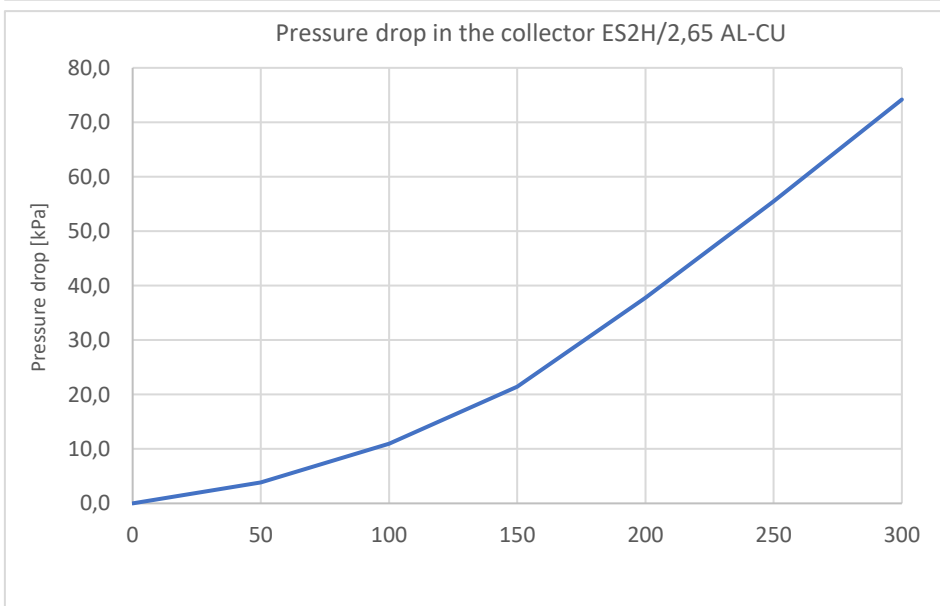
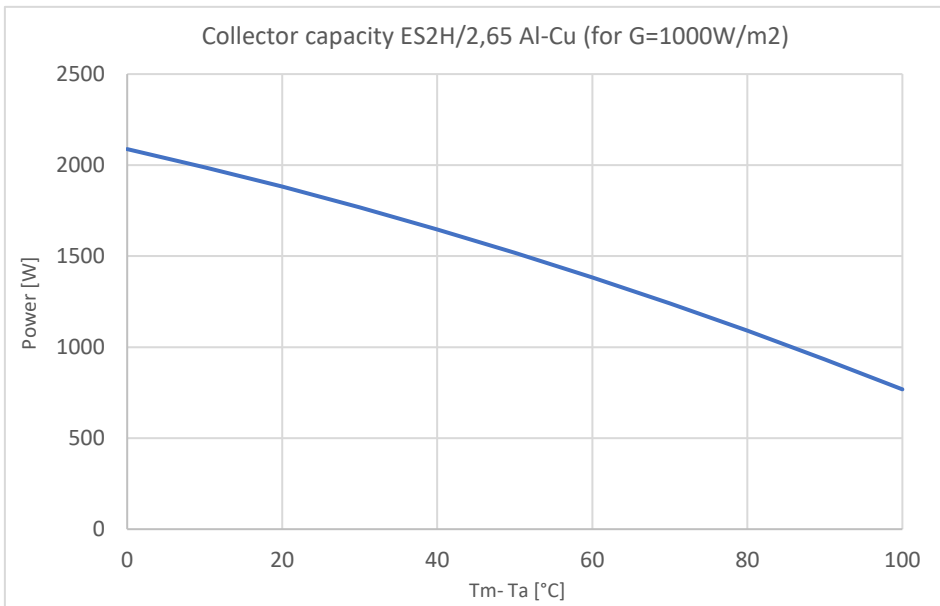
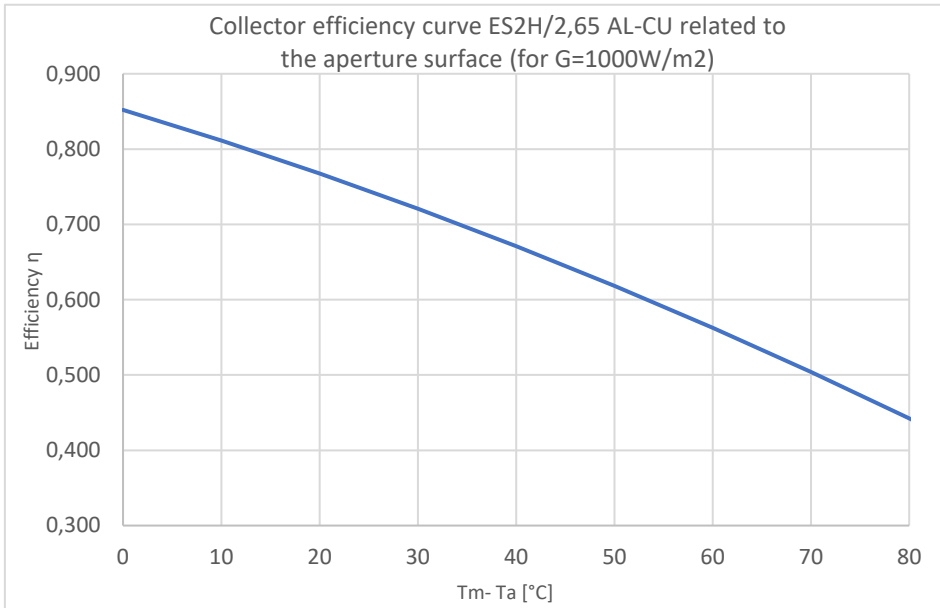
Collector's housing construction is based on a rigid frame bent from the special aluminium profile patented by ENSOL company. At the bottom the housing is closed with aluminium sheet, whereas the cover is made of special, high-transmission solar glass. The manner of fixing the glass ensures tightness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

The main part of the collector is an absorber, the plate of which is made of 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 collector:		Symbol	Unit	Value	
Width		A	mm	2356	
Height		B	mm	1120	
Depth		C	mm	85	
Weight		m	kg	49	
Surface		S	m ²	2,65	
Collector efficiency ES2H/2,65 Al-Cu (for G = 1000 W/m2)					
Tm-Ta	0 K	10 K	30 K	50 K	70 K
Power	2087	1988	1766	1515	1235
Parameters relative to the area of the aperture					
Optical efficiency	η _{o,hem}	%	85,2		
Coefficient	a1	W/(m ² K)	3,922		
Coefficient	a2	W/(m ² K ²)	0,015		
Parameters relative to the gross area					
Optical efficiency	η _{o,hem}	%	79,1		
Coefficient	a1	W/(m ² K)	3,641		
Coefficient	a2	W/(m ² K ²)	0,014		
Coefficient of angle of incidence	IAM (K _d =50°)	-	0,87		
Connection: copper tubes	∅	mm	22		
Housing	Aluminium profile				
Cover	Tempered solar glass, 4mm in thick				
Absorber:					
Absorber's type	Hydraulic system Cu - Al sheet				
Absorber's sheet coating	High selective layer				
Execution technology	Laser welding				
Absorption coefficient	α	%	95		
Emission coefficient	ε	%	5		
Width	a	mm	2303		
Height	b	mm	1066		
Absorber's surface	S _b	m ²	2,45		
Aperture surface	S _n	m ²	2,45		
Liquid content	V	dm ³	2,2		
Stagnation temperature	T _s	°C	192		
Flow:				ok.	
recommended	l/h			75-105	
permissible	l/h			50-150	
Lower insulation	Mineral wool 40 mm thick				
Lateral insulation	Melamine foam 8mm thick				
Guarantee	10 years				



The key:

t_m – average liquid temperature;

t_a – environment temperature;

G – intensity of solar radiation