



Licence Number	SKM 10086
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Annex to Solar Keymark Certificate Supplementary Information							Licence Number Issued		SKM 10086 2022-07-28						
Gross Thermal Yield in kWh/collector at mean fluid temperature ϑ_m															
Standard Locations		Athens			Davos			Stockholm			Würzburg				
Collector name	ϑ_m	25°C	50°C	75°C	25°C	50°C	75°C	25°C	50°C	75°C	25°C	50°C	75°C		
SOLO 1.50		1,728	1,215	799	1,299	895	575	956	621	383	1,043	671	407		
SOLO 1.50H		1,728	1,215	799	1,299	895	575	956	621	383	1,043	671	407		
SOLO 1.82		2,097	1,474	970	1,576	1,085	698	1,160	753	464	1,265	814	493		
SOLO 1.82H		2,097	1,474	970	1,576	1,085	698	1,160	753	464	1,265	814	493		
SOLO 2.00		2,304	1,620	1,065	1,731	1,193	767	1,275	827	510	1,391	894	542		
SOLO 2.00H		2,304	1,620	1,065	1,731	1,193	767	1,275	827	510	1,391	894	542		
SOLO 2.37		2,731	1,919	1,262	2,052	1,413	909	1,511	981	605	1,648	1,059	642		
SOLO 2.37H		2,731	1,919	1,262	2,052	1,413	909	1,511	981	605	1,648	1,059	642		
SOLO 2.72		3,145	2,211	1,454	2,363	1,628	1,047	1,741	1,129	696	1,898	1,220	740		
SOLO 2.72H		3,145	2,211	1,454	2,363	1,628	1,047	1,741	1,129	696	1,898	1,220	740		
Gross Thermal Yield per m ² gross area		1,152	810	533	866	596	384	638	414	255	695	447	271		
Annual efficiency, η_a		65%	46%	30%	53%	37%	24%	55%	35%	22%	56%	36%	22%		
Fixed or tracking collector		Fixed (slope = latitude - 15°; rounded to nearest 5°)													
Annual irradiation on collector plane		1765 kWh/m ²			1630 kWh/m ²			1166 kWh/m ²			1244 kWh/m ²				
Mean annual ambient air temperature		18.5°C			3.2°C			7.5°C			9.0°C				
Collector orientation or tracking mode		South, 25°			South, 30°			South, 45°			South, 35°				
The collector is operated at constant temperature ϑ_m (mean of in- and outlet temperatures). The calculation of the annual collector performance is performed with the official Solar Keymark spreadsheet tool Scenocalc Ver. 6.2 (13.01.2022). A detailed description of the calculations is available at http://www.estif.org/solarkeymarknew/															
Additional Information															
Collector heat transfer medium										Water-Glycole					
The collector is deemed to be suitable for roof integration										No					
The collector was tested successfully under the following conditions:															
Climate class (A+, A, B or C)										A		--			
G (W/m ²) >		1000		ϑ_a (°C) >		20		H _x (MJ/m ²) >		600					
Maximum tested positive load										3000		Pa			
Maximum tested negative load										3000		Pa			
Hail resistance using steel ball (maximum drop height)										2		m			
Additional collector attribute(s)															
Using external power source(s) for normal operation										No		Active or passive measure(s) for self-protection		No	
Co-generating thermal and electrical power										No		Façade collector(s)		No	
Energy Labelling Information				Additional Informative Technical Data											
	Reference Area, A _{sol} (m ²)			Hydraulic Designation Code						Aperture Area, A _a (m ²)					
SOLO 1.50	1.50			8-V-1234S-A:7.2,1380-C:20.6,1080-D						1.38					
SOLO 1.50H	1.50			12-V-1234S-A:7.2,908-C:20.6,1560-D						1.38					
SOLO 1.82	1.82			10-V-1234S-A:7.2,1378-C:20.6,1300-D						1.72					
SOLO 1.82H	1.82			12-V-1234S-A:7.2,1128-C:20.6,1560-D						1.72					
SOLO 2.00	2.00			8-V-1234S-A:7.2,1878-C:20.6,1080-D						1.86					
SOLO 2.00H	2.00			12-V-1234S-A:7.2,908-C:20.6,2060-D						1.86					
SOLO 2.37	2.37			10-V-1234S-A:7.2,1828-C:20.6,1300-D						2.23					
SOLO 2.37H	2.37			16-V-1234S-A:7.2,1128-C:20.6,2010-D						2.23					
SOLO 2.72	2.73			10-V-1234S-A:7.2,2058-C:20.6,1340-D						2.57					
SOLO 2.72H	2.73			17-V-1234S-A:7.2,1158-C:20.6,2240-D						2.57					
Data required for CDR (EU) No 811/2013 - Reference Area				Data required for CDR (EU) No 812/2013 - Reference Area A _{sol}											
Collector efficiency (η_{col})				57%				Zero-loss efficiency (η_0)				0.73		--	
Remark: Collector efficiency (η_{col}) is defined in CDR (EU) No 811/2013 as collector efficiency of the solar collector at a temperature difference between the solar collector and the surrounding air of 40 K and a global solar irradiance of 1000 W/m ² , expressed in % and rounded to the nearest integer. Deviating from the regulation η_{col} is based on reference area (A _{sol}) which is aperture area for values according to EN 12975-2 or gross area for ISO 9806:2017.				First-order coefficient (a_1)				3.73		W/(m ² K)					
				Second-order coefficient (a_2)				0.007		W/(m ² K ²)					
				Incidence angle modifier IAM (50°)				0.90		--					
				Remark: The data given in this section are related to collector reference area (A _{sol}) which is aperture area for values according to EN 12975-2 or gross area for ISO 9806. Consistent data sets for either aperture or gross area can be used in calculations like in the regulation 811 and 812 and simulation programs.											
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