

Annex to Solar Keymark Certificate						Licence Number		011-7S1917 F							
Supplementary Information						Issued		2022-06-08							
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		
KWB FlexiSun FK8250L		2 997	2 154	1 434	2 286	1 599	1 032	1 674	1 107	684	1 828	1 202	732		
Gross Thermal Yield per m ² gross area		1 189	855	569	907	635	410	664	439	271	726	477	291		
Annual efficiency, η_a		67%	48%	32%	56%	39%	25%	57%	38%	23%	58%	38%	23%		
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										2750		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)					
KWB FlexiSun FK8250L						2.52				11-V-12S-A:7.2,2014- C:20.4,1140				2.39	
Data required for CDR (EU) No 811/2013 - Reference Area A_{sol}						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)				3.49		W/(m ² K)			
						Second-order coefficient (a_2)				0.010		W/(m ² K ²)			
						Incidence angle modifier IAM (50°)				0.99		--			
						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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