

Annex to Solar Keymark Certificate Supplementary Information	Licence Number	011-7S2828 F
	Issued	2018-01-31

Annual collector output in kWh/collector at mean fluid temperature ϑ_m , based on ISO 9806:2013 test results

Standard Locations Collector name	ϑ_m	Athens			Davos			Stockholm			Würzburg		
		25°C	50°C	75°C	25°C	50°C	75°C	25°C	50°C	75°C	25°C	50°C	75°C
SLIM+		2 368	1 722	1 162	1 811	1 279	833	1 332	891	558	1 452	967	596
SLIML+		2 626	1 909	1 289	2 008	1 418	924	1 478	988	618	1 611	1 073	661
SLIMX+		2 954	2 148	1 450	2 259	1 595	1 039	1 662	1 111	696	1 812	1 207	743
SLIMXL+		3 423	2 489	1 680	2 618	1 848	1 204	1 926	1 287	806	2 099	1 398	861
Annual output per m ² gross area		1 172	852	575	897	633	412	660	441	276	719	479	295
Fixed or tracking collector		Fixed (slope = latitude - 15°; rounded to nearest 5°)											
Annual irradiation on collector plane		1765 kWh/m ²			1714 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. 5.01 (March 2016). A detailed description of the calculations is available at www.solarkeymark.org/scenocalc

Additional Information

Collector heat transfer medium	Water-Glycole	
Hybrid Thermal and Photo Voltaic collector	No	
The collector is deemed to be suitable for roof integration	No	
The collector was tested successfully according to EN ISO 9806:2013 under the following conditions:		
Climate class (A, B or C)	B	--
Maximum tested positive load	2500	Pa
Maximum tested negative load	2250	Pa
Hail resistance using steel ball (maximum drop height)	n.a.	m

Energy Labelling Information

	Reference Area, A_{sol} (m ²)	Data required for CDR (EU) No 811/2013 - Reference Area A_{sol}	
SLIM+	2.02	Collector efficiency (η_{col})	58 %
SLIML+	2.24	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 9806:2013.	
SLIMX+	2.52		
SLIMXL+	2.92		
		Data required for CDR (EU) No 812/2013 - Reference Area A_{sol}	
		Zero-loss efficiency (η_0)	0.723 --
		First-order coefficient (a_1)	3.29 W/(m ² K)
		Second-order coefficient (a_2)	0.010 W/(m ² K ²)
		Incidence angle modifier IAM (50°)	0.94 --
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.			