

Annex to Solar Keymark Certificate Supplementary Information	Licence Number	011-7S2823 F
	Issued	2017-12-12

Annual collector output in kWh/collector at mean fluid temperature ϑ_m , based on ISO 9806:2013 test results													
Collector name	Standard Locations 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
KS 2100F TP ACR / KS 2100F TLP ACR		2.635	1.940	1.315	2.035	1.448	941	1.496	1.010	632	1.624	1.094	673
KS 2200F TP ACR / KS 2200F TLP ACR		2.878	2.119	1.436	2.223	1.582	1.028	1.634	1.103	690	1.773	1.195	735
KS 2400F TP ACR / KS 2400F TLP ACR		3.109	2.288	1.551	2.401	1.708	1.110	1.765	1.192	745	1.915	1.291	793
KS 2600F TP ACR / KS 2600F TLP ACR		3.352	2.467	1.672	2.589	1.842	1.197	1.903	1.285	804	2.065	1.392	855
Annual output per m ² gross area		1.279	942	638	988	703	457	726	490	307	788	531	327
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	Yes	
The collector was tested successfully according to EN ISO 9806:2013 under the following conditions:		
Climate class (A, B or C)	A	--
Maximum tested positive load	2400	Pa
Maximum tested negative load	2400	Pa
Hail resistance using ice balls (diameter)	25	mm

Energy Labelling Information

	Reference Area, A_{sol} (m ²)	Data required for CDR (EU) No 811/2013 - Reference Area A_{sol}	
KS 2100F TP ACR / KS 2100 TLP ACR	2,06	Collector efficiency (η_{col})	63 %
KS 2200F TP ACR / KS 2200 TLP ACR	2,25	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.	
KS 2400F TP ACR / KS 2400 TLP ACR	2,43		
KS 2600F TP ACR / KS 2600 TLP ACR	2,62		
		Data required for CDR (EU) No 812/2013 - Reference Area A_{sol}	
		Zero-loss efficiency (η_0)	0,791 --
		First-order coefficient (a_1)	3,34 W/(m ² K)
		Second-order coefficient (a_2)	0,014 W/(m ² K ²)
		Incidence angle modifier IAM (50°)	0,95 --
		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.	