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Annex to Solar Keymark Certificate Supplementary Information	Licence Number	0123BN
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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
SAC 130x200		2.614	1.601	903	1.853	1.133	615	1.372	786	418	1.491	833	435
SAC 100x200		2.022	1.238	699	1.433	877	476	1.061	608	323	1.153	644	336
SAC 130x150		1.971	1.207	681	1.397	855	464	1.035	592	315	1.124	628	328
SAC 100x150		1.511	926	522	1.071	655	356	793	454	241	862	482	251
SAC 90x150		1.358	832	469	962	589	320	713	408	217	774	433	226
Annual output per m ² gross area		1.021	625	353	724	443	240	536	307	163	582	326	170
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)	A --
Maximum tested positive load	1000 Pa
Maximum tested negative load	300 Pa
Hail resistance using steel ball (maximum drop height)	25 m

Energy Labelling Information

	Reference Area, A_{sol} (m ²)	Data required for CDR (EU) No 811/2013 - Reference Area A_{sol}	
SAC 130x220	2,56	Collector efficiency (η_{col})	52 %
SAC 100x200	1,98	<i>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/m², 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.</i>	
SAC 130x150	1,93		
SAC 100x150	1,48		
SAC 90x150	1,33		
		Data required for CDR (EU) No 812/2013 - Reference Area A_{sol}	
		Zero-loss efficiency (η_0)	0,723 --
		First-order coefficient (a_1)	4,86 W/(m ² K)
		Second-order coefficient (a_2)	0,006 W/(m ² K ²)
		Incidence angle modifier IAM (50°)	0,82 -
		<i>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.</i>	