

Annex to Solar Keymark Certificate Supplementary Information	Licence Number	011-7S2704 R
	Issued	2016-10-04

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
Solarbayer CPC 8 NERO		1 620	1 463	1 294	1 395	1 238	1 077	1 011	879	750	1 088	947	809
Solarbayer CPC 10 NERO		2 005	1 812	1 602	1 727	1 532	1 333	1 252	1 088	929	1 347	1 173	1 002
Solarbayer CPC 12 NERO		2 402	2 170	1 919	2 069	1 835	1 597	1 500	1 303	1 112	1 614	1 405	1 200
Solarbayer CPC 14 NERO		2 798	2 528	2 236	2 410	2 138	1 860	1 747	1 518	1 296	1 880	1 637	1 398
Solarbayer CPC 16 NERO		3 195	2 887	2 553	2 752	2 441	2 124	1 995	1 733	1 480	2 147	1 869	1 596
Solarbayer CPC 18 NERO		3 592	3 245	2 870	3 094	2 744	2 388	2 243	1 949	1 663	2 413	2 101	1 794
Solarbayer CPC 20 NERO		3 988	3 603	3 187	3 435	3 047	2 651	2 490	2 164	1 847	2 679	2 333	1 993
Annual output per m ² gross area		1 102	995	880	949	842	732	688	598	510	740	644	550
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	2000	Pa
Maximum tested negative load	n.a.	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}	
Solarbayer CPC 8 NERO	1.47	Collector efficiency (η_{col})	58 %
Solarbayer CPC 10 NERO	1.82	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.	
Solarbayer CPC 12 NERO	2.18		
Solarbayer CPC 14 NERO	2.54		
Solarbayer CPC 16 NERO	2.90		
Solarbayer CPC 18 NERO	3.26		
Solarbayer CPC 20 NERO	3.62		
		Data required for CDR (EU) No 812/2013 - Reference Area A_{sol}	
		Zero-loss efficiency (η_0)	0.625 --
		First-order coefficient (a_1)	0.93 W/(m ² K)
		Second-order coefficient (a_2)	0.004 W/(m ² K ²)
		Incidence angle modifier IAM (50°)	0.96 --
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.			