



Annex to Solar Keymark Certificate Supplementary Information		Licence Number		SKM 10068									
		Issued		2018-12-04									
<b>Annual collector output in kWh/collector at mean fluid temperature <math>\vartheta_m</math>, based on ISO 9806:2013 test results</b>													
Standard Locations		Athens			Davos			Stockholm			Würzburg		
Collector name	$\vartheta_m$	25°C	50°C	75°C	25°C	50°C	75°C	25°C	50°C	75°C	25°C	50°C	75°C
ATLAS OL CA160		1,442	926	506	1,059	650	321	781	457	227	845	486	237
ATLAS OL CA200		1,793	1,152	630	1,317	808	400	971	569	282	1,050	604	295
ATLAS OL CA230		2,073	1,332	728	1,522	934	462	1,122	657	326	1,214	698	341
ATLAS OL CA230HOR		2,073	1,332	728	1,522	934	462	1,122	657	326	1,214	698	341
Annual output per m <sup>2</sup> gross area		901	579	316	662	406	201	488	286	142	528	303	148
Fixed or tracking collector		Fixed (slope = latitude - 15°; rounded to nearest 5°)											
Annual irradiation on collector plane		1765 kWh/m <sup>2</sup>			1714 kWh/m <sup>2</sup>			1166 kWh/m <sup>2</sup>			1244 kWh/m <sup>2</sup>		
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 $\vartheta_m$ (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 <a href="http://www.solarkeymark.org/scenocalc">www.solarkeymark.org/scenocalc</a>													
<b>Additional Information</b>													
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											2400		Pa
Maximum tested negative load											2400		Pa
Hail resistance using steel ball (maximum drop height)											2		m
<b>Energy Labelling Information</b>													
	Reference Area, $A_{sol}$ (m <sup>2</sup> )	Data required for CDR (EU) No 811/2013 - Reference Area $A_{sol}$											
ATLAS OL CA160	1.60	Collector efficiency ( $\eta_{col}$ )								47		%	
ATLAS OL CA200	1.99	<i>Remark: Collector efficiency (<math>\eta_{col}</math>) 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<sup>2</sup>, expressed in % and rounded to the nearest integer. Deviating from the regulation <math>\eta_{col}</math> is based on reference area (<math>A_{sol}</math>) which is aperture area for values according to EN 12975-2 or gross area for ISO 9806:2013.</i>											
ATLAS OL CA230	2.30												
ATLAS OL CA230HOR	2.30												
		Data required for CDR (EU) No 812/2013 - Reference Area $A_{sol}$											
		Zero-loss efficiency ( $\eta_0$ )								0.642		--	
		First-order coefficient ( $a_1$ )								3.35		W/(m <sup>2</sup> K)	
		Second-order coefficient ( $a_2$ )								0.022		W/(m <sup>2</sup> K <sup>2</sup> )	
		Incidence angle modifier IAM (50°)								0.80		--	
		<i>Remark: The data given in this section are related to collector reference area (<math>A_{sol}</math>) 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>											
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