



Annex to Solar Keymark Certificate		Licence Number		SKM 10013/3										
Supplementary Information		Issued		2018-08-10										
Annual collector output in kWh/collector at mean fluid temperature $\vartheta_{mf}$ based on ISO 9806:2013 test results														
Collector name	Standard Locations	Athens			Davos			Stockholm			Würzburg			
		$\vartheta_m$	25°C	50°C	75°C	25°C	50°C	75°C	25°C	50°C	75°C	25°C	50°C	75°C
H98-20		2.124	1.222	598	1.435	793	355	1.088	562	246	1.194	603	264	
H98-25		2.666	1.534	750	1.801	996	446	1.366	705	309	1.499	756	331	
Annual output per m <sup>2</sup> gross area		1.084	623	305	732	405	181	555	287	126	609	307	135	
Fixed or tracking collector														
Annual irradiation on collector plane		#N/A			#N/A			#N/A			#N/A			
Mean annual ambient air temperature		18,5°C			3,2°C			7,5°C			9,0°C			
Collector orientation or tracking mode		Tracking			Tracking			Tracking			Tracking			
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 $A_{sol}$												
H98-20	1,96	Collector efficiency ( $\eta_{col}$ )										46		%
H98-25	2,46	Remark: Collector efficiency ( $\eta_{col}$ ) 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 <sup>2</sup> , expressed in % and rounded to the nearest integer. Deviating from the regulation $\eta_{col}$ 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.												
		Data required for CDR (EU) No 812/2013 - Reference Area $A_{sol}$												
		Zero-loss efficiency ( $\eta_0$ )										0,695		--
		First-order coefficient ( $a_1$ )										5,61		W/(m <sup>2</sup> K)
		Second-order coefficient ( $a_2$ )										0,008		W/(m <sup>2</sup> K <sup>2</sup> )
		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.												
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