

Annex to Solar Keymark Certificate							Licence Number		011-7S783 F				
Supplementary Information							Issued		2019-09-13				
Annual collector output in kWh/collector at mean fluid temperature ϑ_m													
	Standard Locations	Athens			Davos			Stockholm			Würzburg		
Collector name	ϑ_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
KA88/2020 Standard		2 214	1 601	1 054	1 695	1 181	743	1 245	825	501	1 357	894	534
KA88/2020 Comfort		3 038	2 197	1 447	2 326	1 620	1 020	1 709	1 132	688	1 862	1 226	733
KA88/2020 INOX		3 038	2 197	1 447	2 326	1 620	1 020	1 709	1 132	688	1 862	1 226	733
Annual output per m ² gross area		1 230	890	586	942	656	413	692	458	278	754	496	297
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. 6.0 (October 2018). A detailed description of the calculations is available at www.solarkeymark.org/scenocalc													
Additional Information													
Collector heat transfer medium		Water-Glycole											
The collector is deemed to be suitable for roof integration		No											
The collector was tested successfully under the following conditions:													
Climate class (A+, A, B or C)		A										--	
G (W/m ²) >	1000	ϑ_a (°C) >			20			H_x (MJ/m ²) >			600		
Maximum tested positive load		2750										Pa	
Maximum tested negative load		2400										Pa	
Hail resistance using ice balls (diameter)		35										mm	
Additional collector attribute(s)													
<input type="checkbox"/>	Using external power source(s) for normal operation	<input type="checkbox"/> Active or passive measure(s) for self-protection											
<input type="checkbox"/>	Co-generating thermal and electrical power	<input type="checkbox"/> Wind and/or infrared sensitive collector(s) (WISC)											
<input type="checkbox"/>	Façade collector(s)												
Energy Labelling Information													
	Reference Area, A_{sol} (m ²)	Hydraulic Designation Code											
KA88/2020 Standard	1.80	14-VH-1234S-A:4,2246-C:20,1090											
KA88/2020 Comfort	2.47	10-VH-1234S-A:4,2246-C:20,1090											
KA88/2020 INOX	2.47	14-VH-1234S-A:4,2246-C:20,1090											
Data required for CDR (EU) No 811/2013 - Reference Area A_{sol}							Data required for CDR (EU) No 812/2013 - Reference Area A_{sol}						
Collector efficiency (η_{col})	61%						Zero-loss efficiency (η_0)	0.77			--		
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 9806:2017.							First-order coefficient (a_1)	3.40			W/(m ² K)		
							Second-order coefficient (a_2)	0.015			W/(m ² K ²)		
							Incidence angle modifier IAM (50°)	0.91			--		
							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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