

Annex to Solar Keymark Certificate	Licence Number	SKM 9999.2.10
Supplementary Information	Issued	2025-05-30

Collector name	Standard Locations					Athens			Davos			Stockholm			Würzburg		
					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
ATON 415-KC2700						3.422	2.564	1.786	2.673	1.943	1.310	1.954	1.349	874	2.121	1.461	932
ATON 415-KC2700H						3.422	2.564	1.786	2.673	1.943	1.310	1.954	1.349	874	2.121	1.461	932
Gross Thermal Yield per m² gross area						1.258	942	657	983	714	482	718	496	321	780	537	343
Annual efficiency, η_a						71%	53%	37%	60%	44%	30%	62%	43%	28%	63%	43%	28%
Fixed or tracking collector						Fixed (slope = latitude - 15°; rounded to nearest 5°)											
Annual irradiation on collector plane						1765 kWh/m²			1630 kWh/m²			1166 kWh/m²			1244 kWh/m²		
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. 6.2 (13.01.2022). A detailed description of the calculations is available at <http://www.estif.org/solarkeymarknew/>

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					3000	Pa
Maximum tested negative load					3000	Pa
Hail resistance using steel ball (maximum drop height)					2	m

Additional collector attribute(s)

Using external power source(s) for normal operation	No	Active or passive measure(s) for self-protection	No
Co-generating thermal and electrical power	No	Façade collector(s)	No

[illegible]

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})	63%	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		First-order coefficient (a_1)	3,15	W/(m ² K)
		Second-order coefficient (a_2)	0,012	W/(m ² K ²)
		Incidence angle modifier IAM (50°)	0,96	--

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 9806:2017.

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.