

Annex to Solar Keymark Certificate		Licence Number		011-7S3109 R									
Supplementary Information		Issued		2024-07-17									
Gross Thermal Yield 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
Plasma Spectral CPC10		2,242	1,779	1,206	1,823	1,333	823	1,331	950	577	1,440	1,032	618
Plasma Spectral CPC15		3,333	2,645	1,793	2,710	1,982	1,223	1,978	1,412	858	2,141	1,535	919
Plasma Spectral CPC20		4,424	3,511	2,380	3,597	2,631	1,623	2,626	1,874	1,139	2,842	2,038	1,220
Plasma Spectral CPC24		5,296	4,204	2,850	4,307	3,150	1,944	3,144	2,244	1,363	3,402	2,440	1,461
Gross Thermal Yield per m ² gross area		1,002	795	539	815	596	368	595	424	258	644	461	276
Annual efficiency, η_a		57%	45%	31%	50%	37%	23%	51%	36%	22%	52%	37%	22%
Fixed or tracking collector		Fixed (slope = latitude - 15°; rounded to nearest 5°)											
Annual irradiation on collector plane		1765 kWh/m ²			1630 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 Draft Ver. 6.2 (22.09.2021). 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)										B		--	
G (W/m ²) >		900		ϑ_a (°C) >		15		H_x (MJ/m ²) >		540			
Maximum tested positive load										2800		Pa	
Maximum tested negative load										1000		Pa	
Hail resistance using steel ball (maximum drop height)										0.6		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			
Energy Labelling Information						Additional Informative Technical Data							
		Reference Area, A_{sol} (m ²)		Hydraulic Designation Code				Aperture Area, A_a (m ²)					
Plasma Spectral CPC10		2.24		1-H-12S-C:19,1205-D				1.82					
Plasma Spectral CPC15		3.33		1-H-12S-C:19,1755-D				2.70					
Plasma Spectral CPC20		4.42		1-H-12S-C:19,2305-D				3.59					
Plasma Spectral CPC24		5.29		1-H-12S-C:19,2745-D				4.41					
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})		48%				Zero-loss efficiency (η_0)		0.58		--			
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)		1.37		W/(m ² K)					
				Second-order coefficient (a_2)		0.027		W/(m ² K ²)					
				Incidence angle modifier IAM (50°)		1.02		--					
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.													
DIN CERTCO • Alboinstraße 56 • 12103 Berlin, Germany													
Tel: +49 30 7562-1131 • Fax: +49 30 7562-1141 • E-Mail: info@dincertco.de • www.dincertco.de													