



Annex to Solar Keymark Certificate

Annex to Solar Keymark Certificate					Licence Number		SKM 10135.2.1				
					Date issued		2025-08-10				
					Issued by		DQS Hellas				
Licence holder		FONDERIE SIME SpA			Country		Italy				
Brand (optional)					Web		www.sime.it				
Street, Number		27, Via Garbo			E-mail		info@sime.it				
Postcode, City		37045, Legnago (VR)			Tel		+39 442631111				
Collector Type					Flat plate collector						
Collector name		Gross area (A_G) m ²	Gross length mm	Gross width mm	Gross height mm	Power output per collector G _b = 850 W/m ² , G _d = 150 W/m ² & u = 1.3 m/s $\vartheta_m - \vartheta_a$					
						0 K W	10 K W	30 K W	50 K W	70 K W	90 K W
SIMEPLANO 132		1,58	1.530	1.030	80	1.041	986	864	723	565	389
SIMEPLANO 132 HRZ		1,58	1.030	1.530	80	1.041	986	864	723	565	389
SIMEPLANO 182		2,09	2.030	1.030	80	1.377	1.305	1.142	956	747	514
SIMEPLANO 182 HRZ		2,09	1.030	2.030	80	1.377	1.305	1.142	956	747	514
SIMEPLANO 230		2,60	2.030	1.285	80	1.714	1.623	1.421	1.190	929	640
SIMEPLANO 230 HRZ		2,60	1.285	2.030	80	1.714	1.623	1.421	1.190	929	640
Power output per m ² gross area						659	624	547	458	357	246
Performance parameters test method		Steady state - outdoor									
Performance parameters (related to A_G)		η_0, b	a1	a2	a3	a4	a5	a6	a7	a8	Kd
Units		-	W/(m ² K)	W/(m ² K ²)	J/(m ³ K)	-	J/(m ² K)	s/m	W/(m ² K ⁴)	W/(m ² K ⁴)	-
Test results		0,669	3,33	0,014	0,000	0,00	7.710	0,000	0,00	0,0E+00	0,90
Incidence angle modifier test method		Steady state - outdoor									
Incidence angle modifier		Angle	10°	20°	30°	40°	50°	60°	70°	80°	90°
Transversal		$K_{\theta T, coll}$	1,00	0,99	0,96	0,92	0,85	0,74	0,59	0,35	0,00
Longitudinal		$K_{\theta L, coll}$	1,00	0,99	0,96	0,92	0,85	0,74	0,59	0,35	0,00
Heat transfer medium for testing		Water									
Flow rate for testing (per gross area, A_G)		dm/dt		0,017		kg/(sm ²)					
Maximum temperature difference during thermal performance test		$(\vartheta_m - \vartheta_a)_{max}$		60		K					
Standard stagnation temperature ($G = 1000 \text{ W/m}^2$; $\vartheta_a = 30 \text{ °C}$)		ϑ_{stg}		152		°C					
Maximum operating temperature		$\vartheta_{max, op}$				°C					
Maximum operating pressure		$p_{max, op}$		1000		kPa					
Testing laboratory		NCSR Demokritos					www.solar.demokritos.gr				
Test report(s)		4077DE7 4079DE8 4085DQ8					Dated		13/11/2013		
Comments of testing laboratory		Ver. 6.2 (13.01.2022)									
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Annex to Solar Keymark Certificate Supplementary Information	Licence Number	SKM 10135.2.1
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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
SIMEPLANO 132		1.598	1.091	663	1.187	778	447	879	546	307	958	589	323
SIMEPLANO 132 HRZ		1.598	1.091	663	1.187	778	447	879	546	307	958	589	323
SIMEPLANO 182		2.113	1.443	877	1.571	1.029	591	1.163	722	405	1.268	779	427
SIMEPLANO 182 HRZ		2.113	1.443	877	1.571	1.029	591	1.163	722	405	1.268	779	427
SIMEPLANO 230		2.629	1.796	1.091	1.954	1.280	735	1.446	898	504	1.577	969	531
SIMEPLANO 230 HRZ		2.629	1.796	1.091	1.954	1.280	735	1.446	898	504	1.577	969	531
Gross Thermal Yield per m ² gross area		1.011	691	420	751	492	283	556	345	194	607	373	204
Annual efficiency, η_a		57%	39%	24%	46%	30%	17%	48%	30%	17%	49%	30%	16%
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 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				1000	Pa
Maximum tested negative load				1000	Pa
Hail resistance using steel ball (maximum drop height)					m
Additional collector attribute(s)					
Using external power source(s) for normal operation		No	Active or passive measure(s) for self-protection		
Co-generating thermal and electrical power		No	Façade collector(s)		

Energy Labelling Information		Additional Informative Technical Data	
	Reference Area, A_{sol} (m ²)	Hydraulic Designation Code	Aperture Area, A_a (m ²)
SIMEPLANO 132	1,58	8-V-1234S-A:7.2,1342-C:20.6,1060-D	1,40
SIMEPLANO 132 HRZ	1,58		1,40
SIMEPLANO 182	2,09	8-V-1234S-A:7.2,1842-C:20.6,1060-D	1,88
SIMEPLANO 182 HRZ	2,09		1,88
SIMEPLANO 230	2,60	11-V-1234S-A:7.2,1342-C:20.6,1320-D	2,37
SIMEPLANO 230 HRZ	2,60		2,37

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})		50%	
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.		Zero-loss efficiency (η_0)	0,66
		First-order coefficient (a_1)	3,33
		Second-order coefficient (a_2)	0,014
		Incidence angle modifier IAM (50°)	0,85
		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.	