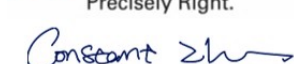


Annex to Solar Keymark Certificate					Licence Number		011-7S3305 F				
					Date issued		2025-06-18				
					Issued by		DIN CERTCO				
Licence holder		BSG CALDAIE A GAS S.P.A			Country		Italy				
Brand (optional)		BIASI			Web		http://www.biasi.it				
Street, Number		Via Pravolton 1/b			E-mail		-				
Postcode, City		33170 Pordenone			Tel		+39 0434 238311				
Collector Type					Flat plate collector						
Collector name	Gross area (A_G)	Gross length	Gross width	Gross height	Power output per collector						
					G_b = 850 W/m², G_d = 150 W/m² & u = 1.3 m/s						
					θ_m - θ_a						
	m²	mm	mm	mm	0 K	10 K	30 K	50 K	70 K	100 K	
					W	W	W	W	W	W	
SOLVITA20	2.00	2 000	1 000	95	1 552	1 476	1 313	1 135	943	629	
SOLVITA24	2.40	2 000	1 200	95	1 862	1 771	1 575	1 362	1 132	754	
SOLVITA30	3.00	2 000	1 500	95	2 328	2 214	1 969	1 703	1 415	943	
Power output per m² gross area					776	738	656	568	472	314	
Performance parameters test method		Quasi dynamic									
Performance parameters (related to A_G)		η₀, b	a₁	a₂	a₃	a₄	a₅	a₆	a₇	a₈	K_d
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		0.783	3.72	0.009	0.000	0.00	12 180	0.000	0.00	0.00	0.94
Incidence angle modifier test method		Quasi dynamic - outdoor									
Incidence angle modifier		Angle	10°	20°	30°	40°	50°	60°	70°	80°	90°
Transversal		K_{θT, coll}	1.00	1.00	0.98	0.96	0.93	0.88	0.77	0.00	0.00
Longitudinal		K_{θL, coll}	1.00	1.00	0.98	0.96	0.93	0.88	0.77	0.00	0.00
Heat transfer medium for testing					Water						
Flow rate for testing (per gross area, A_G)					dm/dt		0.020	kg/(sm²)			
Maximum temperature difference during thermal performance test					(θ_m - θ_a)_{max}		70	K			
Standard stagnation temperature (G = 1000 W/m²; θ_a = 30 °C)					θ_{stg}		190	°C			
Maximum operating temperature					θ_{max op}		99	°C			
Maximum operating pressure					p_{max, op}		800	kPa			
Testing laboratory		TÜV Rheinland (Guangdong) Ltd.				http://www.tuv.com					
Test report(s)		154150039_Linuo_P-G-2.80_ISO_Report_chen 154150039_Linuo_P-G-1.82_ISO_Report_chen 200715014GZU-001 CN25YOKT 001 CN25SVYV 001_Document check				Dated		2017-11-08 2017-11-09 2020-10-21 2025-03-20 2025-06-16			
Comments of testing laboratory					Ver. 6.2 (13.01.2022)						
<u>No comments.</u>					 TÜVRheinland® Precisely Right. 						
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Annex to Solar Keymark Certificate Supplementary Information							Licence Number			011-7S3305 F					
							Issued			2025-06-18					
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		
SOLVITA20		2 486	1 786	1 197	1 894	1 328	865	1 390	925	577	1 517	1 000	615		
SOLVITA24		2 984	2 143	1 436	2 273	1 594	1 038	1 668	1 109	693	1 820	1 199	738		
SOLVITA30		3 730	2 679	1 796	2 842	1 992	1 297	2 084	1 387	866	2 275	1 499	922		
Gross Thermal Yield per m ² gross area		1 243	893	599	947	664	432	695	462	289	758	500	307		
Annual efficiency, η_a		70%	51%	34%	58%	41%	27%	60%	40%	25%	61%	40%	25%		
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)										C		--			
G (W/m ²) >		800		ϑ_a (°C) >		10		H _x (MJ/m ²) >		600					
Maximum tested positive load										2760		Pa			
Maximum tested negative load										1888		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			
Energy Labelling Information					Additional Informative Technical Data										
	Reference Area, A _{sol} (m ²)				Hydraulic Designation Code					Aperture Area, A _a (m ²)					
SOLVITA20	2.00				9-VH-1234S-A:8,1874-C:20,1050					1.85					
SOLVITA24	2.40				11-VH-1234S-A:8,1874-C:20,1260					2.22					
SOLVITA30	3.00				14-VH-1234S-A:8,1874-C:20,1550					2.83					
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)		0.78		--	
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)					3.72		W/(m ² K)			
					Second-order coefficient (a_2)					0.009		W/(m ² K ²)			
					Incidence angle modifier IAM (50°)					0.92		--			
					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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