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						1:			24.42.0		Page 1/2		
Annual An Calan Manual Contilling							Number		24.12.002				
Annex to Solar Keymark Cert	Date issu		2025-01-28										
						Issued b	•	EUROV	ENT CE	RTITA			
Licence holder		R BROTH	HER			Country	FRANCE						
Brand (optional)	SUN AE					Web E-mail	https://www.solarbrother.com						
Street, Number		429 chemin des plaines						1					
Postcode, City 83660 Camoules							Tel 33 142361507						
Collector Type						Flat plate o	collector (air	-heating)					
		G	mm Gross	mm 750	mm Gross								
Collector name	, s	Gross area (A _G)				Power output per collector G = 1000 W/m2							
		Gross area (/				Tm - Ta [K] =			6.2 7.8 10.9				
		m ²					m [kg/h] =		229.5	166.8	96.5		
SunAero		1.77				Power output [W] =			967	892	737		
Junacio		1.77	2,300	730	- ' '	1000	T Output [v	v j -	307	632	737		
						+							
					 	+							
		1											
		1				+							
						+							
		1				+							
		1				+		1					
		1											
		1											
						+							
		1				+							
Power output per m ² gross area		ı		ļ.					546	504	416		
Performance parameters test meth		Clared	ir boating	colloctor	- stoody /	state - indoo		<u> </u>	3.0	301	110		
· · · · · · · · · · · · · · · · · · ·		Glazeu a	ir neating	Lonector	- steady s	T Indoo)I	1	1				
Mass flow rate depending performance		η(229,	5 kg/h)	η(166.8 kg/h)		η(96.	5 kg/h)						
	parameters related to gross area					 							
	Inits		- 4.0	0		-	 41 <i>C</i>						
Test results	<u> </u>		546 0.504				416						
Incidence angle modifier test meth	od		Glazed a	ir heating	collector	- steady sta	te - outdoor						
Incidence angle modifier		Angle	10°	20°	30°	40°	50°	60°	70°	80°	90°		
Transversal		$K_{\theta T, coll}$			0.99		0.96				0.00		
Longitudinal		$K_{\theta L, coll}$			0.99		0.96				0.00		
Heat transfer medium for testing							Air						
Flow rate for testing (per gross are	a, A _G)						dm/dt		kg/(sm²)				
Maximum temperature difference during thermal performance test							$(\vartheta_{m}-\vartheta_{a})_{ma}$	x	10.7 K				
Standard stagnation temperature (G = 100	0 W/m²; i	_a = 30 °C)			ϑ_{stg}		172.8 °C				
Maximum operating temperature							$\vartheta_{max\ op}$		80 °C				
Maximum operating pressure							p _{max,op} kPa						
Testing laboratory	Fundac	undación CENER, LEST					www.cener.com						
Test report(s)		30.4432.0-001 30.4432.0-002					Dated			26-11-2024			
	30.4432												
	<u> </u>												
Comments of testing laboratory								Ver. 6	5.2 (13.01.20	022)			
1 The tests have been carried out ac	cording	to EN ISC	9806:20	17					·				
2 For open to ambient solar air heat					possible to	o determine	74						
the instantaneous efficiency at certa									CFI				
results and energy labeling informat									CFI	NFR			

results and energy labeling information (see p.2) is not applicable.







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Annex to Solar Keymark Certific		e Nun	nber	24.12.002									
Supplementary Information	Issued					2025-01-28							
Annual collector output in kWh/co	llector	at mea	n fluid	tempe	rature i	∂ _m							
Standard Locations Athens					Davos		Stockho			olm Würzbı			
Collector name ϑ ,	25°C	50°C	75°C	25°C	50°C	75°C	25°C	50°C	75°C	25°C	50°C	75°C	
SunAero						see co	mments	p.1					
													
	-			 									
Annual output per m² gross area	#VALUE!												
Annual efficiency, η _a	#VALUE!												
Fixed or tracking collector				Fixed (s	lone = l	atitude :	- 15°: ro	unded t	o nearest	5°)	l l		
Annual irradiation on collector plane	170	65 kWh/	m²		30 kWh/			166 kWł			4 kWh/m	1 ²	
Mean annual ambient air temperature	· ·				3.2°C	7.5°C			·				
Collector orientation or tracking mode				S	outh, 30)°				45° South			
The collector is operated at constant temperature ϑ m (mean of in- and outlet temperatures). The calculation of the annual collector										r			
performance is performed with the off	icial Sola	r Keyma	rk sprea	adsheet	tool Sce	nocalc \	/er. 6.1	(Septer	ber 2019)). A detaile	d descrip	tion of	
the calculations is available at http://w	ww.estif	org/sol	arkeym	arknew/									
		-	Additio	onal In	forma	tion							
Collector heat transfer medium					Air								
The collector is deemed to be suitable for roof integration										No			
The collector was tested successfully u	nder the	tollowir	ng condi	itions:									
Climate class (A+, A, B or C) G (W/m²) > 1000	l	20				MJ/m ²) >		600					
Maximum tested positive load	20 111					2000		Pa					
Maximum tested negative load						2000		Pa					
Hail resistance using ice balls (diamete						25 r			m				
		or att											
Using external power source(s) f			tion			•		re(s) for	self-prote	ection			
Co-generating thermal and elect	•			✓ F	açade c	ollector	(s)						
Energy Labelling Information					Α	dditio	nal Inf	ormati	ive Technical Data				
	Reference Area, A _{sol} (m ²)			Hydraulic Designation Code					Aperature Area, A _a (m²)				
SunAero		1.77								1.36			
Data required for CDR (EU) No 811/20	13 - Refe	rence A	rea A _{sol}	Data re	auired 1	or CDR	(EU) No	812/20	13 - Refer	ence Area	Acal		
Collector efficiency (η _{col})		comment			ss efficie					ments p.1			
Remark: Collector efficiency (ncol) is defined in CDR (EU) No				First-order coefficient (a ₁)					see com	ments p.1	W/(r	n²K)	
811/2013 as collector efficiency of the solar collector at a				Second-order coefficient (a ₂)					see com	ments p.1	W/(n	n²K²)	
temperature difference between the solar collector and the				Incidence angle modifier IAM (50°) see commer							-		
surrounding air of 40 K and a global solar irradiance of 1000 W/m²,					Remark: The data given in this section are related to collector reference area (A_{sol})								
expressed in % and rounded to the nearest integer. Deviating from					which is aperture area for values according to EN 12975-2 or gross area for ISO								
the regulation ncol is based on reference area (Asol) which is aperture area for values according to EN 12975-2 or gross area for ISO					e 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.								
9806:2017.	,	50				- 9				19			