


Annex to Solar Keymark Certificate					Licence Number		7723 Rev.0							
					Date issued		2024-11-25							
					Issued by		Kiwa Cermet Italia S.p.A.							
Licence holder		Soblue AG			Country		Switzerland							
Brand (optional)					Web		https://www.soblue.com/							
Street, Number		Dufourstrasse 31			E-mail		info@soblue.com							
Postcode, City		CH-8008 Zürich			Tel		+49 (0)177 349 04 27							
Collector Type					WISC (Wind and/or infrared sensitive collector)									
Collector name					Power output per collector									
					G _b = 850 W/m ² , G _d = 150 W/m ² & u = 1.3 m/s ϑ _m - ϑ _a									
					0 K	10 K	30 K	50 K	70 K	46 K				
					m ²	mm	mm	mm	mm	mm				
Multi NRG collector					2.24	2 124	1 053	64	1 192	716	0	--	--	0
Power output per m ² gross area					532	319	0	--	--	0				
Performance parameters test method		Quasi dynamic												
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		0.509	26.95	0.000	3.351	0.68	47 120	0.055	0.00	0.0E+00	0.97			
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	1.00	1.00	1.00	1.00	1.00	0.93	0.00			
Longitudinal		K _{θL, coll}	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.93	0.00			
Heat transfer medium for testing					Water									
Flow rate for testing (per gross area, A _G)					dm/dt	0.020	kg/(sm ²)							
Maximum temperature difference during thermal performance test					(ϑ _m -ϑ _a) _{max}	16	K							
Standard stagnation temperature (G = 1000 W/m ² ; ϑ _a = 30 °C)					ϑ _{stg}	80	°C							
Maximum operating temperature					ϑ _{max, op}	85	°C							
Maximum operating pressure					p _{max, op}	4.5	kPa							
Testing laboratory		Institut für Gebäudeenergetik, Thermotechnik und Energiespeicherung (IGTE)					http://www.igte.uni-stuttgart.de							
Test report(s)		23COL1727 23COL1727Q					Dated		25.11.2024 25.11.2024					
Comments of testing laboratory					Ver. 6.2 (13.01.2022)									
					 TzS Forschungs- und Testzentrum für Solaranlagen Institut für Thermodynamik und Wärmetechnik Universität Stuttgart Pfaffenwaldring 6, 70550 Stuttgart (Vaihingen)									
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Supplementary Information							Issued		2024-11-25					
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	
Multi NRG collector		1 369			290			383			476			
Gross Thermal Yield per m ² gross area		611	--	--	130	--	--	171	--	--	212	--	--	
Annual efficiency, η_a		35%	--	--	8%	--	--	15%	--	--	17%	--	--	
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							
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							4000			Pa				
Maximum tested negative load							3000			Pa				
Hail resistance using steel ball (maximum drop height)							1.4			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				Yes		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)							
Multi NRG collector		2.24		X-H-13R-X-X			2.24							
Data required for CDR (EU) No 811/2013 - Reference Area						Data required for CDR (EU) No 812/2013 - Reference Area A_{sol}								
Collector efficiency (η_{col})		-32%		Zero-loss efficiency (η_0)			0.53		--					
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)			21.25		W/(m ² K)							
		Second-order coefficient (a ₂)			0.000		W/(m ² K ²)							
		Incidence angle modifier IAM (50°)			0.99		--							
		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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