

Annex to Solar Keymark Certificate					Licence Number		011-7S2075 F																	
					Date issued		2023-08-08																	
					Issued by		DINCERTCO																	
Licence holder		Bosch Thermotechniek BV			Country		Netherland																	
Brand (optional)		Nefit			Web		www.nefit.nl																	
Street, Number		Zweedsestraat 1			E-mail		JdeBrie@nefit.nl																	
Postcode, City		7400 AA Deventer			Tel		+31 (0)570 60 2860																	
Collector Type					Flat plate collector																			
Collector name					Gross area (A_G)		Gross length		Gross width		Gross height		Power output per collector											
					m ²		mm		mm		mm		$G_b = 850 \text{ W/m}^2$, $G_d = 150 \text{ W/m}^2$ & $u = 1.3 \text{ m/s}$ $\vartheta_m - \vartheta_a$											
SCM3-h					2.55		1 175		2 170		87		0 K		10 K		30 K		50 K		70 K		115 K	
													W		W		W		W		W		W	
					2.55		1 175		2 170		87		1 934		1 830		1 600		1 342		1 056		310	
													0		0		0		0		0		0	

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Supplementary Information		Issued		2023-08-08											
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		
SCM3-h		3 140	2 174	1 354	2 340	1 555	916	1 733	1 089	620	1 896	1 183	663		
Gross Thermal Yield per m² gross area		1 231	853	531	918	610	359	680	427	243	743	464	260		
Annual efficiency, η_a		70%	48%	30%	56%	37%	22%	58%	37%	21%	60%	37%	21%		
Fixed or tracking collector		Fixed (slope = latitude - 15°; rounded to nearest 5°)													
Annual irradiation on collector plane		1765 kWh/m²			1630 kWh/m²			1166 kWh/m²			1244 kWh/m²				
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											Yes				
The collector was tested successfully under the following conditions:															
Climate class (A+, A, B or C)											A		--		
G (W/m²) >		1000		ϑ_a (°C) >		20		H_x (MJ/m²) >		600					
Maximum tested positive load											4000		Pa		
Maximum tested negative load											3000		Pa		
Hail resistance using ice balls (diameter)											35		mm		
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} (m²)		Hydraulic Designation Code			Aperture Area, A_a (m²)			
SCM3-h							2.55		2-V-1234S-A:7.1.13219-C:16.8.2125			2.43			
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})							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.							Zero-loss efficiency (η_0)		0.76		--				
							First-order coefficient (a_1)		3.96		W/(m²K)				
							Second-order coefficient (a_2)		0.014		W/(m²K²)				
							Incidence angle modifier IAM (50°)		0.95		--				
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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