


Annex to Solar Keymark Certificate					Licence Number		011-7S2455F																	
					Date issued		2025-02-19																	
					Issued by		DINCERTCO																	
Licence holder		HELIONAL			Country		Greece																	
Brand (optional)		--			Web		http://www.helional.com																	
Street, Number		P.O. Box 89-57013			E-mail		info@helional.com																	
Postcode, City		Thessaloniki			Tel		+30 2310783691																	
Collector Type					Flat plate collector																			
Collector name					Gross area (A_G)		Gross length		Gross width		Gross height		Power output per collector $G_b = 850 \text{ W/m}^2$, $G_d = 150 \text{ W/m}^2$ & $u = 1.3 \text{ m/s}$ $\vartheta_m - \vartheta_a$											
					m ²		mm		mm		mm		0 K		10 K		30 K		50 K		70 K		85 K	
MS 1.5					1.45		1,480		977		85		949		886		742		575		385		227	
MS 2.0					1.94		1,980		980		85		1,270		1,185		993		769		515		304	
MS 2.4					2.34		1,980		1,180		85		1,532		1,430		1,198		928		621		366	
Power output per m ² gross area					655		611		512		397		265		156									
Performance parameters test method					Steady state - indoor																			
Performance parameters (related to A_G)					$\eta_{0, b}$		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					0.679		4.16		0.020		0.000		0.00		4,768		0.000		0.00		0.0E+00		0.76	
Incidence angle modifier test method					Steady state - outdoor																			
Incidence angle modifier					Angle		10°		20°		30°		40°		50°		60°		70°		80°		90°	
Transversal					$K_{\theta T, coll}$		0.99		0.98		0.95		0.90		0.82		0.67		0.37		0.00		0.00	
Longitudinal					$K_{\theta L, coll}$		0.99		0.98		0.95		0.90		0.82		0.67		0.37		0.00		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					$(\vartheta_m - \vartheta_a)_{max}$		55		K															
Standard stagnation temperature ($G = 1000 \text{ W/m}^2$; $\vartheta_a = 30 \text{ °C}$)					ϑ_{stg}		192.7		°C															
Maximum operating temperature					$\vartheta_{max, op}$		200		°C															
Maximum operating pressure					$p_{max, op}$		600		kPa															
Testing laboratory					Fundación CENER, LEST							http://www.cener.com												
Test report(s)					30.4467.0-001 30.4467.0-002 30.4467.0							Dated		19/02/2025 20/02/2025										
Comments of testing laboratory					Ver. 6.2 (13.01.2022)																			
- The collectors models MS 1.5 and MS 2.4 were tested according to ISO 9806:2017 According to SKM rules, the results of the collector model MS 1.5 are representative for the whole MS family.																								
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