


Annex to Solar Keymark Certificate					Licence Number		011-7S2454F							
					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					Power output per collector									
					$G_b = 850 \text{ W/m}^2$, $G_d = 150 \text{ W/m}^2$ & $u = 1.3 \text{ m/s}$ $\vartheta_m - \vartheta_a$									
					0 K	10 K	30 K	50 K	70 K	85 K				
					W	W	W	W	W	W				
FPS+ 1.5					1.45	1,480	980	115	938	887	773	643	496	376
FPS+ 2.0					1.94	1,980	980	115	1,255	1,187	1,034	860	664	503
FPS+ 2.4					2.34	1,980	1,180	115	1,514	1,431	1,247	1,037	801	607
Power output per m ² gross area					647	612	533	443	342	259				
Performance parameters test method		Steady state - indoor												
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		0.672	3.37	0.014	0.000	0.00	7,525	0.000	0.00	0.0E+00	0.75			
Incidence angle modifier test method		Steady state - outdoor												
Incidence angle modifier		Angle	10°	20°	30°	40°	50°	60°	70°	80°	90°			
Transversal		K _{GT, coll}	0.99	0.98	0.95	0.89	0.81	0.65	0.34	0.00	0.00			
Longitudinal		K _{GL, coll}	0.99	0.98	0.95	0.89	0.81	0.65	0.34	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 W/m ² ; $\vartheta_a = 30 \text{ °C}$)					ϑ_{stg}	209.8	°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)		30.4467.0-003 30.4467.0-004 30.4467.1					Dated		19/02/2025 20/02/2025					
Comments of testing laboratory					Ver. 6.2 (13.01.2022)									
- The collectors models FPS+ 1.5 and FPS+ 2.4 were tested according to ISO 9806:2017 According to SKM rules, the results of the collector model FPS+ 1.5 are representative for the whole FPS+ family.														
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