


Annex to Solar Keymark Certificate					Licence Number		011-7S3024 R				
					Date issued		2021-07-13				
					Issued by		DIN CERTCO				
Licence holder		Thermics Energie S.r.l.			Country		Italy				
Brand (optional)					Web		www.thermics-energie.it				
Street, Number		via C. Pascoletti 2			E-mail		info@thermics-energie.it				
Postcode, City		33040 Povoletto (DU)			Tel		+39 (0)432 823600				
Collector Type					Evacuated tubular collector						
Collector name					Power output per collector						
					$G_b = 850 \text{ W/m}^2, G_d = 150 \text{ W/m}^2 \text{ \& } u = 1.3 \text{ m/s}$ $\vartheta_m - \vartheta_a$						
					0 K	10 K	30 K	50 K	70 K	108 K	
					m ²	mm	mm	mm	W	W	W
10 DTH V2					2.38	2040	1166	122	1525	1502	1449
Power output per m² gross area					641	631	609	584	555	492	
Performance parameters test method		Quasi dynamic									
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		0.637	0.94	0.004	0.000	0.00	28 610	0.000	0.00	0.0	1.04
Incidence angle modifier test method		Quasi dynamic - outdoor									
Incidence angle modifier		Angle	10°	20°	30°	40°	50°	60°	70°	80°	90°
Transversal		$K_{\theta T, coll}$	1.00	1.00	1.00	1.00	1.10	1.14	1.30	0.65	0.00
Longitudinal		$K_{\theta L, coll}$	1.00	1.00	0.98	0.95	0.89	0.81	0.65	0.33	0.00
Heat transfer medium for testing					Water						
Flow rate for testing (per gross area, A_G)					dm/dt		0.020		kg/(sm²)		
Maximum temperature difference during thermal performance test					$(\vartheta_m - \vartheta_a)_{max}$		78		K		
Standard stagnation temperature (G = 1000 W/m²; $\vartheta_a = 30^\circ\text{C}$)					ϑ_{stg}		310		°C		
Maximum operating temperature					$\vartheta_{max, op}$		-		°C		
Maximum operating pressure					$p_{max, op}$		1000		kPa		
Testing laboratory		Institut für Gebäudeenergetik, Thermotechnik und Energiespeicherung (IGTE)					http://www.igte.uni-stuttgart.de				
Test report(s)		16COL1355OEM01 16COL1356QOEM01					Dated		30.06.2021 30.06.2021		
Comments of testing laboratory					Datasheet version: 6.1, 2019-09-26						
<i>Documented performance parameters are taken from 16COL1355OEM01</i>					 Forschungs- und Testzentrum für Solaranlagen Institut für Thermodynamik und Wärmetechnik Universität Stuttgart Pfaffenwaldring 6, 70550 Stuttgart (Vaihingen)						
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