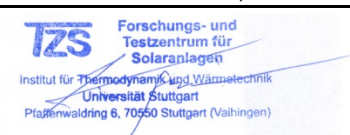


Annex to Solar Keymark Certificate - Summary of EN ISO 9806:2013 Test Results					Licence Number		011-7S2759 F					
					Date issued		2017-06-19					
					Issued by		DIN CERTCO					
Licence holder		Le Groupe Sundware			Country		Canada					
Brand (optional)					Web		www.sundware.com					
Street, Number		633 rue bisailon			E-mail		info@sundware.com					
Postcode, City		Postal : H7X4E8 Saint Dorothée-Laval(QC)			Tel		+1 8 447 863 927					
Collector Type					Flat plate collector, glazed							
					Power output per collector Gb = 850 W/m ² ; Gd = 150 W/m ² ; u = 3 m/s $\vartheta_m - \vartheta_a$							
					0 K	10 K	30 K	50 K	70 K	112 K		
Collector name		Gross area (A_G)	Gross length	Gross width	Gross height	W	W	W	W	W	W	
		m ²	mm	mm	mm	W	W	W	W	W	W	
Sundware Pro 25		2.53	2 008	1 258	85	1 734	1 643	1 450	1 243	1 022	512	
Sundware Pro 23		2.24	1 893	1 183	85	1 537	1 456	1 285	1 102	906	454	
Sundware Pro 20		2.02	2 006	1 007	85	1 386	1 314	1 159	994	817	409	
Sundware Pro 19		1.96	1 503	1 305	85	1 346	1 275	1 126	965	794	398	
Sundware Pro 17		1.68	1 420	1 183	85	1 153	1 092	964	827	680	340	
Sundware Pro 15		1.51	1 501	1 007	85	1 037	983	868	744	612	306	
Sundware Pro 29		2.93	2 007	1 458	85	2 008	1 903	1 680	1 440	1 184	593	
Sundware Pro 27		2.67	2 260	1 183	85	1 835	1 738	1 535	1 316	1 082	542	
Power output per m² gross area						686	650	574	492	405	203	
Performance parameters test method		Quasi dynamic										
Performance parameters (related to AG)		$\eta_{0,b}$	c1	c2	c3	c4	c6	Kd				
Units		-	W/(m ² K)	W/(m ² K ²)	J/(m ³ K)	-	s/m	-				
Test results		0.687	3.534	0.007	0.000	0.000	0.000	0.993				
Incidence angle modifier test method		Quasi dynamic - outdoor										
Bi-directional incidence angle modifiers		No										
Incidence angle modifier		Angle	10°	20°	30°	40°	50°	60°	70°	80°	90°	
Transversal		K _{θT, coll}	1.00	0.99	0.98	0.96	0.92	0.86	0.73	0.34	0.00	
Longitudinal		K _{θL, coll}	1.00	0.99	0.98	0.96	0.92	0.86	0.73	0.34	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 for thermal performance calculations		($\vartheta_m - \vartheta_a$) _{max}	112		K							
Standard stagnation temperature (G = 1000 W/m²; $\vartheta_a = 30$ °C)		ϑ_{stg}	199		°C							
Effective thermal capacity, incl. fluid (per gross area, A_G)		C/m ²	11.515		kJ/(Km ²)							
Maximum operating temperature		$\vartheta_{max, op}$	n.a.		°C							
Maximum operating pressure		p _{max, op}	1600		kPa							
Testing laboratory		TZS, ITW University Stuttgart					www.itw.uni-stuttgart.de					
Test report(s)		10COL933/3OEM17 10COL934/3OEM17 10COL934Q/3OEM17					Dated		19.06.2017 19.06.2017 19.06.2017			
Comments of testing laboratory		Datashet version: 5.01, 2016-03-01										
Documented performance parameters are taken from test report 10COL933/3OEM17 (Sundware Pro 15)												
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