


<b>Annex to Solar Keymark Certificate - Summary of EN ISO 9806:2013 Test Results</b>					<b>Licence Number</b>		<b>011-7S2815 F</b>								
					<b>Date issued</b>		<b>2018-01-17</b>								
					<b>Issued by</b>		<b>DIN CERTCO</b>								
<b>Licence holder</b>		<b>NOVART S.A.</b>			<b>Country</b>		Greece								
<b>Brand (optional)</b>					<b>Web</b>		www.novart.gr								
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<b>Postcode, City</b>		14564 Kifisia			<b>Tel</b>		+30 210 25 99 600								
<b>Collector Type</b>					Flat plate collector, glazed										
					<b>Power output per collector</b> G <sub>b</sub> = 850 W/m <sup>2</sup> ; G <sub>d</sub> = 150 W/m <sup>2</sup> ; u = 3 m/s ̑ <sub>m</sub> - ̑ <sub>a</sub>										
					Collector name	Gross area (A <sub>G</sub> ) m <sup>2</sup>	Gross length mm	Gross width mm	Gross height mm	0 K W	10 K W	30 K W	50 K W	70 K W	112 K W
SANTE 25					2.53	2 008	1 258	85	1 734	1 643	1 450	1 243	1 022	512	
SANTE 23					2.24	1 893	1 183	85	1 537	1 456	1 285	1 102	906	454	
SANTE 20					2.02	2 006	1 007	85	1 386	1 314	1 159	994	817	409	
SANTE 19					1.96	1 503	1 305	85	1 346	1 275	1 126	965	794	398	
SANTE 17					1.68	1 420	1 183	85	1 153	1 092	964	827	680	340	
SANTE 15					1.51	1 501	1 007	85	1 037	983	868	744	612	306	
SANTE 29					2.93	2 007	1 458	85	2 008	1 903	1 680	1 440	1 184	593	
SANTE 27					2.67	2 260	1 183	85	1 835	1 738	1 535	1 316	1 082	542	
SANTE 25H					2.52	1 257	2 006	85	1 730	1 640	1 447	1 241	1 020	511	
<b>Power output per m<sup>2</sup> gross area</b>					686	650	574	492	405	203					
<b>Performance parameters test method</b>					Quasi dynamic										
<b>Performance parameters (related to AG)</b>					̑ <sub>0,b</sub>	c1	c2	c3	c4	c6	Kd				
<b>Units</b>					-	W/(m <sup>2</sup> K)	W/(m <sup>2</sup> K <sup>2</sup> )	J/(m <sup>3</sup> K)	-	s/m	-				
<b>Test results</b>					0.687	3.534	0.007	0.000	0.000	0.000	0.993				
<b>Incidence angle modifier test method</b>					Quasi dynamic - outdoor										
<b>Bi-directional incidence angle modifiers</b>					No										
<b>Incidence angle modifier</b>					Angle	10°	20°	30°	40°	50°	60°	70°	80°	90°	
<b>Transversal</b>					K <sub>̑T, coll</sub>	1.00	0.99	0.98	0.96	0.92	0.86	0.73	0.34	0.00	
<b>Longitudinal</b>					K <sub>̑L, coll</sub>	1.00	0.99	0.98	0.96	0.92	0.86	0.73	0.34	0.00	
<b>Heat transfer medium for testing</b>					Water										
<b>Flow rate for testing (per gross area, A<sub>G</sub>)</b>					dm/dt		0.020	kg/(sm <sup>2</sup> )							
<b>Maximum temperature difference for thermal performance calculations</b>					(̑ <sub>m</sub> -̑ <sub>a</sub> ) <sub>max</sub>		112	K							
<b>Standard stagnation temperature (G = 1000 W/m<sup>2</sup>; ̑<sub>a</sub> = 30 °C)</b>					̑ <sub>stg</sub>		199	°C							
<b>Effective thermal capacity, incl. fluid (per gross area, A<sub>G</sub>)</b>					C/m <sup>2</sup>		11.515	kJ/(Km <sup>2</sup> )							
<b>Maximum operating temperature</b>					̑ <sub>max, op</sub>		n.a.	°C							
<b>Maximum operating pressure</b>					p <sub>max, op</sub>		1600	kPa							
<b>Testing laboratory</b>					TZS, ITW University Stuttgart					www.itw.uni-stuttgart.de					
<b>Test report(s)</b>					10COL933/3OEM19 10COL934/3OEM19 10COL934Q/3OEM19					<b>Dated</b>		17.01.2018 17.01.2018 17.01.2018			
<b>Comments of testing laboratory</b>					Datashet version: 5.01, 2016-03-01										
<b>Documented performance parameters are taken from test report 10COL933/3OEM19 (SANTE 15)</b>					 <b>Forschungs- und Testzentrum für Solaranlagen</b> Institut für Thermodynamik und Wärmetechnik Universität Stuttgart Pfaffenwaldring 8, 70560 Stuttgart (Vaihingen)										
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