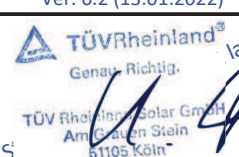


Annex to Solar Keymark Certificate					Licence Number		011-7S3247 F							
					Date issued		2024-05-08							
					Issued by		TÜV Rheinland DINCERTCO							
Licence holder		Santer Solarprofi GmbH			Country		Austria							
Brand (optional)		SSP Products			Web		www.ssp-products.at							
Street, Number		Industriestr. 33			E-mail		info@ssp-products.at							
Postcode, City		A-6430 Ötztal Bahnhof			Tel		+43 (0) 5266 88004							
Collector Type					Flat plate collector									
Collector name					Power output per collector									
					Gb = 850 W/m <sup>2</sup> , Gd = 150 W/m <sup>2</sup> & u = 1.3 m/s $\vartheta_m - \vartheta_a$									
					0 K	10 K	30 K	50 K	70 K	100 K				
					m <sup>2</sup>	mm	mm	mm	mm	mm	mm			
SSP Prosol 26					2.65	2 356	1 120	85	2 121	2 021	1 798	1 546	1 264	785
Power output per m <sup>2</sup> gross area					800	763	679	583	477	296				
Performance parameters test method		Steady state - indoor												
Performance parameters (related to A <sub>G</sub> )		$\eta_{0, b}$	a1	a2	a3	a4	a5	a6	a7	a8	Kd			
Units		-	W/(m <sup>2</sup> K)	W/(m <sup>2</sup> K <sup>2</sup> )	J/(m <sup>3</sup> K)	-	J/(m <sup>2</sup> K)	s/m	W/(m <sup>2</sup> K <sup>4</sup> )	W/(m <sup>2</sup> K <sup>4</sup> )	-			
Test results		0.822	3.64	0.014	0.000	0.00	6 650	0.000	0.00	0.0E+00	0.83			
Incidence angle modifier test method			Quasi dynamic - outdoor											
Incidence angle modifier		Angle	10°	20°	30°	40°	50°	60°	70°	80°	90°			
Transversal		K <sub>GT, coll</sub>	1.00	0.99	0.96	0.93	0.87	0.77	0.56	0.28	0.00			
Longitudinal		K <sub>GL, coll</sub>	1.00	0.99	0.96	0.93	0.87	0.77	0.56	0.28	0.00			
Heat transfer medium for testing					Water									
Flow rate for testing (per gross area, A <sub>G</sub> )					dm/dt	0.020	kg/(sm <sup>2</sup> )							
Maximum temperature difference during thermal performance test					( $\vartheta_m - \vartheta_a$ ) <sub>max</sub>	70	K							
Standard stagnation temperature (G = 1000 W/m <sup>2</sup> ; $\vartheta_a = 30$ °C)					$\vartheta_{stg}$	200	°C							
Maximum operating temperature					$\vartheta_{max, op}$	n.n.	°C							
Maximum operating pressure					p <sub>max, op</sub>	600	kPa							
Testing laboratory		TÜV Rheinland Energy GmbH			www.tuv.com/solar									
Test report(s)		21228324.001rev1 DE24F384 001 (Doc Check)			Dated		11.05.2016 03.05.2024							
Comments of testing laboratory					Ver. 6.2 (13.01.2022)									
Scenocalc calculation tool "SS to QDR calc" was used for calculation of eta0,b and Kd!					 Genau. Richtig. lab TÜV Rheinland Energy GmbH Am Grauen Stein 51105 Köln									
DIN CERTCO • Alboinstraße 56 • 12103 Berlin, Germany Tel: +49 30 7562-1131 • Fax: +49 30 7562-1141 • E-Mail: info@dincertco.de • www.dincertco.de														

<b>Annex to Solar Keymark Certificate</b>						<b>Licence Number</b>		<b>011-7S3247 F</b>						
<b>Supplementary Information</b>						<b>Issued</b>		<b>2024-05-08</b>						
<b>Gross Thermal Yield in kWh/collector at mean fluid temperature <math>\vartheta_m</math></b>														
<b>Standard Locations</b>		<b>Athens</b>			<b>Davos</b>			<b>Stockholm</b>			<b>Würzburg</b>			
<b>Collector name</b>	$\vartheta_m$	<b>25°C</b>	<b>50°C</b>	<b>75°C</b>	<b>25°C</b>	<b>50°C</b>	<b>75°C</b>	<b>25°C</b>	<b>50°C</b>	<b>75°C</b>	<b>25°C</b>	<b>50°C</b>	<b>75°C</b>	
SSP Prosol 26		3 201	2 270	1 473	2 439	1 682	1 056	1 789	1 171	711	1 937	1 253	748	
<b>Gross Thermal Yield per m<sup>2</sup> gross area</b>		1 208	857	556	920	635	398	675	442	268	731	473	282	
<b>Annual efficiency, <math>\eta_a</math></b>		68%	49%	31%	56%	39%	24%	58%	38%	23%	59%	38%	23%	
<b>Fixed or tracking collector</b>		Fixed (slope = latitude - 15°; rounded to nearest 5°)												
<b>Annual irradiation on collector plane</b>		1765 kWh/m <sup>2</sup>			1630 kWh/m <sup>2</sup>			1166 kWh/m <sup>2</sup>			1244 kWh/m <sup>2</sup>			
<b>Mean annual ambient air temperature</b>		18.5°C			3.2°C			7.5°C			9.0°C			
<b>Collector orientation or tracking mode</b>		South, 25°			South, 30°			South, 45°			South, 35°			
The collector is operated at constant temperature $\vartheta_m$ (mean of in- and outlet temperatures). The calculation of the annual collector performance is performed with the official Solar Keymark spreadsheet tool Scenocalc Ver. 6.2 (13.01.2022). A detailed description of the calculations is available at <a href="http://www.estif.org/solarkeymarknew/">http://www.estif.org/solarkeymarknew/</a>														
<b>Additional Information</b>														
<b>Collector heat transfer medium</b>								Water-Glycole						
<b>The collector is deemed to be suitable for roof integration</b>								No						
The collector was tested successfully under the following conditions:														
<b>Climate class (A+, A, B or C)</b>								A		--				
<b>G (W/m<sup>2</sup>) &gt;</b>		1000		<b><math>\vartheta_a</math> (°C) &gt;</b>		20		<b>H<sub>x</sub> (MJ/m<sup>2</sup>) &gt;</b>		600				
<b>Maximum tested positive load</b>								3000		Pa				
<b>Maximum tested negative load</b>								3000		Pa				
<b>Hail resistance using ice balls (diameter)</b>								35		mm				
<b>Additional collector attribute(s)</b>														
<b>Using external power source(s) for normal operation</b>						No		<b>Active or passive measure(s) for self-protection</b>				No		
<b>Co-generating thermal and electrical power</b>						No		<b>Façade collector(s)</b>				No		
<b>Energy Labelling Information</b>						<b>Additional Informative Technical Data</b>								
Reference Area, A <sub>sol</sub> (m <sup>2</sup> )						Hydraulic Designation Code			Aperture Area, A <sub>a</sub> (m <sup>2</sup> )					
SSP Prosol 26						2.65			1-H-12345-A:9.0,22500-C:20.0,1180			2.45		
<b>Data required for CDR (EU) No 811/2013 - Reference Area A<sub>sol</sub></b>						<b>Data required for CDR (EU) No 812/2013 - Reference Area A<sub>sol</sub></b>								
<b>Collector efficiency (<math>\eta_{col}</math>)</b>						63%								
Remark: Collector efficiency ( $\eta_{col}$ ) is defined in CDR (EU) No 811/2013 as collector efficiency of the solar collector at a temperature difference between the solar collector and the surrounding air of 40 K and a global solar irradiance of 1000 W/m <sup>2</sup> , expressed in % and rounded to the nearest integer. Deviating from the regulation $\eta_{col}$ is based on reference area (A <sub>sol</sub> ) which is aperture area for values according to EN 12975-2 or gross area for ISO 9806:2017.						<b>Zero-loss efficiency (<math>\eta_0</math>)</b>			0.80			--		
						<b>First-order coefficient (a<sub>1</sub>)</b>			3.64			W/(m <sup>2</sup> K)		
						<b>Second-order coefficient (a<sub>2</sub>)</b>			0.014			W/(m <sup>2</sup> K <sup>2</sup> )		
						<b>Incidence angle modifier IAM (50°)</b>			0.86			--		
Remark: The data given in this section are related to collector reference area (A <sub>sol</sub> ) which is aperture area for values according to EN 12975-2 or gross area for ISO 9806. Consistent data sets for either aperture or gross area can be used in calculations like in the regulation 811 and 812 and simulation programs.														
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