


Annex to Solar Keymark Certificate - Summary of EN ISO 9806:2013 Test Results					Licence Number		011-7S1689 F							
					Date issued		2019-07-22							
					Issued by		DIN CERTCO							
Licence holder	SST Solar GmbH				Country	Austria								
Brand (optional)	-				Web	www.sst-solar.com								
Street, Number	Galinastraße 14				E-mail	office@sst-solar.com								
Postcode, City	6820 Nenzing				Tel	+43 5525 20 580								
Collector Type					Flat plate collector, glazed									
Collector name	Gross area (A _G) m ²	Gross length mm	Gross width mm	Gross height mm	Power output per collector G _b = 850 W/m ² ; G _d = 150 W/m ² θ _m - θ _a									
					0 K	10 K	30 K	50 K	70 K	100 K				
					W	W	W	W	W	W				
SST ECO A 2125	2.53	2 015	1 252	128	1 791	1 706	1 519	1 306	1 070	670				
SST ECO A 2150	3.03	2 015	1 502	128	2 145	2 044	1 819	1 565	1 282	802				
SST ECO A 2200	4.04	2 015	2 002	128	2 860	2 725	2 425	2 086	1 709	1 070				
SST ECO A 2250	5.05	2 015	2 502	128	3 575	3 406	3 031	2 608	2 136	1 337				
SST ECO A 2300	6.05	2 015	3 002	128	4 283	4 081	3 631	3 124	2 559	1 602				
SST ECO A 3125	3.77	3 005	1 252	128	2 669	2 543	2 263	1 947	1 595	998				
SST ECO A 3150	4.52	3 005	1 502	128	3 200	3 049	2 713	2 334	1 912	1 197				
SST ECO A 3200	6.02	3 005	2 002	128	4 262	4 060	3 613	3 109	2 546	1 594				
SST ECO A 3250	7.53	3 005	2 502	128	5 331	5 079	4 520	3 888	3 185	1 994				
SST ECO A 3300	9.03	3 005	3 002	128	6 393	6 091	5 420	4 663	3 819	2 391				
SST ECO A 4125	5.01	3 995	1 252	128	3 547	3 379	3 007	2 587	2 119	1 327				
SST ECO A 4150	6.01	3 995	1 502	128	4 255	4 054	3 607	3 104	2 542	1 591				
SST ECO A 4200	8.01	3 995	2 002	128	5 671	5 403	4 808	4 136	3 388	2 121				
SST ECO A 4250	10.00	3 995	2 502	128	7 080	6 745	6 002	5 164	4 230	2 648				
SST ECO A 4300	12.00	3 995	3 002	128	8 496	8 094	7 203	6 197	5 076	3 178				
SST ECO A 5125	6.25	4 985	1 252	128	4 425	4 216	3 752	3 228	2 644	1 655				
SST ECO A 5150	7.50	4 985	1 502	128	5 310	5 059	4 502	3 873	3 172	1 986				
SST ECO A 5200	9.99	4 985	2 002	128	7 073	6 738	5 996	5 159	4 225	2 645				
SST ECO A 5250	12.48	4 985	2 502	128	8 836	8 418	7 491	6 445	5 279	3 305				
SST ECO A 5300	15.00	4 985	3 002	128	10 620	10 117	9 004	7 746	6 344	3 972				
SST ECO A 6125	7.49	5 975	1 252	128	5 303	5 052	4 496	3 868	3 168	1 983				
SST ECO A 6150	8.99	5 975	1 502	128	6 365	6 064	5 396	4 642	3 802	2 381				
SST ECO A 6200	11.97	5 975	2 002	128	8 475	8 074	7 185	6 181	5 063	3 170				
SST ECO A 6250	14.96	5 975	2 502	128	10 592	10 090	8 980	7 725	6 327	3 961				
SST ECO A 6300	17.95	5 975	3 002	128	12 709	12 107	10 774	9 269	7 592	4 753				
SST ECO A 7125	8.73	6 965	1 252	128	6 181	5 888	5 240	4 508	3 692	2 312				
SST ECO A 7150	10.48	6 965	1 502	128	7 420	7 069	6 291	5 412	4 433	2 775				
SST ECO A 7200	13.96	6 965	2 002	128	9 884	9 416	8 379	7 209	5 905	3 697				
SST ECO A 7250	17.44	6 965	2 502	128	12 348	11 763	10 468	9 006	7 376	4 618				
SST ECO A 7300	20.92	6 965	3 002	128	14 811	14 110	12 557	10 803	8 848	5 540				
SST ECO A 8125	9.98	7 955	1 252	128	7 066	6 731	5 990	5 154	4 221	2 643				
SST ECO A 8150	11.97	7 955	1 502	128	8 475	8 074	7 185	6 181	5 063	3 170				
SST ECO A 8200	15.94	7 955	2 002	128	11 286	10 751	9 568	8 231	6 742	4 221				
SST ECO A 8250	19.92	7 955	2 502	128	14 103	13 436	11 957	10 287	8 425	5 275				
SST ECO A 8300	23.90	7 955	3 002	128	16 921	16 120	14 346	12 342	10 109	6 329				
SST ECO A Sondergröße*														
Power output per m ² gross area					708	674	600	516	423	265				
Performance parameters test method					Steady state - indoor									
Performance parameters (related to AG)					η _{0,hem}	a ₁	a ₂							
Units					-	W/(m ² K)	W/(m ² K ²)							
Test results					0.708	3.232	0.012							
Incidence angle modifier test method					Steady state - outdoor									
Bi-directional incidence angle modifiers					No									
Incidence angle modifier					Angle	10°	20°	30°	40°	50°	60°	70°	80°	90°
Transversal					K _{GT, coll}					0.98				0.00
Longitudinal					K _{GL, coll}					0.98				0.00
Heat transfer medium for testing					Water									

Flow rate for testing (per gross area, A_G)	dm/dt	0.018	kg/(sm ²)
Maximum temperature difference for thermal performance calculations	$(\vartheta_m - \vartheta_a)_{\max}$	100	K
Standard stagnation temperature ($G = 1000 \text{ W/m}^2$; $\vartheta_a = 30 \text{ }^\circ\text{C}$)	ϑ_{stg}	189	$^\circ\text{C}$
Effective thermal capacity, incl. fluid (per gross area, A_G)	C/m^2	5.898	kJ/(Km ²)
Maximum operating temperature	$\vartheta_{\text{max,op}}$	-	$^\circ\text{C}$
Maximum operating pressure	$p_{\text{max,op}}$	1000	kPa
Testing laboratory	TZS, ITW University Stuttgart		www.itw.uni-stuttgart.de
Test report(s)	18COLP20400780102 18COLP20400780102Q		Dated 25.04.2018 25.04.2018
Comments of testing laboratory			Datasheet version: 5.01, 2016-03-01
<p>This data sheet replaces the data sheet issued 08.08.2018</p> <p>The gross area of SST ECO A 8250 was changed from 9.92 to 19.92</p> <p>Documented performance parameters are taken from 18COLP20400780102 (SST ECO A 2200).</p> <p>* This collector type is being offered in customer-specific dimensions.</p>			
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Annex to Solar Keymark Certificate Supplementary Information	Licence Number	011-7S1689 F
	Issued	2019-07-22

Annual collector output in kWh/collector at mean fluid temperature ϑ_m , based on ISO 9806:2013 test results													
Collector name	Standard Locations ϑ_m	Athens			Davos			Stockholm			Würzburg		
		25°C	50°C	75°C	25°C	50°C	75°C	25°C	50°C	75°C	25°C	50°C	75°C
SST ECO A 2125		2 973	2 160	1 440	2 269	1 589	1 011	1 678	1 112	680	1 826	1 208	726
SST ECO A 2150		3 561	2 587	1 724	2 717	1 903	1 211	2 010	1 331	814	2 187	1 447	870
SST ECO A 2200		4 747	3 449	2 299	3 622	2 537	1 614	2 680	1 775	1 086	2 916	1 929	1 159
SST ECO A 2250		5 934	4 311	2 874	4 528	3 171	2 018	3 349	2 219	1 357	3 645	2 411	1 449
SST ECO A 2300		7 109	5 164	3 443	5 425	3 799	2 417	4 013	2 658	1 626	4 366	2 889	1 736
SST ECO A 3125		4 430	3 218	2 145	3 380	2 367	1 506	2 500	1 657	1 013	2 721	1 800	1 082
SST ECO A 3150		5 311	3 858	2 572	4 053	2 838	1 806	2 998	1 986	1 215	3 262	2 158	1 297
SST ECO A 3200		7 074	5 139	3 426	5 398	3 780	2 405	3 993	2 645	1 618	4 345	2 875	1 728
SST ECO A 3250		8 848	6 428	4 285	6 752	4 728	3 009	4 994	3 309	2 023	5 434	3 596	2 161
SST ECO A 3300		10 611	7 708	5 139	8 097	5 670	3 608	5 989	3 968	2 427	6 517	4 312	2 591
SST ECO A 4125		5 887	4 277	2 851	4 492	3 146	2 002	3 323	2 201	1 346	3 616	2 392	1 438
SST ECO A 4150		7 062	5 130	3 420	5 389	3 774	2 401	3 986	2 641	1 615	4 337	2 870	1 725
SST ECO A 4200		9 412	6 838	4 558	7 182	5 030	3 201	5 313	3 520	2 152	5 781	3 825	2 299
SST ECO A 4250		11 751	8 536	5 691	8 966	6 279	3 996	6 632	4 394	2 687	7 217	4 775	2 870
SST ECO A 4300		14 101	10 244	6 829	10 760	7 535	4 795	7 959	5 273	3 225	8 660	5 730	3 444
SST ECO A 5125		7 344	5 335	3 557	5 604	3 925	2 497	4 145	2 746	1 679	4 511	2 984	1 794
SST ECO A 5150		8 813	6 402	4 268	6 725	4 710	2 997	4 974	3 295	2 015	5 413	3 581	2 152
SST ECO A 5200		11 739	8 528	5 685	8 957	6 273	3 992	6 626	4 390	2 684	7 210	4 770	2 867
SST ECO A 5250		14 665	10 653	7 102	11 190	7 837	4 987	8 277	5 484	3 354	9 007	5 959	3 581
SST ECO A 5300		17 626	12 805	8 536	13 450	9 419	5 994	9 949	6 591	4 031	10 826	7 163	4 305
SST ECO A 6125		8 801	6 394	4 262	6 716	4 703	2 993	4 968	3 291	2 013	5 406	3 577	2 149
SST ECO A 6150		10 564	7 674	5 116	8 061	5 645	3 592	5 963	3 950	2 416	6 488	4 293	2 580
SST ECO A 6200		14 066	10 218	6 812	10 733	7 517	4 783	7 939	5 260	3 217	8 639	5 716	3 435
SST ECO A 6250		17 579	12 770	8 513	13 414	9 394	5 978	9 922	6 573	4 020	10 797	7 144	4 293
SST ECO A 6300		21 093	15 323	10 215	16 095	11 272	7 172	11 905	7 887	4 823	12 955	8 571	5 151
SST ECO A 7125		10 259	7 452	4 968	7 828	5 482	3 488	5 790	3 836	2 346	6 300	4 169	2 505
SST ECO A 7150		12 315	8 946	5 964	9 397	6 581	4 188	6 951	4 605	2 816	7 563	5 004	3 008
SST ECO A 7200		16 404	11 917	7 944	12 517	8 766	5 578	9 259	6 134	3 751	10 075	6 666	4 006
SST ECO A 7250		20 494	14 887	9 925	15 637	10 951	6 969	11 567	7 663	4 686	12 587	8 328	5 005
SST ECO A 7300		24 583	17 858	11 905	18 758	13 137	8 359	13 875	9 192	5 622	15 098	9 990	6 004
SST ECO A 8125		11 727	8 519	5 679	8 949	6 267	3 988	6 619	4 385	2 682	7 203	4 766	2 864
SST ECO A 8150		14 066	10 218	6 812	10 733	7 517	4 783	7 939	5 260	3 217	8 639	5 716	3 435
SST ECO A 8200		18 731	13 607	9 071	14 293	10 009	6 369	10 572	7 004	4 283	11 504	7 612	4 574
SST ECO A 8250		23 408	17 004	11 336	17 861	12 509	7 959	13 212	8 753	5 353	14 376	9 512	5 717
SST ECO A 8300		28 085	20 402	13 601	21 430	15 008	9 550	15 852	10 502	6 422	17 249	11 413	6 859
SST ECO A Sondergröße*		28 085	20 402	13 601	21 430	15 008	9 550	15 852	10 502	6 422	17 249	11 413	6 859
Annual output per m ² gross area		1 175	854	569	897	628	400	663	439	269	722	478	287
Fixed or tracking collector		Fixed (slope = latitude - 15°; rounded to nearest 5°)											
Annual irradiation on collector plane		1765 kWh/m ²			1714 kWh/m ²			1166 kWh/m ²			1244 kWh/m ²		
Mean annual ambient air temperature		18.5°C			3.2°C			7.5°C			9.0°C		
Collector orientation or tracking mode		South, 25°			South, 30°			South, 45°			South, 35°		
The collector is operated at constant temperature ϑ_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. 5.01 (March 2016). A detailed description													

Additional Information			
Collector heat transfer medium	Water-Glycole		
Hybrid Thermal and Photo Voltaic collector	No		
The collector is deemed to be suitable for roof integration	No		
The collector was tested successfully according to EN ISO 9806:2013 under the following conditions:			
Climate class (A, B or C)	C	--	
Maximum tested positive load	1000	Pa	
Maximum tested negative load	1000	Pa	
Hail resistance using steel ball (maximum drop height)	-	m	
Energy Labelling Information			
	Reference Area, A _{sol} (m ²)	Data required for CDR (EU) No 811/2013 - Reference Area A _{sol}	
SST ECO A 2125	2.53	Collector efficiency (η_{col})	56 %
SST ECO A 2150	3.03	Remark: Collector efficiency (η_{col}) is defined in CDR (EU) No	

SST ECO A 2200	4.04	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 ² , expressed in % and rounded to the nearest integer. Deviating from the regulation η_{col} is based on reference area (A_{sol}) which is aperture area for values according to EN 12975-2 or gross area for ISO 9806:2013.		
SST ECO A 2250	5.05			
SST ECO A 2300	6.05			
SST ECO A 3125	3.77			
SST ECO A 3150	4.52			
SST ECO A 3200	6.02			
SST ECO A 3250	7.53			
SST ECO A 3300	9.03	Zero-loss efficiency (η_0)	0.708	--
SST ECO A 4125	5.01	First-order coefficient (a_1)	3.23	W/(m ² K)
SST ECO A 4150	6.01	Second-order coefficient (a_2)	0.012	W/(m ² K ²)
SST ECO A 4200	8.01	Incidence angle modifier IAM (50°)	0.98	--
SST ECO A 4250	10.00	Remark: The data given in this section are related to collector reference area (A_{sol}) 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.		
SST ECO A 4300	12.00			
SST ECO A 5125	6.25			
SST ECO A 5150	7.50			
SST ECO A 5200	9.99			
SST ECO A 5250	12.48			
SST ECO A 5300	15.00			
SST ECO A 6125	7.49			
SST ECO A 6150	8.99			
SST ECO A 6200	11.97			
SST ECO A 6250	14.96			
SST ECO A 6300	17.95			
SST ECO A 7125	8.73			
SST ECO A 7150	10.48			
SST ECO A 7200	13.96			
SST ECO A 7250	17.44			
SST ECO A 7300	20.92			
SST ECO A 8125	9.98			
SST ECO A 8150	11.97			
SST ECO A 8200	15.94			
SST ECO A 8250	19.92			
SST ECO A Sondergröße*	#BEZUG!			
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