

Annex to Solar Keymark Certificate - Summary of EN ISO 9806:2013 Test Results					Licence Number		011-7S2158 F				
					Date issued		2018-06-11				
					Issued by		DINCERTCO				
Licence holder		HEWALEX SP. Z.o.o Sp.k.			Country		POLAND				
Brand (optional)		--			Web		http://www.hewalex.eu				
Street, Number		ul. Sowacklego 33			E-mail		hewalex@hewalex.pl				
Postcode, City		43-502 - Czechowice-Dziedzice			Tel		+48 32 214 17 10 / 32 214 50 04				
Collector Type					Flat plate collector, glazed						
Collector name		Gross area (A _G)	Gross length	Gross width	Gross height	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	56 K
		m ²	mm	mm	mm	W	W	W	W	W	W
KS 2100 TP AC / KS 2100 TLP AC		2,09	2.018	1.037	89	1.471	1.407	1.257	1.079	872	1.020
KS 2200 TP AC / KS 2200 TLP AC		2,28	2.018	1.129	89	1.605	1.535	1.372	1.177	952	1.113
KS 2400 TP AC / KS 2400 TLP AC		2,46	2.018	1.221	89	1.732	1.656	1.480	1.270	1.027	1.201
KS 2600 TP AC / KS 2600 TLP AC		2,65	2.018	1.314	89	1.866	1.784	1.594	1.368	1.106	1.293

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Annual collector output in kWh/collector at mean fluid temperature ϑ_m , based on EN 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
KS 2100 TP AC / KS 2100 TLP AC		2.379	1.740	1.144	1.835	1.282	795	1.351	898	539	1.466	973	574
KS 2200 TP AC / KS 2200 TLP AC		2.595	1.899	1.248	2.002	1.399	868	1.474	980	588	1.599	1.062	626
KS 2400 TP AC / KS 2400 TLP AC		2.800	2.048	1.347	2.160	1.509	936	1.590	1.057	634	1.726	1.146	676
KS 2600 TP AC / KS 2600 TLP AC		3.017	2.207	1.451	2.327	1.626	1.008	1.713	1.139	683	1.859	1.234	728
Annual output per m ² gross area		1.138	833	547	878	613	381	646	430	258	701	466	275
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 of the calculations is available at www.solarkeymark.org/scenocalc

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	Yes	
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 ice balls (diameter)	25	mm

Energy Labelling Information

	Reference Area, A_{sol} (m ²)	Data required for CDR (EU) No 811/2013 - Reference Area A_{sol}	
KS 2100 TP AC / KS 2100 TLP AC	2,09	Collector efficiency (η_{col})	56 %
KS 2200 TP AC / KS 2200 TLP AC	2,28	Remark: Collector efficiency (η_{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 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.	
KS 2400 TP AC / KS 2400 TLP AC	2,46		
KS 2600 TP AC / KS 2600 TLP AC	2,65		
		Data required for CDR (EU) No 812/2013 - Reference Area A_{sol}	
		Zero-loss efficiency (η_0)	0,704 --
		First-order coefficient (a_1)	2,90 W/(m ² K)
		Second-order coefficient (a_2)	0,017 W/(m ² K ²)
		Incidence angle modifier IAM (50°)	0,95 --
		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.	