




Summary of EN 12975 Test Results, annex to Solar KEYMARK Certificate							Licence Number		011-7S2158 F		
							Issued		2013-10-10		
Company holding the		HEWALEX Sp. z.o.o. Sp.k.					Country		POLAND		
Brand (optional)		--					Website		www.hewalex.eu		
Street, street number		ul. Slowackiego 33					E-mail		hewalex@hewalex.pl		
Postal Code / City, province		43-502	Czechowice-Dziedzice			Tel/Fax		+48 32 214 17 10 /32 214 50 04			
Collector Type (flat plate glazed/un-glazed; evacuate tubular)							Flat plate collector - glazed				
Thermal / photo voltaic hybrid collector? (PVT collector)							No				
Integration in the roof possible ? (manufacturers declaration)							Yes				
Collector name	Aperture area (Aa) m ²	Gross length mm	Gross width mm	Gross height mm	Gross area (AG) m ²	Power output per collector module					
						G = 1000 W/m ²					
						Tm-Ta					
						0 K	10 K	30 K	50 K	70 K	
						W	W	W	W	W	
KS 2100 TP AC	1,82	2.018	1.037	89	2,09	1.471	1.406	1.256	1.076	867	
KS 2100 TLP AC	1,82	2.018	1.037	89	2,09	1.471	1.406	1.256	1.076	867	
KS 2200 TP AC	2,01	2.018	1.129	89	2,28	1.624	1.553	1.387	1.189	958	
KS 2200 TLP AC	2,01	2.018	1.129	89	2,28	1.624	1.553	1.387	1.189	958	
KS 2400 TP AC	2,19	2.018	1.221	89	2,46	1.770	1.692	1.511	1.295	1.044	
KS 2400 TLP AC	2,19	2.018	1.221	89	2,46	1.770	1.692	1.511	1.295	1.044	
KS 2600 TP AC	2,36	2.018	1.314	89	2,65	1.907	1.823	1.628	1.395	1.125	
KS 2600 TLP AC	2,36	2.018	1.314	89	2,65	1.907	1.823	1.628	1.395	1.125	
Performance test method							Glazed liquid heating collector - steady state - indoor				
Performance parameters related to aperture							η ₀	a ₁	a ₂		
Units							-	W/(m ² K)	W/(m ² K ²)		
Test results - Flow rate and fluid see note 1							0,808	3,334	0,020		
Bi-directional incidence angle		No		Kθ values are obligatory for 50°.							
Incidence angle modifiers Kθ(θ)		Angle	10°	20°	30°	40°	50°	60°	70°	80°	90°
Incidence angle modifier not bi-directional - leave fields blank		Kθ(θ)					0,95				0,00
Stagnation temperature - Weather conditions see note 2							T _{stg}	204,9 °C			
Effective thermal capacity							c _{eff} = C/Ag	4,93 kJ/(m ² K)			
Max. intended operation temperature - see note 3							T _{max,op}	250 °C			
Max. operation pressure - see note 3							p _{max,op}	1000 kPa			
Pressure drop table - for a collector family, the values shall be for the module with highest ΔP per m ² aperture area											
Flow rate	kg/(s m ²)	0,000	0,010	0,023	0,037	0,050	0,063				
Pressure drop, ΔP	Pa	0	120	310	530	770	1040				
Optional weather data		Location		Link							
Testing Laboratory		Fundación CENER-CIEMAT, LEST									
Website		www.cener.com									
Test report id. number		30.2047.0-1-1 R / 30.2047.0-2-1 R 30.2047.0-3-1 R / 30.2047.0					Date of test report		2013/09/18		
During the test GDIF/GTOT was always between		0,13	and		0,15						
Comments of testing laboratory:											
The collectors models KS 2100 TLP AC and KS 2600 TLP AC were tested according to EN 12975-2. According to SKM rules the results of the collector model KS 2100 TLP AC are representative for the whole KS-AC family.											
Note 1	Flow rate	0,030	kg/(s m ²)	Fluid	Water						
Note 2	Irradiance, G = 1000 W/m ² ; Ambient temperature, Ta=30 °C										
Note 3	Given by manufacturer										
 Datasheet version: 4.04, 2013-04-22											
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Annual collector output based on EN 12975 Test Results, annex to Solar KEYMARK Certificate	Licence Number	011-7S2158 F
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Annual collector output kWh/module												
Collector name	Location and collector temperature (Tm)											
	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	2.378	1.737	1.138	1.833	1.278	788	1.350	895	534	1.465	970	569
KS 2100 TLP AC	2.378	1.737	1.138	1.833	1.278	788	1.350	895	534	1.465	970	569
KS 2200 TP AC	2.626	1.918	1.256	2.024	1.411	871	1.491	989	590	1.618	1.072	629
KS 2200 TLP AC	2.626	1.918	1.256	2.024	1.411	871	1.491	989	590	1.618	1.072	629
KS 2400 TP AC	2.861	2.090	1.369	2.206	1.537	949	1.624	1.077	643	1.762	1.168	685
KS 2400 TLP AC	2.861	2.090	1.369	2.206	1.537	949	1.624	1.077	643	1.762	1.168	685
KS 2600 TP AC	3.185	2.948	2.522	2.836	2.491	2.030	1.750	1.161	693	2.174	1.903	1.526
KS 2600 TLP AC	3.185	2.948	2.522	2.836	2.491	2.030	1.750	1.161	693	2.174	1.903	1.526

Collector mounting: Fixed or tracking	Fixed; slope = latitude - 15° (rounded to nearest 5°)
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Overview of locations				
Location	Latitude °	Gtot kWh/m ²	Ta °C	Collector orientation or tracking mode
Athens	38	1.765	18,5	South, 25°
Davos	47	1.714	3,2	South, 30°
Stockholm	59	1.166	7,5	South, 45°
Würzburg	50	1.244	9,0	South, 35°

Gtot	Annual total irradiation on collector plane	kWh/m ²
Ta	Mean annual ambient air temperature	°C
Tm	Constant collector operating temperature (mean of in- and outlet temperatures)	°C

The calculation of the annual collector performance is performed with the official Solar Keymark spreadsheet tool ScenoCalc. The collector output is calculated hour by hour according to the efficiency parameters from the Keymark test using constant collector operating temperature (Tm). A detailed description of the calculations is available at <http://www.sp.se/en/index/services/solar/ScenoCalc/Sidor/default.aspx>.

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	ScenoCalc version: Ver. 4.04 (Jun, 2013)