


Annex to Solar Keymark Certificate					Licence Number		011-7S3265 F							
					Date issued		2024-09-10							
					Issued by		DIN CERTCO							
Licence holder		HEWALEX Sp. z o.o. Sp. k.			Country		Poland							
Brand (optional)					Web		www.hewalex.eu							
Street, Number		ul. Juliusza Slowackiego 33			E-mail		hewalex@hewalex.pl							
Postcode, City		PL-43-502 Czechowice-Dziedzice			Tel		+48 32 214 17 10							
Collector Type					Flat plate collector									
Collector name					Power output per collector									
					G _b = 850 W/m ² , G _d = 150 W/m ² & u = 1.3 m/s									
					θ _m - θ _a									
					0 K	10 K	30 K	50 K	70 K	122 K				
					W	W	W	W	W	W				
KS2600F TLP ACR H					2.62	2'022	1'296	90	2'059	1'956	1'739	1'507	1'260	549
Power output per m ² gross area					786	747	664	575	481	210				
Performance parameters test method		Steady state - outdoor												
Performance parameters (related to A _G)		η _{0, b}	a1	a2	a3	a4	a5	a6	a7	a8	Kd			
Units		-	W/(m ² K)	W/(m ² K ²)	J/(m ³ K)	-	J/(m ² K)	s/m	W/(m ² K ⁴)	W/(m ² K ⁴)	-			
Test results		0.798	3.87	0.007	0.000	0.00	5'601	0.000	0.00	0.0E+00	0.90			
Incidence angle modifier test method		Steady state - outdoor												
Incidence angle modifier		Angle	10°	20°	30°	40°	50°	60°	70°	80°	90°			
Transversal		K _{θT, coll}	1.00	1.00	0.99	0.98	0.95	0.89	0.70	0.38	0.00			
Longitudinal		K _{θL, coll}	1.00	1.00	0.99	0.98	0.95	0.89	0.70	0.38	0.00			
Heat transfer medium for testing					Water-Glycole									
Flow rate for testing (per gross area, A _G)					dm/dt	0.019	kg/(sm ²)							
Maximum temperature difference during thermal performance test					(θ _m -θ _a) _{max}	92	K							
Standard stagnation temperature (G = 1000 W/m ² ; θ _a = 30 °C)					θ _{stg}	190	°C							
Maximum operating temperature					θ _{max op}	210	°C							
Maximum operating pressure					p _{max, op}	1000	kPa							
Testing laboratory		SPF Institute for Solar Technology			www.spf.ch									
Test report(s)		C1942			Dated		06.09.2024							
Comments of testing laboratory					Draft Ver. 6.2 (22.09.2021)									
					 SPF INSTITUT FÜR SOLARTECHNIK <i>J. Böhm</i>									
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Annex to Solar Keymark Certificate Supplementary Information	Licence Number	011-7S3265 F
	Issued	2024-09-10

Gross Thermal Yield in kWh/collector at mean fluid temperature ϑ_m													
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
KS2600F TLP ACR H		3'287	2'351	1'584	2'499	1'759	1'165	1'832	1'216	769	1'993	1'311	818
Gross Thermal Yield per m ² gross area		1'255	897	605	954	671	445	699	464	294	761	500	312
Annual efficiency, η_a		71%	51%	34%	59%	41%	27%	60%	40%	25%	61%	40%	25%
Fixed or tracking collector		Fixed (slope = latitude - 15°; rounded to nearest 5°)											
Annual irradiation on collector plane		1765 kWh/m ²			1630 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 Draft Ver. 6.2 (22.09.2021). A detailed description of the calculations is available at http://www.estif.org/solarkeymarknew/													

Additional Information			
Collector heat transfer medium	Water-Glycole		
The collector is deemed to be suitable for roof integration	No		
The collector was tested successfully under the following conditions:			
Climate class (A+, A, B or C)	A		--
G (W/m ²) >	1000	ϑ_a (°C) >	20
		H_x (MJ/m ²) >	600
Maximum tested positive load	2400		Pa
Maximum tested negative load	5400		Pa
Hail resistance using ice balls (diameter)	45		mm

Additional collector attribute(s)			
Using external power source(s) for normal operation	No	Active or passive measure(s) for self-protection	No
Co-generating thermal and electrical power	No	Façade collector(s)	No

Energy Labelling Information		Additional Informative Technical Data	
	Reference Area, A_{sol} (m ²)	Hydraulic Designation Code	Aperture Area, A_a (m ²)
KS2600F TLP ACR H	2.62	14-V-12345-A:5.2,1900-C:26.2,1300-D	2.48

Data required for CDR (EU) No 811/2013 - Reference Area A_{sol}		Data required for CDR (EU) No 812/2013 - Reference Area A_{sol}	
Collector efficiency (η_{col})	62%	Zero-loss efficiency (η_0)	0.79
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 9806:2017.		First-order coefficient (a_1)	3.87
		Second-order coefficient (a_2)	0.007
		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.	