DIN CERTCO
Gesellschaft für Konformitätsbewertung mbH

CERTIFICATE

Certificate holder	**HEWALEX Spólka z organiczona odpowiedzialnoscia Sp.k. ul. Slowackiego 33 43-502 Czechowice-Dziedzice POLAND**
Production facility	Czechowice-Dziedzice
Product	Solar collectors
Type, Model	KS 2100F TP ACR, KS 2100F TLP ACR KS 2200F TP ACR, KS 2200F TLP ACR KS 2400F TP ACR, KS 2400F TLP ACR KS 2600F TP ACR, KS 2600F TLP ACR
Testing basis	DIN EN 12975-1:2011-01 DIN EN ISO 9806:2014-06 Solar KEYMARK Scheme Rules (2022-06)
Mark of conformity	
Registration No.	011-7S2823 F
Valid until	2027-12-31
Right of use	This certificate entitles the holder to use the mark of conformity shown above in conjunction with the specified registration number. See annex for further information.

2022-09-19

Dipl.-Phys. Carlo Seiser
Head of Certification Body

DAkkS Deutsche Akkreditierungsstelle D-ZE-11125-01-00

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Annex to Solar Keymark Certificate		Licence Number	011-7S2823 F
		Date issued	2022-12-24
		Issued by	DIN CERTCO

Licence holder	**HEWALEX Sp. z o.o. Sp. k.**	**Country**	Poland
Brand (optional)	–	**Web**	www.hewalex.pl
Street, Number	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	Gross area (A_G)	Gross length	Gross width	Gross height	Power output per collector Gb = 850 W/m2, Gd = 150 W/m2 & u = 1.3 m/s $\vartheta_m - \vartheta_a$					
					0 K	10 K	30 K	50 K	70 K	81 K
	m²	mm	mm	mm	W	W	W	W	W	W
KS 2100F TP ACR	2.06	2’022	1’019	90	1’630	1’558	1’397	1’214	1’007	883
KS 2200F TP ACR	2.25	2’022	1’110	90	1’780	1’702	1’526	1’326	1’100	965
KS 2400F TP ACR	2.43	2’022	1’202	90	1’923	1’838	1’648	1’432	1’188	1’042
KS 2600F TP ACR	2.62	2’022	1’295	90	2’073	1’982	1’777	1’544	1’281	1’123
KS 2100F TLP ACR	2.06	2’022	1’019	90	1’630	1’558	1’397	1’214	1’007	883
KS 2200F TLP ACR	2.25	2’022	1’110	90	1’780	1’702	1’526	1’326	1’100	965
KS 2400F TLP ACR	2.43	2’022	1’202	90	1’923	1’838	1’648	1’432	1’188	1’042
KS 2600F TLP ACR	2.62	2’022	1’295	90	2’073	1’982	1’777	1’544	1’281	1’123
Power output per m² gross area					791	756	678	589	489	429

Performance parameters test method	Steady state - indoor									
Performance parameters (related to A_G)	η0, b	a1	a2	a3	a4	a5	a6	a7	a8	Kd
Units	-	W/(m²K)	W/(m²K²)	J/(m³K)	-	J/(m²K)	s/m	W/(m²K⁴)	W/(m²K⁴)	-
Test results	0.802	3.34	0.014	0.000	0.00	4’486	0.000	0.00	0.0E+00	0.91

Incidence angle modifier test method		Steady state - outdoor								
Incidence angle modifier	Angle	10°	20°	30°	40°	50°	60°	70°	80°	90°
Transversal	$K_{\theta T,coll}$	1.00	1.00	0.99	0.98	0.95	0.88	0.75	0.50	0.00
Longitudinal	$K_{\theta L,coll}$	1.00	1.00	0.99	0.98	0.95	0.88	0.75	0.50	0.00

Heat transfer medium for testing	Water		
Flow rate for testing (per gross area, A_G)	dm/dt	0.020	kg/(sm²)
Maximum temperature difference during thermal performance test	$(\vartheta_m-\vartheta_a)_{max}$	51	K
Standard stagnation temperature (G = 1000 W/m²; ϑ_a = 30 °C)	ϑ_{stg}	200	°C
Maximum operating temperature	$\vartheta_{max\ op}$	250	°C
Maximum operating pressure	$p_{max,op}$	1000	kPa

Testing laboratory	SPF, CENER	www.spf.ch, www.cener.com	
Test report(s)	30.3139.1-4-1 / 30.3139.1-5-1 30.3566.0-1 / 30.3139.2 R C1912C1913CP	**Dated**	31.10.2017 / 11.12.2017 08.05.2019 / 10.05.2019 09.12.2022

Comments of testing laboratory — Draft Ver. 6.2 (22.09.2021)

The only difference between the TLP ACR and TP ACR collectors is the colour of the collector casing.

SPF INSTITUT FÜR SOLARTECHNIK

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Annex to Solar Keymark Certificate	Licence Number	011-7S2823 F
Supplementary Information	Issued	2022-12-24

Gross Thermal Yield in kWh/collector at mean fluid temperature ϑ_m

Standard Locations		Athens			Davos			Stockholm			Würzburg		
Collector name	ϑ_m	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 2100F TP ACR		2'621	1'932	1'309	2'032	1'448	945	1'488	1'006	632	1'616	1'089	673
KS 2200F TP ACR		2'863	2'110	1'430	2'219	1'581	1'032	1'625	1'099	690	1'765	1'189	735
KS 2400F TP ACR		3'092	2'279	1'544	2'397	1'708	1'115	1'755	1'187	745	1'906	1'284	794
KS 2600F TP ACR		3'334	2'457	1'665	2'584	1'841	1'202	1'893	1'280	804	2'055	1'385	856
KS 2100F TLP ACR		2'621	1'932	1'309	2'032	1'448	945	1'488	1'006	632	1'616	1'089	673
KS 2200F TLP ACR		2'863	2'110	1'430	2'219	1'581	1'032	1'625	1'099	690	1'765	1'189	735
KS 2400F TLP ACR		3'092	2'279	1'544	2'397	1'708	1'115	1'755	1'187	745	1'906	1'284	794
KS 2600F TLP ACR		3'334	2'457	1'665	2'584	1'841	1'202	1'893	1'280	804	2'055	1'385	856
Gross Thermal Yield per m² gross area		1'273	938	635	986	703	459	722	488	307	784	529	327
Annual efficiency, η_a		72%	53%	36%	61%	43%	28%	62%	42%	26%	63%	42%	26%
Fixed or tracking collector		Fixed (slope = latitude - 15°; rounded to nearest 5°)											
Annual irradiation on collector plane		1765 kWh/m²			1630 kWh/m²			1166 kWh/m²			1244 kWh/m²		
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 ϑm (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				Yes	
The collector was tested successfully under the following conditions:					
Climate class (A+, A, B or C)				A	--
G (W/m²) >	1000	ϑ_a (°C) >	20	H_X (MJ/m²) >	600
Maximum tested positive load				2400	Pa
Maximum tested negative load				2400	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)	Yes

Energy Labelling Information

	Reference Area, A_{sol} (m²)
KS 2100F TP ACR	2.06
KS 2200F TP ACR	2.25
KS 2400F TP ACR	2.43
KS 2600F TP ACR	2.62
KS 2100F TLP ACR	2.06
KS 2200F TLP ACR	2.25
KS 2400F TLP ACR	2.43
KS 2600F TLP ACR	2.62

Data required for CDR (EU) No 811/2013 - Reference Area A_{sol}

Collector efficiency (η_{col})	64%

Remark: Collector efficiency (ηcol) 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/m², expressed in % and rounded to the nearest integer. Deviating from the regulation ηcol is based on reference area (Asol) which is aperture area for values according to EN 12975-2 or gross area for ISO 9806:2017.

Additional Informative Technical Data

	Hydraulic Designation Code	Aperture Area, A_a (m²)
KS 2100F TP ACR	11-V-1234S-5.2,1935-16.0,1052-D	1.93
KS 2200F TP ACR	12-V-1234S-5.2,1935-16.0,1143-D	2.11
KS 2400F TP ACR	13-V-1234S-5.2,1935-16.0,1235-D	2.29
KS 2600F TP ACR	14-V-1234S-5.2,1935-16.0,1328-D	2.47
KS 2100F TLP ACR	11-V-1234S-5.2,1935-16.0,1052-D	1.93
KS 2200F TLP ACR	12-V-1234S-5.2,1935-16.0,1143-D	2.11
KS 2400F TLP ACR	13-V-1234S-5.2,1935-16.0,1235-D	2.29
KS 2600F TLP ACR	14-V-1234S-5.2,1935-16.0,1328-D	2.47

Data required for CDR (EU) No 812/2013 - Reference Area A_{sol}

Zero-loss efficiency (η_0)	0.79	--
First-order coefficient (a_1)	3.34	W/(m²K)
Second-order coefficient (a_2)	0.014	W/(m²K²)
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.

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Hewalex

Con la presente La Hewalex Sp. z o.o. Sp. k.

Con sede in Slowackiego 33, 43-502 Czechowice-Dziedzice, PL

DICHIARA

Che i collettori solari modello "KS 2600F TLP ACR" prodotti dalla Hewalex Sp. z o.o. Sp. k., marchiati "REQ.A", immessi e distribuiti sul mercato italiano ed europeo dall'azienda REQA Srl, corrispondono tecnicamente ai prodotti Hewalex come da specifica allegata nella tabella seguente:

Modello REQ.A	Modello Hewalex	Index collettori solari	CERTIFICATO SOLAR KEYMARK Ente di rilascio: "DIN-CERTCO"
C262H	KS 2600F TLP ACR	14.91.02	011-7S2823 F

"L'energia prodotta in un anno da un singolo modulo relativo alla località di riferimento di Würzburg alla temperatura media di funzionamento di 50 °C, vale 1385 Kwh/anno".

PROKURENT
Kornel Shiba

Luogo e data

Czechowice-Dziedzice, 1.06.2023

HEWALEX
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DICHIARA

Che i collettori solari modello "KS 2100F TLP ACR" prodotti dalla Hewalex Sp. z o.o. Sp. k., marchiati "REQ.A", immessi e distribuiti sul mercato italiano ed europeo dall'azienda REQA Srl, corrispondono tecnicamente ai prodotti Hewalex come da specifica allegata nella tabella seguente:

Modello REQ.A	Modello Hewalex	Index collettori solari	CERTIFICATO SOLAR KEYMARK Ente di rilascio: "DIN-CERTCO"
C206H	KS 2100F TLP ACR	14.48.02	011-7S2823 F

"L'energia prodotta in un anno da un singolo modulo relativo alla località di riferimento di Würzburg alla temperatura media di funzionamento di 50 °C, vale 1089 Kwh/anno".

PROKURENT
Kornel Shiba

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Luogo e data

Czechowice-Dziedzice, 1.06.2023