

SOLAR COLLECTOR CERTIFICATION AND RATING



SRCC OG-100

CERTIFIED SOLAR COLLECTOR

SUPPLIER: Solimpeks Solar Energy Corp
Hilal Sk. No:20, 42300 Karatay
Konya, Karatay 42300 Turkey

MODEL: Wunder CLSF 1808

COLLECTOR TYPE: Glazed Flat-Plate

CERTIFICATION#: 2010070A

Original Certification Date: 16-NOV-11

COLLECTOR THERMAL PERFORMANCE RATING

Kilowatt-hours Per Panel Per Day				Thousands of BTU Per Panel Per Day			
CATEGORY (Ti-Ta)	CLEAR DAY (6.3 kWh / m ² .day)	MILDLY CLOUDY (4.7 kWh / m ² .day)	CLOUDY DAY (3.1 kWh / m ² .day)	CATEGORY (Ti-Ta)	CLEAR DAY (2000 Btu / ft ² .day)	MILDLY CLOUDY (1500 Btu / ft ² .day)	CLOUDY DAY (1000 Btu / ft ² .day)
A (-5 °C)	7.5	5.7	3.9	A (-9 °F)	25.7	19.5	13.2
B (5 °C)	6.9	5.1	3.2	B (9 °F)	23.5	17.3	11.0
C (20 °C)	5.9	4.1	2.3	C (36 °F)	20.1	14.0	7.9
D (50 °C)	4.1	2.4	0.8	D (90 °F)	14.0	8.2	2.8
E (80 °C)	2.5	1.0	0.0	E (144 °F)	8.4	3.4	0.0

A- Pool Heating (Warm Climate) **B-** Pool Heating (Cool Climate) **C-** Water Heating (Warm Climate) **D-** Water Heating (Cool Climate) **E-** Air Conditioning

COLLECTOR SPECIFICATIONS

Gross Area: 1.790 m² 19.27 ft² **Net Aperture Area:** 1.62 m² 17.44 ft²

Dry Weight: 34.0 kg 75. lb **Fluid Capacity:** 2.4 liter 0.6 gal

Test Pressure: 1500. KPa 218. psig

COLLECTOR MATERIALS

Frame: Aluminum

Cover (Outer): Tempered glass

Cover (Inner):

Pressure Drop

Flow		ΔP	
ml/s	gpm	Pa	in H ₂ O
20.00	0.32	119.00	0.48
50.00	0.79	400.2	1.6
80.00	1.27	804.50	3.23

Absorber Material: Tube - Copper /
Plate - Copper

Insulation Side: Fiber

Absorber Coating: Selective coating

Insulation Back: Fiber

TECHNICAL INFORMATION

Efficiency Equation [NOTE: Based on gross area and (P)=Ti-Ta]

SI Units: $\eta = 0.688 - 3.26540 (P)/I - 0.00560 (P)^2/I$ **Y INTERCEPT** 0.691 **SLOPE** -3.630 W/m².°C

IP Units: $\eta = 0.688 - 0.57520 (P)/I - 0.00055 (P)^2/I$ 0.691 -0.639 Btu/hr.ft².°F

Incident Angle Modifier [(S)=1/cosθ - 1, 0°<θ<=60°]

K_{τα} = 1 -0.137 (S) -0.005 (S)²

K_{τα} = 1 -0.15 (S) Linear Fit

Test Fluid: Water

Test Flow Rate: 19.0 ml/s.m² 0.0279 gpm/ft²

REMARKS:

November, 2011

Certification must be renewed annually, For current status contact:

SOLAR RATING & CERTIFICATION CORPORATION

400 High Point Drive, Suite 400 ♦ Cocoa, Florida 32926 ♦ (321) 213-6037 ♦ Fax (321) 821-0910



SOLAR RATING & CERTIFICATION CORPORATION

AWARD OF COLLECTOR CERTIFICATION

The solar collector listed below has been evaluated by the Solar Rating and Certification Corporation (SRCC) in accordance with SRCC Document OG-100, *Operating Guidelines and Minimum Standards for Certifying Solar Collectors*, and has been certified by the SRCC as specified in SRCC Standard 100-94, *Test Methods and Minimum Standards for Certifying Solar Collectors*. Certification and thermal performance ratings are based on the successful durability and performance testing of a sample unit where said tests have been conducted by an independent laboratory accredited by the SRCC.

Collector Certification Number: **100-2010070A**

Certification Date: 16-NOV-11

Type: Glazed Flat-Plate

Expiration Date: 08-AUG-23

Test Laboratory: ITW

Report Number: 10COL941S

Report Date: 08-AUG-11

Brand: Wunder CLSF

Certified Model: 1808

Model Tested: 2010070A

Supplier: **Solimpeks Solar Energy Corp**
Hilal Sk. No:20, 42300 Karatay
Konya, Karatay 42300 Turkey
(+90) 332 444 06 02

Description: Aluminum frame. Tempered glass cover. Copper absorber with Selective coating. Fiber side insulation and Fiber back insulation. Water was the fluid for performance tests. Gross Area: 1.79 m² (19.3 ft²). Aperture Area: 1.62 m² (17.4 ft²).

GLAZED COLLECTOR THERMAL PERFORMANCE RATING

Megajoules Per Panel Per Day				Thousands of BTU Per Panel Per Day			
CATEGORY (Ti-Ta)	CLEAR DAY	MILDLY CLOUDY	CLOUDY DAY	CATEGORY (Ti-Ta)	CLEAR DAY	MILDLY CLOUDY	CLOUDY DAY
A (-5 °C)	27.1	20.5	13.9	A (-9 °F)	25.7	19.5	13.2
B (5 °C)	24.8	18.2	11.6	B (9 °F)	23.5	17.3	11.0
C (20 °C)	21.2	14.7	8.4	C (36 °F)	20.1	14.0	7.9
D (50 °C)	14.8	8.6	2.9	D (90 °F)	14.0	8.2	2.8
E (80 °C)	8.9	3.6	0.0	E (144 °F)	8.4	3.4	0.0

A- Pool Heating (Warm Climate) B- Pool Heating (Cool Climate) C- Water Heating (Warm Climate) D- Water Heating (Cool Climate) E- Air Conditioning

Efficiency Equation [NOTE: Based on gross area and (P)=Ti-Ta]

S I UNITS: $\eta = 0.688 - 3.26540 (P)/I - 0.00560 (P)^2/I$

I P UNITS: $\eta = 0.688 - 0.57520 (P)/I - 0.00050 (P)^2/I$

Y INTERCEPT

0.691

0.691

SLOPE

-3.63 W/m².°C

-0.60 Btu/hr.ft².°F

Incident Angle Modifier [(S)=1/cosθ - 1, 0°<θ≤60°]

Ka = 1 -0.14 (S)

-0.005 (S)²

Ka = 1

-0.15 (S)

Linear Fit (S)²

REMARKS:

This award of certification is subject to all terms and conditions of the program Agreement and the documents incorporated therein by reference. It must be renewed annually. Any change in collector design, materials, specifications, parts, or construction must be reported to SRCC for evaluation of continued certification.

Technical Director

November 16, 2011



OG-100 SRCC COLLECTOR CERTIFICATION

