



CERTIFIED SOLAR COLLECTOR

SUPPLIER:
Solimpeks Solar Energy Corp
 FEVZI ÇAKMAK MAH. 10753 Sk No:3/3A
 Karatay, KONYA 42050 Turkey
 www.solimpeks.com

BRAND: Wunder CLSF
 MODEL: 3010
 COLLECTOR TYPE: Glazed Flat Plate
 CERTIFICATION #: 10001719
 Original Certification: July 30, 2012
 Expiration Date: August 08, 2023

The solar collector listed below has been evaluated by the Solar Rating & Certification Corporation™ (SRCC™) in accordance with SRCC OG-100, Operating Guidelines and Minimum Standards for Certifying Solar Collectors, and has been certified by the SRCC. This award of certification is subject to all terms and conditions of the Program Agreement and the documents incorporated therein by reference.

COLLECTOR THERMAL PERFORMANCE RATING							
Kilowatt-hours (thermal) Per Panel Per Day				Thousands of BTU Per Panel Per Day			
Climate -> Category (Ti-Ta)	High Radiation (6.3 kWh/m ² .day)	Medium Radiation (4.7 kWh/m ² .day)	Low Radiation (3.1 kWh/m ² .day)	Climate -> Category (Ti-Ta)	High Radiation (2000 Btu/ft ² .day)	Medium Radiation (1500 Btu/ft ² .day)	Low Radiation (1000 Btu/ft ² .day)
A (-5 °C)	12.7	9.6	6.5	A (-9 °F)	43.2	32.7	22.2
B (5 °C)	11.6	8.5	5.5	B (9 °F)	39.6	29.1	18.6
C (20 °C)	10.0	6.9	4.0	C (36 °F)	34.0	23.7	13.5
D (50 °C)	7.0	4.1	1.5	D (90 °F)	24.0	14.0	5.0
E (80 °C)	4.3	1.8	0.0	E (144 °F)	14.7	6.1	0.1

A- Pool Heating (Warm Climate) B- Pool Heating (Cool Climate) C- Water Heating (Warm Climate)
D- Space & Water Heating (Cool Climate) E- Commercial Hot Water & Cooling

COLLECTOR SPECIFICATIONS					
Gross Area:	2.967 m ²	31.94 ft ²	Dry Weight:	52 kg	115 lb
Net Aperture Area:	2.720 m ²	29.28 ft ²	Fluid Capacity:	5.2 liter	1.4 gal
Absorber Area:	2.705 m ²	29.12 ft ²	Test Pressure:	1500 kPa	218 psi

TECHNICAL INFORMATION				Tested in accordance with: Standard 100			
ISO Efficiency Equation [NOTE: Based on gross area and (P)=Ti-Ta]							
SI UNITS:	$\eta = (0.698)$	$(-3.23130)*(P)/G$	$(-0.00570)*(P)^2/G$	Y Intercept:	0.701	Slope:	-3.601 W/m ² .°C
IP UNITS:	$\eta = (0.698)$	$(-18.33116)*(P)/G$	$(-0.00056)*(P)^2/G$	Y Intercept:	0.701	Slope:	-0.634 Btu/hr.ft ² .°F

Incident Angle Modifier								Test Fluid:	
θ	10	20	30	40	50	60	70	Water	
K_{τα}	-1.15	-1.15	-1.17	-1.19	-1.23	-1.29	-1.43	Test Mass Flow Rate:	33.920 kg/(s m ²) 24958.336 lb/(hr/ft ²)
								Impact Safety Rating: 11.000	

REMARKS:

Jeri Higgins
 Technical Director



CERTIFIED SOLAR COLLECTOR

SUPPLIER:
Solimpeks Solar Energy Corp
 FEVZI ÇAKMAK MAH. 10753 Sk No:3/3A
 Karatay, KONYA 42050 Turkey
 www.solimpeks.com

BRAND: Wunder CLSF
 MODEL: 3010
 COLLECTOR TYPE: Glazed Flat Plate
 CERTIFICATION #: 10001719
 Original Certification: July 30, 2012
 Expiration Date: August 08, 2023

The solar collector listed below has been evaluated by the Solar Rating & Certification Corporation™ (SRCC™) in accordance with SRCC OG-100, Operating Guidelines and Minimum Standards for Certifying Solar Collectors, and has been certified by the SRCC. This award of certification is subject to all terms and conditions of the Program Agreement and the documents incorporated therein by reference.

ADDITIONAL INFORMATION (click here to return to the rating page)			
Test Lab:	Forschungs- und Testzentrum für Solaranlagen (TZS) am Institut für Thermodynamik und Wärmetechnik (ITW) der Universität Stuttgart	Test Report Date:	August 08, 2011
Test Report Number:	10COL941S	Test conducted:	indoors

SOLAR COLLECTOR CONSTRUCTION DETAILS					
Gross Length:	2.436 m	Gross Width:	1.218 m	Gross Depth:	90.0 mm

COLLECTOR MATERIALS					
Outer Cover:	Glass sheet	Enclosure back:	Aluminum	Back Insulation:	Fiber, None
Inner Cover:	Glass Tube	Enclosure side:	Aluminum	Side Insulation:	Fiber, None
Absorber Description:	Tubes connected to Fins		Flow Pattern:	Parallel/Harp	
Riser Tube:	Copper		Fin:	Copper	
Absorber Coating:	Selective		Tube to fin connection	Laser Weld	

Glazing	Outer Cover	Inner Cover
Material:	Glass sheet	Glass Tube
Surface Characteristics:	Smooth	N/A
Thickness:	4.0 mm	N/A
Transmissivity:	High (equal to or greater than 90%)	N/A
Length:	1.900 m	N/A
Width:	0.900 m	N/A
Tube Glazing to Header Enclosure Seal:	EPDM gasket	

ABSORBER:		Absorber Coating:		Selective	
Header Material:	N/A	Header OD:	N/A	Header Wall:	N/A
Riser Tube Material:	Copper	Riser Tube OD:	N/A	Riser Tube Wall Thickness:	N/A
Fin Material:	Copper	Fin Thickness:	0.20 mm		
Flow Pattern:	Parallel/Harp				
Number of Riser Tubes:	8.0	Tube Spacing:	10.0 mm	Number of times each riser crosses the absorber:	8.0
Length of Flow Path:	2.29 m	Riser to Fin/Plate Bond:	N/A		

INSULATION:					
Location	Type	Thickness	Location	Type	Thickness
Back – Top Layer:	Fiber	42.0 mm	Sides – Inner Layer:	Fiber	24.0 mm
Back – Bottom Layer:	None	N/A	Sides – Outer Layer:	None	N/A
Enclosure Fastening Methods:		Mechanical Forming			

Power Output per Collector(W) [Ti-Ta, G = 1000 W/m ²]				
0	10	30	50	70
2078	1980	1774	1555	1322

PRESSURE DROP				
Flow	ΔP		Flow	ΔP
m/s	Pa		gpm	in H ₂ O
20	0.000000		0.32	0.000000
50	0.000000		0.79	0.000000
80	0.000000		1.27	0.000000