



**CERTIFIED SOLAR COLLECTOR**

SUPPLIER:  
**Solimpeks Solar Energy Corp**  
 FEVZI ÇAKMAK MAH. 10753 Sk No:3/3A  
 Karatay, KONYA 42050 Turkey  
 www.solimpeks.com  
 In Accordance with:  
**SRCC Standard 100-1995-10**

BRAND: Marvel  
 MODEL: CLS 1808  
 COLLECTOR TYPE: Glazed Flat Plate  
 CERTIFICATION #: 2010008B  
 Original Certification: February 02, 2010  
 Expiration Date: April 06, 2017

The solar collector listed below has been evaluated by the Solar Rating & Certification Corporation™ (SRCC™), an ISO/IEC 17065 accredited and EPA recognized Certification Body, 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. This document must be reproduced in its entirety.

COLLECTOR THERMAL PERFORMANCE RATING							
Kilowatt-hours (thermal) Per Panel Per Day				Thousands of Btu Per Panel Per Day			
Climate ->	High Radiation (6.3 kWh/m <sup>2</sup> .day)	Medium Radiation (4.7 kWh/m <sup>2</sup> .day)	Low Radiation (3.1 kWh/m <sup>2</sup> .day)	Climate ->	High Radiation (2000 Btu/ft <sup>2</sup> .day)	Medium Radiation (1500 Btu/ft <sup>2</sup> .day)	Low Radiation (1000 Btu/ft <sup>2</sup> .day)
Category (Ti-Ta)				Category (Ti-Ta)			
A (-5 °C)	7.5	5.7	3.9	A (-9 °F)	25.6	19.4	13.2
B (5 °C)	6.8	4.9	3.1	B (9 °F)	23.0	16.8	10.6
C (20 °C)	5.6	3.8	2.1	C (36 °F)	19.2	13.1	7.0
D (50 °C)	3.5	1.9	0.4	D (90 °F)	11.8	6.3	1.4
E (80 °C)	1.5	0.3	0.0	E (144 °F)	5.2	1.1	0.0

**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					
<b>Gross Area:</b>	1.838 m <sup>2</sup>	19.78 ft <sup>2</sup>	<b>Dry Weight:</b>	36 kg	78 lb
<b>Net Aperture Area:</b>	1.657 m <sup>2</sup>	17.84 ft <sup>2</sup>	<b>Fluid Capacity:</b>	1.7 liter	0.4 gal
<b>Absorber Area:</b>	0.000 m <sup>2</sup>	0.00 ft <sup>2</sup>	<b>Test Pressure:</b>	1103 kPa	160 psi

TECHNICAL INFORMATION			Tested in accordance with: ASHRAE 93		
ISO Efficiency Equation [NOTE: Based on gross area and (P)=Ti-Ta]					
<b>SI UNITS:</b>	$\eta = 0.677 - 3.73020(P/G) - 0.01033(P^2/G)$	<b>Y Intercept:</b>	0.686	<b>Slope:</b>	-4.590 W/m <sup>2</sup> .°C
<b>IP UNITS:</b>	$\eta = 0.677 - 0.65742(P/G) - 0.00101(P^2/G)$	<b>Y Intercept:</b>	0.686	<b>Slope:</b>	-0.809 Btu/hr.ft <sup>2</sup> .°F

Incident Angle Modifier								Test Fluid:	
θ	10	20	30	40	50	60	70	Water	
<b>K<sub>ra</sub></b>	1.00	1.00	0.99	0.97	0.93	0.81	0.41	<b>Test Mass Flow Rate:</b>	0.0204 kg/(s m <sup>2</sup> )    15.01 lb/(hr ft <sup>2</sup> )
								<b>Impact Safety Rating:</b>	

REMARKS:

*Jeri Higgins*

Technical Director





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ADDITIONAL INFORMATION (click here to return to the rating page)			
Test Lab:	Florida Solar Energy Center	Test Date:	April 06, 2005
Test Report Number:	145	Test Location:	outdoors

SOLAR COLLECTOR CONSTRUCTION DETAILS					
<b>Gross Length:</b>	0.000 m	<b>Gross Width:</b>	0.000 m	<b>Gross Depth:</b>	0.000 mm

COLLECTOR MATERIALS					
<b>Outer Cover:</b>	Other	<b>Enclosure back:</b>	Aluminum	<b>Back Insulation:</b>	Fiber, None
<b>Inner Cover:</b>	None	<b>Enclosure side:</b>	Aluminum	<b>Side Insulation:</b>	Fiber, None
<b>Absorber Description:</b>			<b>Flow Pattern:</b>		
<b>Riser Tube:</b>	Copper		<b>Fin:</b>		
<b>Absorber Coating:</b>	Selective		<b>Tube to fin connection</b>		

GLAZING	Outer Cover	Inner Cover
<b>Material:</b>	Other	None
<b>Surface Characteristics:</b>		
<b>Thickness:</b>	0.0 mm	N/A
<b>Transmissivity:</b>		
<b>Length:</b>	0.000 m	
<b>Width:</b>	0.000 m	
<b>Tube Glazing to Header Enclosure Seal:</b>		

<b>ABSORBER:</b>		<b>Absorber Coating:</b>	Selective
<b>Header Material:</b>		<b>Header OD:</b>	
<b>Riser Tube Material:</b>	Copper	<b>Riser Tube OD:</b>	
<b>Fin Material:</b>		<b>Fin Thickness:</b>	0.00 mm





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<b>Flow Pattern:</b>					
<b>Number of Riser Tubes:</b>	0	<b>Tube Spacing:</b>		<b>Number of times each riser crosses the absorber:</b>	0
<b>Length of Flow Path:</b>	0.00 m	<b>Riser to Fin/Plate Bond:</b>			

<b>INSULATION:</b>					
<b>Location</b>	<b>Type</b>	<b>Thickness</b>	<b>Location</b>	<b>Type</b>	<b>Thickness</b>
<b>Back – Top Layer:</b>	Fiber		<b>Sides – Inner Layer:</b>	Fiber	
<b>Back – Bottom Layer:</b>	None		<b>Sides – Outer Layer:</b>	None	
<b>Enclosure Fastening Methods:</b>					

<b>Power Output per Collector(W)</b> [ Ti-Ta, G = 1000 W/m² ]				
0	10	30	50	70

<b>PRESSURE DROP</b>				
<b>Flow</b>	<b>ΔP</b>		<b>Flow</b>	<b>ΔP</b>
<b>ml/s</b>	<b>Pa</b>		<b>gpm</b>	<b>in H<sub>2</sub>O</b>
20			0.32	
50			0.79	
80			1.27	

