CERTIFIED SOLAR COLLECTOR

SUPPLIER:
SunEarth, Inc.
8425 Almeria Avenue
Fontana, CA 92335 USA
www.sunearthinc.com

BRAND:	Empire
MODEL:	EC-32-1.5
COLLECTOR TYPE:	Glazed Flat Plate
CERTIFICATION #:	2006024D
Original Certification:	December 18, 2007
Expiration Date:	June 21, 2019

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/m².day)	Medium Radiation (4.7 kWh/m².day)	Low Radiation (3.1 kWh/m².day)	Climate -> Category (Ti-Ta)	High Radiation (2000 Btu/ft².day)	Medium Radiation (1500 Btu/ft².day)	Low Radiation (1000 Btu/ft².day)
A (-5 °C)	13.1	9.8	6.6	A (-9 °F)	44.7	33.6	22.6
B (5 °C)	12.1	8.8	5.6	B (9 °F)	41.2	30.1	19.2
C (20 °C)	10.4	7.2	4.0	C (36 °F)	35.3	24.5	13.8
D (50 °C)	6.7	3.9	1.2	D (90 °F)	23.0	13.2	4.0
E (80 °C)	3.2	0.9	0.0	E (144 °F)	10.9	3.0	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

Gross Area:	3.051 m²	32.84 ft²	**Dry Weight:**	50 kg	110 lb
Net Aperture Area:	2.760 m²	29.71 ft²	**Fluid Capacity:**	5.4 liter	1.4 gal
Absorber Area:	0.000 m²	0.00 ft²	**Test Pressure:**	1103 kPa	160 psi

TECHNICAL INFORMATION			**Tested in accordance with:**			
ISO Efficiency Equation [NOTE: Based on gross area and (P)=Ti-Ta]						
SI UNITS:	$\eta = 0.745 - 3.02850(P/G) - 0.01977(P^2/G)$		**Y Intercept:**	0.753	**Slope:**	-4.106 W/m².°C
IP UNITS:	$\eta = 0.745 - 0.53375(P/G) - 0.00193(P^2/G)$		**Y Intercept:**	0.753	**Slope:**	-0.724 Btu/hr.ft².°F

Incident Angle Modifier								**Test Fluid:**	Water	
θ	10	20	30	40	50	60	70	**Test Mass Flow Rate:**	0.0201 kg/(s m²)	14.79 lb/(hr ft²)
Kτα	1.00	0.98	0.96	0.91	0.84	0.72	0.46	**Impact Safety Rating:**		

REMARKS:

Jim Huggins
Technical Director

Print Date: November, 2012

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ADDITIONAL INFORMATION (click here to return to the rating page)			
Test Lab:	Bodycote	Test Report Date:	June 21, 2007
Test Report Number:	06-08-0528-4	Test conducted:	

SOLAR COLLECTOR CONSTRUCTION DETAILS					
Gross Length:	0.000 m	**Gross Width:**	0.000 m	**Gross Depth:**	0.0 mm

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

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

ABSORBER:			Absorber Coating:	Selective	
Header Material:		**Header OD:**		**Header Wall:**	
Riser Tube Material:	Copper	**Riser Tube OD:**		**Riser Tube Wall Thickness:**	
Fin Material:		**Fin Thickness:**	0.00 mm		

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

INSULATION:					
Location	**Type**	**Thickness**	**Location**	**Type**	**Thickness**
Back – Top Layer:			**Sides – Inner Layer:**	Foam	
Back – Bottom Layer:	Foam		**Sides – Outer Layer:**	None	
Enclosure Fastening Methods:					

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

PRESSURE DROP				
Flow	**ΔP**		**Flow**	**ΔP**
ml/s	**Pa**		**gpm**	**in H_20**
20			0.32	
50			0.79	
80			1.27	