



SOLAR RATING & CERTIFICATION CORPORATION

CERTIFIED SOLAR COLLECTOR

SUPPLIER:
Sunvelope Solar
 96 Glen Carran Cir. #105
 Sparks, NV 89431 USA
 www.sunvelope.com
 In Accordance with:
SRCC Standard 100-2013-11

BRAND: SUNVELOPE SOLAR
 MODEL: FPE-17
 COLLECTOR TYPE: Glazed Flat Plate
 CERTIFICATION #: 10001999
 Original Certification: November 16, 2015
 Expiration Date: May 13, 2026

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 ² .day)	Medium Radiation (4.7 kWh/m ² .day)	Low Radiation (3.1 kWh/m ² .day)	Climate ->	High Radiation (2000 Btu/ft ² .day)	Medium Radiation (1500 Btu/ft ² .day)	Low Radiation (1000 Btu/ft ² .day)
Category (Ti-Ta)				Category (Ti-Ta)			
A (-5 °C)	6.9	5.3	3.7	A (-9 °F)	23.5	18.1	12.6
B (5 °C)	5.7	4.1	2.5	B (9 °F)	19.3	13.9	8.4
C (20 °C)	4.0	2.4	1.0	C (36 °F)	13.6	8.2	3.4
D (50 °C)	1.2	0.2	0.0	D (90 °F)	4.0	0.6	0.0
E (80 °C)	0.0	0.0	0.0	E (144 °F)	0.0	0.0	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:	1.687 m ²	18.16 ft ²	Dry Weight:	35 kg	77 lb
Net Aperture Area:	1.496 m ²	16.10 ft ²	Fluid Capacity:	1.6 liter	0.4 gal
Absorber Area:	1.570 m ²	16.90 ft ²	Test Pressure:	1103 kPa	160 psi

TECHNICAL INFORMATION			Tested in accordance with: ISO 9806:1994		
ISO Efficiency Equation [NOTE: Based on gross area and (P)=Ti-Ta]					
SI UNITS:	$\eta = 0.644 - 6.63560(P/G) - 0.01670(P^2/G)$		Y Intercept:	0.650	Slope: -7.640 W/m ² .°C
IP UNITS:	$\eta = 0.644 - 1.16947(P/G) - 0.00163(P^2/G)$		Y Intercept:	0.650	Slope: -1.347 Btu/hr.ft ² .°F

Incident Angle Modifier								Test Fluid:	
θ	10	20	30	40	50	60	70	Water	
K_{ra}	1.00	0.99	0.98	0.96	0.92	0.83		Test Mass Flow Rate:	0.0200 kg/(s m ²) 14.75 lb/(hr ft ²)
								Impact Safety Rating: 11	

REMARKS:

Jim Higgins

Technical Director

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ADDITIONAL INFORMATION (click here to return to the rating page)			
Test Lab:	LabTest Certification, Inc.	Test Date:	May 13, 2014
Test Report Number:	14002-1SC_Sunvelope Test Report Rev1	Test Location:	outdoors

SOLAR COLLECTOR CONSTRUCTION DETAILS					
Gross Length:	1.765 m	Gross Width:	0.956 m	Gross Depth:	111.125 mm

COLLECTOR MATERIALS					
Outer Cover:	Glass sheet	Enclosure back:	Aluminum	Back Insulation:	Foam, None
Inner Cover:	None	Enclosure side:	Aluminum	Side Insulation:	None, None
Absorber Description:	Channel / Sheets	Flow Pattern:	Plate		
Riser Tube:	Stainless Steel	Fin:	Stainless Steel		
Absorber Coating:	Moderately selective	Tube to fin connection	Other		

GLAZING	Outer Cover	Inner Cover
Material:	Glass sheet	None
Surface Characteristics:	Smooth	
Thickness:	3.2 mm	N/A
Transmissivity:	High (equal to or greater than 90%)	
Length:	1.724 m	
Width:	0.914 m	
Tube Glazing to Header Enclosure Seal:	Silicone bead	

ABSORBER:	Absorber Coating:	Moderately selective
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Header Material:		Header OD:		Header Wall:	
Riser Tube Material:	Stainless Steel	Riser Tube OD:	457.2 mm	Riser Tube Wall Thickness:	0.4 mm
Fin Material:	Stainless Steel	Fin Thickness:	0.38 mm		

Flow Pattern:	Plate				
Number of Riser Tubes:	1	Tube Spacing:	457.2 mm	Number of times each riser crosses the absorber:	1
Length of Flow Path:	1.73 m	Riser to Fin/Plate Bond:	Other		

INSULATION:					
Location	Type	Thickness	Location	Type	Thickness
Back – Top Layer:	Foam	25.4 mm	Sides – Inner Layer:	None	
Back – Bottom Layer:	None		Sides – Outer Layer:	None	
Enclosure Fastening Methods:	Screws				

Power Output per Collector(W) [Ti-Ta, G = 1000 W/m²]				
0	10	30	50	70
1086	971	725	456	164

PRESSURE DROP				
Flow	ΔP		Flow	ΔP
m/s	Pa		gpm	in H₂O
20	0		0.32	0.0
50	0		0.79	0.0
80	0		1.27	0.0



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