



CERTIFIED SOLAR COLLECTOR

SUPPLIER:
SunMaxx Solar LLC
 56 Broome Corp Pkwy
 Conklin, NY 13748 USA
 www.siliconsolar.com

BRAND: ThermoPower
 MODEL: ThermoPower VHP20
 COLLECTOR TYPE: Tubular
 CERTIFICATION #: 2012024A
 Original Certification: April 25, 2012
 Expiration Date: June 30, 2022

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)	9.4	7.1	4.7	A (-9 °F)	32.1	24.1	16.1
B (5 °C)	9.2	6.8	4.5	B (9 °F)	31.3	23.3	15.3
C (20 °C)	8.6	6.2	3.9	C (36 °F)	29.3	21.3	13.3
D (50 °C)	6.8	4.5	2.2	D (90 °F)	23.3	15.5	7.6
E (80 °C)	4.3	2.2	0.3	E (144 °F)	14.6	7.6	1.1

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:	3.476 m ²	37.42 ft ²	Dry Weight:	76 kg	167 lb
Net Aperture Area:	1.989 m ²	21.41 ft ²	Fluid Capacity:	1.6 liter	0.4 gal
Absorber Area:	1.709 m ²	18.39 ft ²	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:	$\eta = 0.398 - 0.62210 \cdot (P)/G - 0.01611 \cdot (P)^2/G$	Y Intercept:	0.406	Slope:	-1.753 W/m ² .°C
IP UNITS:	$\eta = 0.398 - 0.10964 \cdot (P)/G - 0.00158 \cdot (P)^2/G$	Y Intercept:	0.406	Slope:	-0.309 Btu/hr.ft ² .°F

Transverse Incident Angle Modifier								Longitudinal Incident Angle Modifier at 50°:		
θ	10	20	30	40	50	60	70	Test Fluid:	Water	
Kτ	1.02	1.07	1.16	1.29	1.45	1.54	0.96	Test Mass Flow Rate:	0.0199 kg/(s m ²)	14.64 lb/(hr ft ²)

REMARKS:

Jen Higgins

Technical Director





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ADDITIONAL INFORMATION (click here to return to the rating page)			
Test Lab:	Florida Solar Energy Center	Test Report Date:	June 30, 2010
Test Report Number:		Test conducted:	

SOLAR COLLECTOR CONSTRUCTION DETAILS					
Header Enclosure:					
Gross Length:	2.037 m	Gross Width:	1.733 m	Gross Depth:	
Tube Bank:					
Gross Length:		Gross Width:			

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

Glazing	Outer Cover	Inner Cover
Material:	Glass Tube	None
Surface Characteristics:		
Thickness:	1.7 mm	N/A
Transmissivity:		
Gross Tube Length (uninstalled):	1.840 m	
Diameter:	0.058 m	
Tube Glazing to Header Enclosure Seal:	EPDM gasket	
Reflector Shape:		Reflector Material:

ABSORBER:





Header Material:		Header OD:		Header Wall:	
Riser Tube Material:	Copper	Riser Tube OD:		Riser Tube Wall Thickness:	
Fin Material:		Fin Thickness:	0.34 mm		
Flow Pattern:		Number of Flow Tubes / Heat Pipes:	20	Tube / Heat Pipe Spacing:	
Number of absorber tubes:	20	Flow Tube to Fin Bond:		Length of Flow Path:	1.82 m
Length of Flow Path:	1.82 m	Riser to Fin/Plate Bond:			

INSULATION:					
Location	Type	Thickness	Location	Type	Thickness
Back – Top Layer:			Sides – Inner Layer:		
Back – Bottom Layer:			Sides – Outer Layer:		
Enclosure Fastening Methods:			Header Enclosure:		

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

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

