



CERTIFIED SOLAR COLLECTOR

SUPPLIER:
Jiangsu Sunrain Solar Energy Co. Ltd.
 Ning Hai Industrial Zone
 Lianyungang City, JIANGSU PROVINCE 222243 China
 www.sunrain.com
 In Accordance with:
SRCC Standard 100-2013-01

BRAND: Sunrain
 MODEL: FPC1200D
 COLLECTOR TYPE: Glazed Flat Plate
 CERTIFICATION #: 10001892
 Original Certification: January 24, 2014
 Expiration Date: January 03, 2026

The solar collector listed below has been evaluated by the Solar Rating & Certification Corporation™ (SRCC™), an ANSI 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)	8.2	6.2	4.2	A (-9 °F)	28.1	21.3	14.5
B (5 °C)	7.4	5.4	3.4	B (9 °F)	25.1	18.3	11.5
C (20 °C)	6.1	4.1	2.2	C (36 °F)	20.6	14.0	7.4
D (50 °C)	3.6	1.8	0.3	D (90 °F)	12.2	6.2	1.1
E (80 °C)	1.5	0.2	0.0	E (144 °F)	5.0	0.8	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:	2.000 m ²	21.53 ft ²	Dry Weight:	33 kg	73 lb
Net Aperture Area:	1.853 m ²	19.95 ft ²	Fluid Capacity:	1.7 liter	0.4 gal
Absorber Area:	1.853 m ²	19.95 ft ²	Test Pressure:	1200 kPa	174 psi

TECHNICAL INFORMATION			Tested in accordance with: ISO 9806		
ISO Efficiency Equation [NOTE: Based on gross area and (P)=Ti-Ta]					
SI UNITS:	$\eta = 0.676 - 3.96910(P/G) - 0.01140(P^2/G)$	Y Intercept:	0.679	Slope:	-4.653 W/m ² .°C
IP UNITS:	$\eta = 0.676 - 0.69952(P/G) - 0.00112(P^2/G)$	Y Intercept:	0.679	Slope:	-0.820 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	0.97	0.94	0.90	0.81	0.64	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:	Intertek Testing Services Shenzhen, Ltd, Guangzhou Branch	Test Date:	January 03, 2014
Test Report Number:	S130617016-001	Test Location:	outdoors

SOLAR COLLECTOR CONSTRUCTION DETAILS					
Gross Length:	2.000 m	Gross Width:	1.000 m	Gross Depth:	80.000 mm

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

GLAZING	Outer Cover	Inner Cover
Material:	Glass sheet	None
Surface Characteristics:	Textured	
Thickness:	3.2 mm	N/A
Transmissivity:	High (equal to or greater than 90%)	
Length:	1.950 m	
Width:	0.950 m	
Tube Glazing to Header Enclosure Seal:	Silicone bead	

ABSORBER:		Absorber Coating:		Selective	
Header Material:	Copper	Header OD:	22.0 mm	Header Wall:	0.8 mm
Riser Tube Material:	Copper	Riser Tube OD:	10.0 mm	Riser Tube Wall Thickness:	0.5 mm
Fin Material:	Aluminum	Fin Thickness:	0.40 mm		





Certification #: 10001892
 Supplier: Jiangsu Sunrain Solar Energy Co. Ltd.
 Brand Name: Sunrain
 Model Number: FPC1200D

Flow Pattern:	Parallel/Harp				
Number of Riser Tubes:	8	Tube Spacing:	118.0 mm	Number of times each riser crosses the absorber:	1
Length of Flow Path:	1.88 m	Riser to Fin/Plate Bond:	Laser Weld		

INSULATION:					
Location	Type	Thickness	Location	Type	Thickness
Back – Top Layer:	Fiber	35.0 mm	Sides – Inner Layer:	None	
Back – Bottom Layer:	None		Sides – Outer Layer:	None	
Enclosure Fastening Methods:	Rivets				

Power Output per Collector(W) [Ti-Ta, G = 1000 W/m ²]					
0	10	30	50	70	
1353	1271	1094	899	685	

PRESSURE DROP					
Flow	ΔP		Flow	ΔP	
ml/s	Pa		gpm	in H ₂ O	
20	45		0.32	0.2	
50	210		0.79	0.8	
80	493		1.27	2.0	

