

SOLAR RATING & CERTIFICATION CORPORATION

AWARD OF INTERIM COLLECTOR CERTIFICATION

The solar collector listed below has been evaluated by the Solar Rating and Certification Corporation (SRCC) in accordance with SRCC Document IC-1, *Interim Collector Certification Protocol*, and has been certified by the SRCC as specified in that document. Certification and thermal performance ratings are based on the successful durability and performance testing of a sample unit where said tests have been conducted by an independent laboratory accredited by the SRCC.

Collector Certification Number: **100-2009042B**

Certification Date: 05-AUG-09	Type: Tubular	Expiration Date: 05-AUG-10
Test Laboratory: FSEC	Report Number: 00270	Report Date: 14-JUL-09
Brand: Sunrain	Certified Model: TZ58/1800-30R	Model Tested: TZ58/1800-20R
Supplier: Jiangsu Sunrain Solar Energy Co. Ltd. Ning Hai Industrial Zone Lianyungang City, Jiangsu Province China (0086) 518-5051886		

Description: Aluminum frame. Glass tube cover. Copper absorber with Selective. Vacuum side insulation and Vacuum back insulation. Gross Area: 4.63 m² (49.8 ft²). Aperture Area: 3.99 m² (43 ft²).

TUBULAR COLLECTOR THERMAL PERFORMANCE RATING

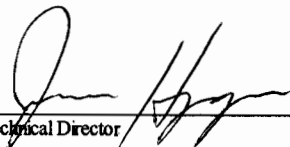
Megajoules Per Panel Per Day				Thousands of BTU Per Panel Per Day			
CATEGORY	CLEAR DAY	MILDLY CLOUDY	CLOUDY DAY	CATEGORY	CLEAR DAY	MILDLY CLOUDY	CLOUDY DAY
A (-5 °C)	35.7	27.2	18.7	A (-9 °F)	33.8	25.8	17.7
B (5 °C)	32.0	23.5	15.0	B (9 °F)	30.3	22.3	14.2
C (20 °C)	27.0	18.6	10.2	C (36 °F)	25.6	17.7	9.7
D (50 °C)	18.0	10.2	2.8	D (90 °F)	17.1	9.7	2.6
E (80 °C)	10.7	3.2	0.0	E (144 °F)	10.1	3.2	0.0

A- Pool Heating (Warm Climate) B- Pool Heating (Cool Climate) C- Water Heating (Warm Climate) D- Water Heating (Cool Climate) E- Air Conditioning


Efficiency Equation [NOTE: Based on gross area and (P)=Ti-Ta]	Y INTERCEPT	SLOPE
S I UNITS: Quadratic equation not defined	0.3	-2.0 W/m ² .°C
I P UNITS: Quadratic equation not defined	0.3	-0.4 Btu/hr.ft ² .°F

Incident Angle Modifier [(S)=1/cosθ - 1, 0°<θ<=60°]					
Kα = 1	1.80 (S)	-1.700 (S) ²	Kα = 1	-0.10 (S)	Linear Fit

Caution: The efficiency equation and ratings for this collector are assumed to be very low. They will be revised when the final test is completed. This collector will perform better than the above ratings indicate so use caution when designing a system to avoid overheating.


 Technical Director _____ August 10, 2009



SOLAR COLLECTOR CERTIFICATION AND RATING  INTERIM COLLECTOR CERTIFICATION	CERTIFIED SOLAR COLLECTOR SUPPLIER: Jiangsu Sunrain Solar Energy Co. Ltd. Ning Hai Industrial Zone Lianyungang City, Jiangsu Province China MODEL: TZ58/1800-30R COLLECTOR TYPE: Tubular CERTIFICATION#: 2009042B
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COLLECTOR THERMAL PERFORMANCE RATING							
Megajoules Per Panel Per Day				Thousands of BTU Per Panel Per Day			
CATEGORY	CLEAR DAY	MILDLY CLOUDY	CLOUDY DAY	CATEGORY	CLEAR DAY	MILDLY CLOUDY	CLOUDY DAY
A (-5 °C)	35.7	27.2	18.7	A (-9 °F)	33.8	25.8	17.7
B (5 °C)	32.0	23.5	15.0	B (9 °F)	30.3	22.3	14.2
C (20 °C)	27.0	18.6	10.2	C (36 °F)	25.6	17.7	9.7
D (50 °C)	18.0	10.2	2.8	D (90 °F)	17.1	9.7	2.6
E (80 °C)	10.7	3.2	0.0	E (144 °F)	10.1	3.2	0.0

Interim Certification Date: 05-AUG-09

COLLECTOR SPECIFICATIONS

Gross Area:	4.630 m ²	49.84 ft ²	Net Aperature Area:	3.990 m ²	42.95 ft ²
Dry Weight:	106.0 kg	234. lb	Fluid Capacity:	2.3 liter	0.6 gal
Test Pressure:	1103. KPa	160. psg			

COLLECTOR MATERIALS

Frame:	Aluminum
Cover (Outer):	Glass tube
Cover (Inner):	None
Absorber Material:	Tube - Copper / Plate - Aluminum
Absorber Coating:	Selective
Insulation Side:	Vacuum
Insulation back:	Vacuum

TECHNICAL INFORMATION

Efficiency Equation [NOTE: Based on gross area and (P)=Ti-Ta]	Y INTERCEPT	SLOPE
S I UNITS: Quadratic equation not defined	0.3	-2.0 W/m ² .°C
I P UNITS: Quadratic equation not defined	0.3	-0.4 Btu/hr.ft ² .°F

Incident Angle Modifier [(S)=1/cosθ - 1, 0°<θ<=60°]	Model Tested:	TZ58/1800-20R
Kα = 1 1.800 (S) -1.700 (S) ²		
Kα = 1 -0.10 (S) Linear Fit		

REMARKS:

Caution: The efficiency equation and ratings for this collector are assumed to be very low. They will be revised when the final test is completed. This collector will perform better than the above ratings indicate so use caution when designing a system to avoid overheating.

August, 2009
Certification must be renewed annually, For current status contact:
SOLAR RATING & CERTIFICATION CORPORATION
c/o FSEC ♦ 1679 Clearlake Road ♦ Cocoa, FL 32922 ♦ (321) 638-1537 ♦ Fax (321) 638-1010


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OG-100 Certification Label Artwork

The Supplier is responsible for having labels printed and affixed or applied to every certified collector. The label must be installed in a location that will be in plain view for inspection when the collector is installed.

Specifications for the dimensions and content of the label are as follows:

- Minimum Size:** 1 inch x 5 inches (SRCC content must be this large. If other information is added to the label, the overall size of the label will be larger.)
- Font:** Arial
- Minimum Font Size:** 6 point
- Material:** Any material and ink with a 2-year warranty in outdoor applications may be used. Etching of this information on a visible portion of the solar collector is acceptable, so long as a 2-year warranty of the readability of the etched information is made by the certificant.
- Content:** The information shown below must be included. The diameter of the SRCC logo must be at least 80% of the smaller dimension of the label.

	<p>This product certified on an interim basis by the Solar Rating & Certification Corp. 1679 Clearlake Road Cocoa, FL 32922 (321)638-1537 www.solar-rating.org</p> <p>SRCC Interim Collector Certification</p>	<p>Jiangsu Sunrain Solar Energy Co. Ltd Ning Hai Industrial Zone Lianyungang City, Jiangsu Province China</p> <p>Model No.: TZ58/1800-20R Gross Area: 3.17 m² (34.10 ft²) Serial Number:</p>	<p>Clear Day Rating in Category C</p> <p>5.0 kWh/day 17 kBtu/day</p>
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	<p>This product certified on an interim basis by the Solar Rating & Certification Corp. 1679 Clearlake Road Cocoa, FL 32922 (321)638-1537 www.solar-rating.org</p> <p>SRCC Interim Collector Certification</p>	<p>Jiangsu Sunrain Solar Energy Co. Ltd Ning Hai Industrial Zone Lianyungang City, Jiangsu Province China</p> <p>Model No.: TZ58/1800-30R Gross Area: 4.63 m² (49.80 ft²) Serial Number:</p>	<p>Clear Day Rating in Category C</p> <p>7.5 kWh/day 26 kBtu/day</p>
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