



SOLAR COLLECTOR
 CERTIFICATION AND RATING
 INTERIM COLLECTOR
 CERTIFICATION
CERTIFIED SOLAR COLLECTOR

SUPPLIER: **FreeFuelForever**
 2872 Chowat Road Agassiz, BC V0M 1A2 Canada
 MODEL: TZ58/1800-20R
 COLLECTOR TYPE: Tubular
 CERTIFICATION#: 2009096Ai

COLLECTOR THERMAL PERFORMANCE RATING

Megajoules Per Panel Per Day

CATEGORY	CLEAR	MILDLY	CLOUDY
	DAY	CLOUDY	DAY
A (-5 °C)	24.4	18.6	12.8
B (5 °C)	21.9	16.1	10.3
C (20 °C)	18.5	12.7	7.0
D (50 °C)	12.3	7.0	1.9
E (80 °C)	7.3	2.2	0.0

Thousands of BTU Per Panel Per Day

CATEGORY	CLEAR	MILDLY	CLOUDY
	DAY	CLOUDY	DAY
A (-9 °F)	23.1	17.6	12.1
B (9 °F)	20.7	15.2	9.7
C (36 °F)	17.5	12.1	6.6
D (90 °F)	11.7	6.6	1.8
E (144 °F)	6.9	2.2	0.0

Interim Certification Date: 14-DEC-09

COLLECTOR SPECIFICATIONS

Gross Area:	3.166 m ²	34.08 ft ²
Dry Weight:	77.0 kg	170. lb
Test Pressure:	1103. KPa	160. psg

Net Aperture Area: 2.00 m² 21.52 ft²
Fluid Capacity: 1.6 liter 0.4 gal

COLLECTOR MATERIALS

Frame: Aluminum
Cover (Outer): Glass tube
Cover (Inner): None

TECHNICAL INFORMATION

Efficiency Equation [NOTE: Based on gross area and (P)=Ti-Taj]

S I UNITS: Quadratic equation not defined

I P UNITS: Quadratic equation not defined

Y INTERCEPT	SLOPE
0.3	-2.0 W/m².°C
0.3	-0.4 Btu/hr.f t².°F

Incident Angle Modifier [(S)=1/cosθ - 1, 0°<θ<=60°]

Kα = 1 1.800 (S) -1.700 (S)²

Kα = 1 -0.10 (S) Linear Fit

Model Tested: 2009042Ai

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.

December, 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