



**CERTIFIED SOLAR COLLECTOR**

SUPPLIER:  
**Fitch Consulting**  
 1072 Fowlersville Road  
 Berwick, PA 18603 USA  
 www.wearesolar.com

BRAND: Fitch Consulting  
 MODEL: FC4715-30D  
 COLLECTOR TYPE: Tubular  
 CERTIFICATION #: 2008004B  
 Original Certification: September 06, 2012  
 Expiration Date: August 30, 2024

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 <sup>2</sup> .day)	Medium Radiation (4.7 kWh/m <sup>2</sup> .day)	Low Radiation (3.1 kWh/m <sup>2</sup> .day)	Climate -> Category (Ti-Ta)	High Radiation (2000 Btu/ft <sup>2</sup> .day)	Medium Radiation (1500 Btu/ft <sup>2</sup> .day)	Low Radiation (1000 Btu/ft <sup>2</sup> .day)
A (-5 °C)	9.9	7.5	5.2	A (-9 °F)	33.9	25.8	17.6
B (5 °C)	9.3	6.9	4.5	B (9 °F)	31.8	23.7	15.5
C (20 °C)	8.4	6.0	3.7	C (36 °F)	28.7	20.6	12.5
D (50 °C)	6.9	4.5	2.2	D (90 °F)	23.5	15.5	7.4
E (80 °C)	5.4	3.1	1.0	E (144 °F)	18.4	10.4	3.4

**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					
<b>Gross Area:</b>	3.559 m <sup>2</sup>	38.31 ft <sup>2</sup>	<b>Dry Weight:</b>	51 kg	112 lb
<b>Net Aperture Area:</b>	2.675 m <sup>2</sup>	28.79 ft <sup>2</sup>	<b>Fluid Capacity:</b>	1.2 liter	0.3 gal
<b>Absorber Area:</b>	1.653 m <sup>2</sup>	17.79 ft <sup>2</sup>	<b>Test Pressure:</b>	1103 kPa	160 psi

TECHNICAL INFORMATION			Tested in accordance with: ISO 9806		
<b>ISO Efficiency Equation</b> [NOTE: Based on gross area and (P)=Ti-Ta]					
<b>SI UNITS:</b>	$\eta = 0.426 + 0.15800(P/G) - 0.03650(P^2/G)$		<b>Y Intercept:</b>	0.432	<b>Slope:</b> -1.553 W/m <sup>2</sup> .°C
<b>IP UNITS:</b>	$\eta = 0.426 + 0.02785(P/G) - 0.00357(P^2/G)$		<b>Y Intercept:</b>	0.432	<b>Slope:</b> -0.274 Btu/hr.ft <sup>2</sup> .°F

Transverse Incident Angle Modifier								Longitudinal Incident Angle Modifier at 50°:	
$\theta$	10	20	30	40	50	60	70	0.93	
<b>K<math>\tau</math></b>	1.00	1.02	1.04	1.07	1.13	1.23	1.45	<b>Test Fluid:</b>	Water
								<b>Test Mass Flow Rate:</b>	0.0190 kg/(s m <sup>2</sup> ) 14.01 lb/(hr ft <sup>2</sup> )

REMARKS:

*Jeri Higgins*

Technical Director





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ADDITIONAL INFORMATION ( <a href="#">click here to return to the rating page</a> )			
Test Lab:	Atlas Weathering Services Group	Test Report Date:	August 30, 2012
Test Report Number:	AT29495 (Rev B)	Test conducted:	outdoors

SOLAR COLLECTOR CONSTRUCTION DETAILS					
Header Enclosure:					
Gross Length:	1.654 m	Gross Width:	2.164 m	Gross Depth:	0.2 m
Tube Bank:					
Gross Length:	0.210 m	Gross Width:	2.164 m		

COLLECTOR MATERIALS					
Outer Cover:	Glass Tube	Enclosure back:	Stainless Steel	Back Insulation:	Vacuum,
Inner Cover:	Glass Tube	Enclosure side:	Stainless Steel	Side Insulation:	,
Absorber Description:	Tubes connected to Fins		Flow Pattern:	Series/Meander	
Riser Tube:	Copper		Fin:	Aluminum	
Absorber Coating:	Selective		Tube to fin connection	Mechanical	

Glazing	Outer Cover	Inner Cover	
Material:	Glass Tube	Glass Tube	
Surface Characteristics:	Smooth	Smooth	
Thickness:	1.5 mm	1.5 mm	
Transmissivity:	High (equal to or greater than 90%)	Low (below 87%)	
Gross Tube Length (uninstalled):	1.435 m		
Diameter:	0.047 m	0.037 m	
Tube Glazing to Header Enclosure Seal:	Silicone bead		
Reflector Shape:	Flat	Reflector Material:	Polished aluminum

**ABSORBER:**





<b>Header Material:</b>		<b>Header OD:</b>		<b>Header Wall:</b>	
<b>Riser Tube Material:</b>	Copper	<b>Riser Tube OD:</b>	14.0 mm	<b>Riser Tube Wall Thickness:</b>	1.0 mm
<b>Fin Material:</b>	Aluminum	<b>Fin Thickness:</b>	0.14 mm		
<b>Flow Pattern:</b>	Series/Meander	<b>Number of Flow Tubes / Heat Pipes:</b>	30	<b>Tube / Heat Pipe Spacing:</b>	69.8 mm
<b>Number of absorber tubes:</b>	30	<b>Flow Tube to Fin Bond:</b>	Mechanical	<b>Length of Flow Path:</b>	
<b>Length of Flow Path:</b>		<b>Riser to Fin/Plate Bond:</b>	Mechanical		

<b>INSULATION:</b>					
<b>Location</b>	<b>Type</b>	<b>Thickness</b>	<b>Location</b>	<b>Type</b>	<b>Thickness</b>
<b>Back – Top Layer:</b>	Vacuum	3.5 mm	<b>Sides – Inner Layer:</b>		
<b>Back – Bottom Layer:</b>			<b>Sides – Outer Layer:</b>		
<b>Enclosure Fastening Methods:</b>	Rivets		<b>Header Enclosure:</b>	Stainless steel	

<b>Power Output per Collector(W)</b> [ Ti-Ta, G = 1000 W/m <sup>2</sup> ]				
<b>0</b>	<b>10</b>	<b>30</b>	<b>50</b>	<b>70</b>
1518	1510	1417	1221	920

<b>PRESSURE DROP</b>				
<b>Flow</b>	<b>ΔP</b>		<b>Flow</b>	<b>ΔP</b>
<b>ml/s</b>	<b>Pa</b>		<b>gpm</b>	<b>in H<sub>2</sub>O</b>
20	0.00		0.32	0.0
50	0.00		0.79	0.0
80	0.00		1.27	0.0

