



**CERTIFIED SOLAR COLLECTOR**

SUPPLIER:  
**Heliodyne, Inc.**  
 4910 Seaport Avenue  
 Richmond, CA 94804 USA  
 www.heliodyne.com

BRAND: GOBI  
 MODEL: 410 002  
 COLLECTOR TYPE: Glazed Flat Plate  
 CERTIFICATION #: 2010116A  
 Original Certification: June 08, 2011  
 Expiration Date: March 07, 2023

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)	16.1	12.2	8.3	A (-9 °F)	55.0	41.6	28.3
B (5 °C)	14.5	10.6	6.7	B (9 °F)	49.5	36.1	22.8
C (20 °C)	12.0	8.2	4.3	C (36 °F)	41.0	27.9	14.8
D (50 °C)	7.0	3.6	0.6	D (90 °F)	23.9	12.1	2.1
E (80 °C)	2.6	0.2	0.0	E (144 °F)	8.8	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					
<b>Gross Area:</b>	3.732 m <sup>2</sup>	40.17 ft <sup>2</sup>	<b>Dry Weight:</b>	44 kg	96 lb
<b>Net Aperture Area:</b>	3.468 m <sup>2</sup>	37.33 ft <sup>2</sup>	<b>Fluid Capacity:</b>	5.1 liter	1.3 gal
<b>Absorber Area:</b>	3.438 m <sup>2</sup>	37.01 ft <sup>2</sup>	<b>Test Pressure:</b>	1103 kPa	160 psi

TECHNICAL INFORMATION			Tested in accordance with:		
<b>ISO Efficiency Equation</b> [NOTE: Based on gross area and (P)=Ti-Ta]					
<b>SI UNITS:</b>	$\eta = 0.716 - 3.90330(P/G) - 0.01870(P^2/G)$	<b>Y Intercept:</b>	0.724	<b>Slope:</b>	-5.201 W/m <sup>2</sup> .°C
<b>IP UNITS:</b>	$\eta = 0.716 - 0.68793(P/G) - 0.00183(P^2/G)$	<b>Y Intercept:</b>	0.724	<b>Slope:</b>	-0.917 Btu/hr.ft <sup>2</sup> .°F

Incident Angle Modifier								Test Fluid:	
$\theta$	10	20	30	40	50	60	70	Water	
<b>K<sub>τα</sub></b>	1.00	0.99	0.97	0.95	0.89	0.79	0.51	<b>Test Mass Flow Rate:</b>	0.0219 kg/(s m <sup>2</sup> )    16.16 lb/(hr ft <sup>2</sup> )
<b>Impact Safety Rating:</b>									

REMARKS:

*Jen Higgins*

Technical Director





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ADDITIONAL INFORMATION ( <a href="#">click here to return to the rating page</a> )			
Test Lab:	Pacific Energy Testing, LLC	Test Report Date:	March 07, 2011
Test Report Number:	11-2010-003	Test conducted:	

SOLAR COLLECTOR CONSTRUCTION DETAILS					
Gross Length:	121.61 in	Gross Width:	47.56 in	Gross Depth:	2.76 in

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

Glazing	Outer Cover	Inner Cover
Material:	Glass sheet	None
Surface Characteristics:		
Thickness:	0.156 in	N/A
Transmissivity:		
Length:	120.00 in	
Width:	45.98 in	
Tube Glazing to Header Enclosure Seal:	EPDM gasket	

ABSORBER:		Absorber Coating:	Moderately selective
Header Material:		Header OD:	
Riser Tube Material:	Copper	Header Wall:	
Fin Material:		Riser Tube OD:	
		Riser Tube Wall Thickness:	
		Fin Thickness:	0.020 in





<b>Flow Pattern:</b>					
<b>Number of Riser Tubes:</b>	11	<b>Tube Spacing:</b>		<b>Number of times each riser crosses the absorber:</b>	11
<b>Length of Flow Path:</b>	9.573 ft	<b>Riser to Fin/Plate Bond:</b>			

<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>	Foam		<b>Sides – Inner Layer:</b>	Foam	
<b>Back – Bottom Layer:</b>	None		<b>Sides – Outer Layer:</b>	None	
<b>Enclosure Fastening Methods:</b>					

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

<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			0.32	
50			0.79	
80			1.27	

