



SOLAR RATING & CERTIFICATION CORPORATION

**CERTIFIED SOLAR COLLECTOR**

SUPPLIER:  
**EnerWorks, Inc.**  
 969 Juliana Drive  
 Woodstock, ON N4V 1C1 Canada  
 www.enerworks.com  
 In Accordance with:  
**SRCC Standard 100-2005-09**

BRAND: Commercial Collector  
 MODEL: COL-4X8-NL-SG1-SH10US  
 COLLECTOR TYPE: Glazed Flat Plate  
 CERTIFICATION #: 2006006A  
 Original Certification: September 14, 2006  
 Expiration Date: May 08, 2018

The solar collector listed below has been evaluated by the Solar Rating & Certification Corporation™ (SRCC™), an ISO/IEC 17065 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 <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 ->	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)
Category (Ti-Ta)				Category (Ti-Ta)			
A (-5 °C)	13.4	10.1	6.9	A (-9 °F)	45.9	34.6	23.4
B (5 °C)	12.4	9.1	5.8	B (9 °F)	42.3	31.1	19.9
C (20 °C)	10.7	7.5	4.3	C (36 °F)	36.5	25.5	14.6
D (50 °C)	7.5	4.4	1.5	D (90 °F)	25.5	14.9	5.1
E (80 °C)	4.3	1.6	0.0	E (144 °F)	14.6	5.5	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>	2.873 m <sup>2</sup>	30.92 ft <sup>2</sup>	<b>Dry Weight:</b>	50 kg	111 lb
<b>Net Aperture Area:</b>	2.691 m <sup>2</sup>	28.96 ft <sup>2</sup>	<b>Fluid Capacity:</b>	1.9 liter	0.5 gal
<b>Absorber Area:</b>	0.000 m <sup>2</sup>	0.00 ft <sup>2</sup>	<b>Test Pressure:</b>	517 kPa	75 psi

TECHNICAL INFORMATION			Tested in accordance with: ISO 9806:1994		
ISO Efficiency Equation [NOTE: Based on gross area and (P)=Ti-Ta]					
<b>SI UNITS:</b>	$\eta = 0.762 - 3.27870(P/G) - 0.01290(P^2/G)$		<b>Y Intercept:</b>	0.768	<b>Slope:</b> -4.035 W/m <sup>2</sup> .°C
<b>IP UNITS:</b>	$\eta = 0.762 - 0.57785(P/G) - 0.00126(P^2/G)$		<b>Y Intercept:</b>	0.768	<b>Slope:</b> -0.711 Btu/hr.ft <sup>2</sup> .°F

Incident Angle Modifier								Test Fluid:	
$\theta$	10	20	30	40	50	60	70	Propylene glycol	
<b>K<sub>ra</sub></b>	1.00	1.00	1.00	1.00	0.96	0.84	0.31	<b>Test Mass Flow Rate:</b>	0.0184 kg/(s m <sup>2</sup> ) 13.60 lb/(hr ft <sup>2</sup> )
								<b>Impact Safety Rating: 0</b>	

REMARKS:

*Jim Higgins*

Technical Director

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ADDITIONAL INFORMATION ( <a href="#">click here to return to the rating page</a> )			
Test Lab:	Bodycote	Test Date:	May 08, 2006
Test Report Number:	06-08-9133-2	Test Location:	indoors

SOLAR COLLECTOR CONSTRUCTION DETAILS					
Gross Length:	0.000 m	Gross Width:	0.000 m	Gross Depth:	0.000 mm

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

GLAZING	Outer Cover	Inner Cover
Material:	Glass sheet	Glass Tube
Surface Characteristics:	Smooth	
Thickness:	3.2 mm	
Transmissivity:	High (equal to or greater than 90%)	
Length:	0.100 m	
Width:	0.100 m	
Tube Glazing to Header Enclosure Seal:	EPDM gasket	

ABSORBER:		Absorber Coating:	Selective
Header Material:		Header OD:	
Riser Tube Material:	Copper	Riser Tube OD:	
Fin Material:		Fin Thickness:	0.00 mm



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<b>Flow Pattern:</b>					
<b>Number of Riser Tubes:</b>	0	<b>Tube Spacing:</b>		<b>Number of times each riser crosses the absorber:</b>	0
<b>Length of Flow Path:</b>	0.00 m	<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>	Fiber	43.2 mm	<b>Sides – Inner Layer:</b>	Foam	25.4 mm
<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/m² ]				
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	14184		0.32	57.1
50	42171		0.79	169.7
80	78210		1.27	314.8



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