



SOLAR RATING & CERTIFICATION CORPORATION

CERTIFIED SOLAR COLLECTOR

SUPPLIER:
Chromagen
 Chromagen - Solar Energy Systems
 Sha'ar Ha'amakim, 36588 Israel
 www.chromagen.biz

BRAND: Chromagen
 MODEL: CR-140-A-P
 COLLECTOR TYPE: Glazed Flat Plate
 CERTIFICATION #: 2009061E
 Original Certification: February 02, 2010
 Expiration Date: June 06, 2021

In Accordance with:
SRCC Standard 100-2008-02

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 ² .day)	Medium Radiation (4.7 kWh/m ² .day)	Low Radiation (3.1 kWh/m ² .day)	Climate ->	High Radiation (2000 Btu/ft ² .day)	Medium Radiation (1500 Btu/ft ² .day)	Low Radiation (1000 Btu/ft ² .day)
Category (Ti-Ta)				Category (Ti-Ta)			
A (-5 °C)	15.7	11.9	8.0	A (-9 °F)	53.6	40.4	27.4
B (5 °C)	14.1	10.3	6.4	B (9 °F)	48.2	35.0	22.0
C (20 °C)	11.8	8.0	4.2	C (36 °F)	40.1	27.2	14.4
D (50 °C)	7.3	3.8	0.8	D (90 °F)	24.9	13.1	2.9
E (80 °C)	3.3	0.6	0.0	E (144 °F)	11.2	2.1	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					
Gross Area:	3.708 m ²	39.91 ft ²	Dry Weight:	67 kg	148 lb
Net Aperture Area:	3.383 m ²	36.41 ft ²	Fluid Capacity:	6.3 liter	1.7 gal
Absorber Area:	0.000 m ²	0.00 ft ²	Test Pressure:	1103 kPa	160 psi

TECHNICAL INFORMATION			Tested in accordance with: ISO 9806:1994		
ISO Efficiency Equation [NOTE: Based on gross area and (P)=Ti-Ta]					
SI UNITS:	$\eta = 0.736 - 3.88320(P/G) - 0.01349(P^2/G)$		Y Intercept:	0.742	Slope: -4.691 W/m ² .°C
IP UNITS:	$\eta = 0.736 - 0.68438(P/G) - 0.00132(P^2/G)$		Y Intercept:	0.742	Slope: -0.827 Btu/hr.ft ² .°F

Incident Angle Modifier								Test Fluid:	
θ	10	20	30	40	50	60	70	Water	
K _{τα}	1.00	0.98	0.95	0.90	0.81	0.63	0.15	Test Mass Flow Rate:	0.0200 kg/(s m ²) 14.77 lb/(hr ft ²)
Impact Safety Rating:									

REMARKS:

Jim Higgins

Technical Director

Print Date: August, 2015 Page 1 of 3
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ADDITIONAL INFORMATION (click here to return to the rating page)			
Test Lab:	Bodycote	Test Date:	June 06, 2009
Test Report Number:	07-08-0892-1	Test Location:	indoors

SOLAR COLLECTOR CONSTRUCTION DETAILS					
Gross Length:	3.090 m	Gross Width:	1.200 m	Gross Depth:	97.000 mm

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

GLAZING	Outer Cover	Inner Cover
Material:	Glass sheet	None
Surface Characteristics:		
Thickness:	3.0 mm	N/A
Transmissivity:		
Length:	0.000 m	
Width:	1.040 m	
Tube Glazing to Header Enclosure Seal:	EPDM gasket	

ABSORBER:		Absorber Coating:	Non-selective		
Header Material:		Header OD:		Header Wall:	
Riser Tube Material:	Copper	Riser Tube OD:		Riser Tube Wall Thickness:	
Fin Material:		Fin Thickness:	0.50 mm		



Print Date: August, 2015 Page 2 of 3
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Flow Pattern:					
Number of Riser Tubes:	0	Tube Spacing:		Number of times each riser crosses the absorber:	0
Length of Flow Path:	0.00 m	Riser to Fin/Plate Bond:			

INSULATION:					
Location	Type	Thickness	Location	Type	Thickness
Back – Top Layer:			Sides – Inner Layer:	Foam	
Back – Bottom Layer:	Foam		Sides – Outer Layer:	None	
Enclosure Fastening Methods:	Mechanical Forming				

Power Output per Collector(W) [Ti-Ta, G = 1000 W/m²]				
0	10	30	50	70

PRESSURE DROP				
Flow	ΔP		Flow	ΔP
ml/s	Pa		gpm	in H₂O
20			0.32	
50			0.79	
80			1.27	



Print Date: August, 2015 Page 3 of 3
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