

**CERTIFIED SOLAR COLLECTOR**

SUPPLIER:
Duda Energy
7055A Greenbrier Rd
Madison, AL 35756 USA
In Accordance with:
SRCC Standard 100-2010-08

BRAND: Duda Solar
MODEL: SC5820
COLLECTOR TYPE: Tubular
CERTIFICATION #: 10001878
Original Certification: September 19, 2013
Expiration Date: July 13, 2023

The solar collector listed below has been evaluated by the Solar Rating & Certification Corporation™ (SRCC™), an ANSI 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)	9.0	6.8	4.6	A (-9 °F)	30.6	23.1	15.5
B (5 °C)	8.7	6.5	4.3	B (9 °F)	29.8	22.3	14.8
C (20 °C)	8.4	6.2	4.0	C (36 °F)	28.6	21.1	13.5
D (50 °C)	7.5	5.3	3.1	D (90 °F)	25.5	18.1	10.7
E (80 °C)	6.6	4.4	2.3	E (144 °F)	22.4	15.1	7.7
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:	3.083 m ²	33.19 ft ²	Dry Weight:	64 kg	141 lb
Net Aperture Area:	1.889 m ²	20.33 ft ²	Fluid Capacity:	1.2 liter	0.3 gal
Absorber Area:	1.625 m ²	17.49 ft ²	Test Pressure:	900 kPa	131 psi

TECHNICAL INFORMATION		Tested in accordance with: ISO 9806			
ISO Efficiency Equation [NOTE: Based on gross area and (P)=Ti-Ta]					
SI UNITS:	$\eta = 0.420 - 0.65440(P/G) - 0.00310(P^2/G)$	Y Intercept:	0.420	Slope:	-0.786 W/m².°C
IP UNITS:	$\eta = 0.420 - 0.11533(P/G) - 0.00030(P^2/G)$	Y Intercept:	0.420	Slope:	-0.139 Btu/hr.ft².°F

Transverse Incident Angle Modifier								Longitudinal Incident Angle Modifier at 50°:		0.90
θ	10	20	30	40	50	60	70	Test Fluid:	Water	
K _{ra}	1.02	1.06	1.14	1.25	1.40	1.55	1.35	Test Mass Flow Rate:	0.0118 kg/(s m ²)	8.67 lb/(hr ft ²)

REMARKS:

Jim Higgins

Technical Director



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ADDITIONAL INFORMATION (click here to return to the rating page)			
Test Lab:	IZES gGmbH (Institut für ZukunftsEnergieSysteme)	Test Date:	July 13, 2011
Test Report Number:	KT_SRCC10_18	Test Location:	outdoors

SOLAR COLLECTOR CONSTRUCTION DETAILS					
Header Enclosure:					
Gross Length:	1.976 m	Gross Width:	1.560 m	Gross Depth:	0.117 m
Tube Bank:					
Gross Length:	0.185 m	Gross Width:	1.185 m		

COLLECTOR MATERIALS					
Outer Cover:	Glass Tube	Enclosure back:	Aluminum	Back Insulation:	Vacuum,
Inner Cover:	Glass Tube	Enclosure side:	Aluminum	Side Insulation:	,
Absorber Description:	Glass Tubes	Flow Pattern:	Mixed		
Riser Tube:	Copper	Fin:	Glass		
Absorber Coating:	Selective	Tube to fin connection	Mechanical		

GLAZING	Outer Cover	Inner Cover
Material:	Glass Tube	Glass Tube
Surface Characteristics:	Smooth	Smooth
Thickness:	1.8 mm	1.6 mm
Transmissivity:	High (equal to or greater than 90%)	Low (below 87%)
Gross Tube Length (uninstalled):	1.800 m	
Diameter:	0.058 m	0.047 m
Tube Glazing to Header Enclosure Seal:	Silicone bead	
Reflector Shape:		Reflector Material:

ABSORBER





Certification #: 10001878
 Supplier: Duda Energy
 Brand Name: Duda Solar
 Model Number: SC5820

Header Material:	Copper	Header OD:	22.0 mm	Header Wall:	2.0 mm
Riser Tube Material:	Copper	Riser Tube OD:	8.0 mm	Riser Tube Wall Thickness:	0.4 mm
Fin Material:	Glass	Fin Thickness:	0.15 mm		
Flow Pattern:	Mixed	Number of Flow Tubes / Heat Pipes:	20	Tube / Heat Pipe Spacing:	75.0 mm
Number of absorber tubes:	1	Flow Tube to Fin Bond:	Mechanical	Length of Flow Path:	
Length of Flow Path:		Riser to Fin/Plate Bond:	Mechanical		

INSULATION:					
Location	Type	Thickness	Location	Type	Thickness
Back – Top Layer:	Vacuum	3.7 mm	Sides – Inner Layer:		
Back – Bottom Layer:			Sides – Outer Layer:		
Enclosure Fastening Methods:	Mechanical Forming		Header Enclosure:	Aluminum	

Power Output per Collector(W) [Ti-Ta, G = 1000 W/m ²]				
0	10	30	50	70
1293	1272	1224	1169	1105

PRESSURE DROP				
Flow	ΔP		Flow	ΔP
ml/s	Pa		gpm	in H ₂ O
20	0		0.32	0.0
50	0		0.79	0.0
80	0		1.27	0.0

