



SOLAR RATING & CERTIFICATION CORPORATION

CERTIFIED SOLAR COLLECTOR

SUPPLIER:
SunMaxx Solar LLC
 5042-5160 New York 206
 Bainbridge, NY 13733 USA
 www.sunmaxxsolar.com
 In Accordance with:
SRCC Standard 100-2014-07

BRAND: TitanPowerPlus
 MODEL: TitanPowerPlus-ALDH29-V3
 COLLECTOR TYPE: Glazed Flat Plate
 CERTIFICATION #: 10002034
 Original Certification: November 21, 2016
 Expiration Date: October 16, 2026

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)	12.9	9.5	6.6	A (-9 °F)	44.1	32.5	22.4
B (5 °C)	11.5	8.5	5.6	B (9 °F)	39.2	29.1	18.9
C (20 °C)	9.8	6.9	4.0	C (36 °F)	33.5	23.6	13.7
D (50 °C)	6.6	3.8	1.3	D (90 °F)	22.4	13.1	4.4
E (80 °C)	3.4	1.2	0.0	E (144 °F)	11.7	4.1	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:	2.740 m ²	29.49 ft ²	Dry Weight:	42.0 kg	92.6 lb
Net Aperture Area:	2.500 m ²	26.91 ft ²	Fluid Capacity:	1.9 liter	0.5 gal
Absorber Area:	2.500 m ²	26.91 ft ²	Test Pressure:	1500 kPa	218 psi

TECHNICAL INFORMATION			Tested in accordance with: ISO 9806:2013		
ISO Efficiency Equation [NOTE: Based on gross area and (P)=Ti-Ta]					
SI UNITS:	$\eta = 0.737 - 3.40000(P/G) - 0.01400(P^2/G)$		Y Intercept:	0.747	Slope: -4.380 W/m ² .°C
IP UNITS:	$\eta = 0.737 - 0.59922(P/G) - 0.00137(P^2/G)$		Y Intercept:	0.747	Slope: -0.772 Btu/hr.ft ² .°F

Incident Angle Modifier								Test Fluid:	
θ	10	20	30	40	50	60	70	Water	
K_{ra}	1.00	0.99	0.98	0.96	0.92	0.85	0.72	Test Mass Flow Rate:	0.0268 kg/(s m ²) 19.76 lb/(hr ft ²)
Impact Safety Rating: 11									

REMARKS:

Shawn Martin
 Technical Director

Print Date: May, 2017 Page 1 of 3
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ADDITIONAL INFORMATION (click here to return to the rating page)			
Test Lab:	Forschungs- und Testzentrum für Solaranlagen (TZS) am Institut für Thermodynamik und Wärmetechnik (ITW) der Universität Stuttgart	Test Date:	October 16, 2016
Test Report Number:	16COL1344	Test Location:	outdoors

SOLAR COLLECTOR CONSTRUCTION DETAILS					
Gross Length:	2.368 m	Gross Width:	1.158 m	Gross Depth:	95.000 mm

COLLECTOR MATERIALS					
Outer Cover:	Glass sheet	Enclosure back:	Aluminum	Back Insulation:	Fiber, None
Inner Cover:	None	Enclosure side:	Aluminum	Side Insulation:	Air, None
Absorber Description:	Tubes connected to Single Sheet	Flow Pattern:	Series/Meander		
Riser Tube:	Copper	Fin:	Aluminum		
Absorber Coating:	Selective	Tube to fin connection	Laser Weld		

GLAZING	Outer Cover	Inner Cover
Material:	Glass sheet	None
Surface Characteristics:	Smooth	
Thickness:	3.2 mm	N/A
Transmissivity:	High (equal to or greater than 90%)	
Length:	2.334 m	
Width:	1.125 m	
Tube Glazing to Header Enclosure Seal:	EPDM gasket	

ABSORBER:	Absorber Coating:	Selective
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Print Date: May, 2017 Page 2 of 3
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Header Material:		Header OD:		Header Wall:	
Riser Tube Material:	Copper	Riser Tube OD:	9.0 mm	Riser Tube Wall Thickness:	0.4 mm
Fin Material:	Aluminum	Fin Thickness:	0.50 mm		

Flow Pattern:	Series/Meander				
Number of Riser Tubes:	1	Tube Spacing:	105.0 mm	Number of times each riser crosses the absorber:	1
Length of Flow Path:	24.00 m	Riser to Fin/Plate Bond:	Laser Weld		

INSULATION:					
Location	Type	Thickness	Location	Type	Thickness
Back – Top Layer:	Fiber	50.0 mm	Sides – Inner Layer:	Air	25.0 mm
Back – Bottom Layer:	None		Sides – Outer Layer:	None	
Enclosure Fastening Methods:	Mechanical Forming				

Power Output per Collector(W) [Ti-Ta, G = 1000 W/m ²]				
0	10	30	50	70
2019	1922	1705	1458	1179

PRESSURE DROP				
Flow	ΔP		Flow	ΔP
m/s	Pa		gpm	in H₂O
20	13280		0.32	53.4
50	53175		0.79	214.0
80	117038		1.27	471.0



Print Date: May, 2017 Page 3 of 3
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