



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-ALDH29P  
 COLLECTOR TYPE: Glazed Flat Plate  
 CERTIFICATION #: 10002018  
 Original Certification: June 23, 2016  
 Expiration Date:

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)	13.1	9.9	6.7	A (-9 °F)	44.6	33.6	22.8
B (5 °C)	11.9	8.7	5.5	B (9 °F)	40.6	29.7	18.8
C (20 °C)	10.1	7.0	3.9	C (36 °F)	34.4	23.7	13.2
D (50 °C)	6.6	3.8	1.1	D (90 °F)	22.5	12.9	3.8
E (80 °C)	3.4	1.1	0.0	E (144 °F)	11.7	3.8	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>	2.650 m <sup>2</sup>	28.52 ft <sup>2</sup>	<b>Dry Weight:</b>	49.0 kg	108.0 lb
<b>Net Aperture Area:</b>	2.450 m <sup>2</sup>	26.37 ft <sup>2</sup>	<b>Fluid Capacity:</b>	2.2 liter	0.6 gal
<b>Absorber Area:</b>	2.450 m <sup>2</sup>	26.37 ft <sup>2</sup>	<b>Test Pressure:</b>	929 kPa	135 psi

TECHNICAL INFORMATION			Tested in accordance with: ISO 9806:2013		
<b>ISO Efficiency Equation</b> [NOTE: Based on gross area and (P)=Ti-Ta]					
<b>SI UNITS:</b>	$\eta = 0.835 - 4.00540(P/G) - 0.01270(P^2/G)$	<b>Y Intercept:</b>	0.838	<b>Slope:</b>	-4.792 W/m <sup>2</sup> .°C
<b>IP UNITS:</b>	$\eta = 0.835 - 0.70592(P/G) - 0.00124(P^2/G)$	<b>Y Intercept:</b>	0.838	<b>Slope:</b>	-0.845 Btu/hr.ft <sup>2</sup> .°F

Incident Angle Modifier								Test Fluid:	
$\theta$	10	20	30	40	50	60	70	Water	
<b>K<sub>ra</sub></b>	1.00	0.99	0.96	0.93	0.87	0.77	0.56	<b>Test Mass Flow Rate:</b>	0.0460 kg/(s m <sup>2</sup> )    33.92 lb/(hr ft <sup>2</sup> )
								<b>Impact Safety Rating: 11</b>	

REMARKS:

*Shawn Martin*  
 Technical Director

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ADDITIONAL INFORMATION (click here to return to the rating page)			
Test Lab:	TÜV Rheinland Energy GmbH	Test Date:	January 01, 0001
Test Report Number:		Test Location:	indoors

SOLAR COLLECTOR CONSTRUCTION DETAILS					
Gross Length:	2.356 m	Gross Width:	1.120 m	Gross Depth:	85.000 mm

COLLECTOR MATERIALS					
Outer Cover:	Glass sheet	Enclosure back:	Aluminum	Back Insulation:	Fiber, None
Inner Cover:	None	Enclosure side:	Aluminum	Side Insulation:	Fiber, 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:	Textured	
Thickness:	4.0 mm	N/A
Transmissivity:	High (equal to or greater than 90%)	
Length:	2.304 m	
Width:	1.068 m	
Tube Glazing to Header Enclosure Seal:	Other	

ABSORBER:		Absorber Coating:	Selective		
Header Material:		Header OD:		Header Wall:	
Riser Tube Material:	Copper	Riser Tube OD:	10.0 mm	Riser Tube Wall Thickness:	0.5 mm
Fin Material:	Aluminum	Fin Thickness:	0.50 mm		



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<b>Flow Pattern:</b>	Series/Meander				
<b>Number of Riser Tubes:</b>	1	<b>Tube Spacing:</b>	107.0 mm	<b>Number of times each riser crosses the absorber:</b>	20
<b>Length of Flow Path:</b>	1.04 m	<b>Riser to Fin/Plate Bond:</b>	Laser Weld		

INSULATION:					
Location	Type	Thickness	Location	Type	Thickness
<b>Back – Top Layer:</b>	Fiber	40.0 mm	<b>Sides – Inner Layer:</b>	Fiber	8.0 mm
<b>Back – Bottom Layer:</b>	None		<b>Sides – Outer Layer:</b>	None	
<b>Enclosure Fastening Methods:</b>	Other				

Power Output per Collector(W) [ Ti-Ta, G = 1000 W/m² ]				
0	10	30	50	70
2212	2012	1863	1597	1303

PRESSURE DROP				
Flow	ΔP		Flow	ΔP
ml/s	Pa		gpm	in H <sub>2</sub> O
20	55		0.32	0.2
50	140		0.79	0.6
80	230		1.27	0.9



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