

**CERTIFIED SOLAR COLLECTOR**

SUPPLIER:
Solar Panels Plus
533 Byron Street
Suite E
Chesapeake, VA 23320 USA
www.solarpanelsplus.com

BRAND: Solar Panels Plus
MODEL: SPP-410
COLLECTOR TYPE: Unglazed Flat Plate
CERTIFICATION #: 2008023A
Original Certification: July 28, 2008
Expiration Date: December 11, 2014

The solar collector listed below has been evaluated by the Solar Rating & Certification Corporation™ (SRCC™) 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.

COLLECTOR THERMAL PERFORMANCE RATING (Collector Tested per ASHRAE 96)							
Kilowatt-hours (thermal) Per m ² Per Day				Thousands of Btu Per ft ² Per Day			
Climate -> Category (Ti-Ta)	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 -> Category (Ti-Ta)	High Radiation (2000 Btu/ft ² .day)	Medium Radiation (1500 Btu/ft ² .day)	Low Radiation (1000 Btu/ft ² .day)
A (-5 °C)	5.8	4.6	3.3	A (-9 °F)	1.8	1.4	1.1
B (5 °C)	4.0	2.8	1.6	B (9 °F)	1.3	0.9	0.5
C (20 °C)	1.9	0.8	0.1	C (36 °F)	0.6	0.3	0.0
D (50 °C)	0.0	0.0	0.0	D (90 °F)	0.0	0.0	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:	3.672 m ²	39.53 ft ²	Dry Weight:	11 kg	24 lb
Net Aperture Area:	3.672 m ²	39.53 ft ²	Fluid Capacity:	17.5 liter	4.6 gal
Absorber Area:	0.000 m ²	0.00 ft ²	Test Pressure:	365 kPa	53 psi

TECHNICAL INFORMATION		Tested in accordance with: ASHRAE 96
ISO Efficiency Equation [NOTE: Based on gross area and (P)=Ti-Ta]		
SI UNITS:	Wind speed (u) in m/s, Temperature (Ti - Ta) in °C, Radiation (G) in W/m ² $\eta = 0.823 - 16.36250(P/G) - 0.01331(P^2/G)$	
IP UNITS:	Wind speed (u) in mph, Temperature (Ti - Ta) in °F, Radiation (G) in Btu/hr-ft ² $\eta = 0.823 - 2.88377(P/G) - 0.00130(P^2/G)$	

Incident Angle Modifier								Test Fluid:	Water
θ	10	20	30	40	50	60	70	Test Mass Flow Rate:	0.0394 kg/(s m ²) 29.05 lb/(hr ft ²)
K _{τα}	1.00	1.00	1.00	0.99	0.98	0.93	0.76	Impact Safety Rating:	

REMARKS: All sizes of this collector model are certified

Jim Higgins

Technical Director

