



CERTIFIED SOLAR COLLECTOR

SUPPLIER:
S-Power Entwicklungs und Vertriebs GmbH
 Industriestrasse 24-27
 Meppen, 49716 Germany
 www.s-power.de

BRAND: s-power
MODEL: HP 30/3000/R
COLLECTOR TYPE: Tubular
CERTIFICATION #: 2010074A
Original Certification: February 07, 2011
Expiration Date: August 19, 2020

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							
Kilowatt-hours (thermal) Per Panel Per Day				Thousands of BTU Per Panel 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)	17.5	13.2	9.0	A (-9 °F)	59.6	45.1	30.6
B (5 °C)	16.6	12.4	8.1	B (9 °F)	56.8	42.3	27.8
C (20 °C)	15.4	11.2	6.9	C (36 °F)	52.6	38.1	23.6
D (50 °C)	13.2	9.0	4.8	D (90 °F)	44.9	30.7	16.5
E (80 °C)	11.1	7.0	3.1	E (144 °F)	38.0	23.8	10.5

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:	5.030 m ²	54.14 ft ²	Dry Weight:	72 kg	159 lb
Net Aperture Area:	4.459 m ²	48.00 ft ²	Fluid Capacity:	1.4 liter	0.4 gal
Absorber Area:	2.794 m ²	30.07 ft ²	Test Pressure:	1500 kPa	218 psi

TECHNICAL INFORMATION				Tested in accordance with:			
ISO Efficiency Equation [NOTE: Based on gross area and (P)=Ti-Ta]							
SI UNITS:	$\eta = (0.477)$	$(-1.53650)*(P)/G$	$(0.00053)*(P)^2/G$	Y Intercept:	0.477	Slope:	-1.500 W/m ² .°C
IP UNITS:	$\eta = (0.477)$	$(-8.71656)*(P)/G$	$(0.00005)*(P)^2/G$	Y Intercept:	0.477	Slope:	-0.264 Btu/hr.ft ² .°F

Incident Angle Modifier								Longitudinal Incident Angle Modifier at 50°:	
θ	10	20	30	40	50	60	70	-1.25	
Kra	-1.16	-1.17	-1.19	-1.21	-1.25	-1.32	-1.47	Test Fluid:	Water
								Test Mass Flow Rate:	0.098 kg/(s m ²) 72.005 lb/(hr/ft ²)

REMARKS:

John Higgins

Technical Director



CERTIFIED SOLAR COLLECTOR

SUPPLIER:
S-Power Entwicklungs und Vertriebs GmbH
 Industriestrasse 24-27
 Meppen, 49716 Germany
 www.s-power.de

BRAND: s-power
 MODEL: HP 30/3000/R
 COLLECTOR TYPE: Tubular
 CERTIFICATION #: 2010074A
 Original Certification: February 07, 2011
 Expiration Date: August 19, 2020

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.

ADDITIONAL INFORMATION (click here to return to the rating page)			
Test Lab:	TÜV Rheinland Energie und Umwelt GmbH	Test Report Date:	August 19, 2010
Test Report Number:	Missing	Test conducted:	

SOLAR COLLECTOR CONSTRUCTION DETAILS					
Header Enclosure:					
Gross Length:	2.252 m	Gross Width:	2.238 m	Gross Depth:	115.0 mm
Tube Bank:					
Gross Length:	N/A	Gross Width:	N/A		

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

Glazing	Outer Cover	Inner Cover
Material:	Glass Tube	None
Surface Characteristics:		
Thickness:	1.8 mm	N/A
Transmissivity:		
Gross Tube Length (uninstalled):	2.000 m	N/A
Diameter:	1.680 m	N/A
Tube Glazing to Header Enclosure Seal:	EPDM gasket	
Reflector Shape:		Reflector Material:

ABSORBER:					
Header Material:		Header OD:	N/A	Header Wall:	N/A
Riser Tube Material:	Copper	Riser Tube OD:	48.0 mm	Riser Tube Wall Thickness:	N/A
Fin Material:		Fin Thickness:	0.12 mm		
Flow Pattern:		Number of Flow Tubes / Heat Pipes:	30.0	Tube / Heat Pipe Spacing:	N/A
Number of absorber tubes:	30.0	Flow Tube to Fin Bond:		Length of Flow Path:	1.94 m
Length of Flow Path:	1.94 m	Riser to Fin/Plate Bond:	Fin(s)		

INSULATION:					
Location	Type	Thickness	Location	Type	Thickness
Back – Top Layer:		N/A	Sides – Inner Layer:		N/A
Back – Bottom Layer:		N/A	Sides – Outer Layer:		N/A
Enclosure Fastening Methods:	Mechanical Forming		Header Enclosure:		

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

PRESSURE DROP				
Flow	ΔP		Flow	ΔP
ml/s	Pa		gpm	in H ₂ O
20	1448843.800000		0.32	5830.974886
50	9013064.500000		0.79	36273.718909
80	23046431.200000		1.27	92752.000966