



SOLAR RATING & CERTIFICATION CORPORATION

AWARD OF COLLECTOR CERTIFICATION

The solar collector listed below has been evaluated by the Solar Rating and Certification Corporation (SRCC) in accordance with SRCC Document OG-100, *Operating Guidelines and Minimum Standards for Certifying Solar Collectors*, and has been certified by the SRCC as specified in SRCC Standard 100-94, *Test Methods and Minimum Standards for Certifying Solar Collectors*. Certification and thermal performance ratings are based on the successful durability and performance testing of a sample unit where said tests have been conducted by an independent laboratory accredited by the SRCC.

Collector Certification Number: **100-2011002A**

Certification Date:	Type: Glazed Flat-Plate	Expiration Date: 14-DEC-21
Test Laboratory: TUV	Report Number: 21211699_LE	Report Date: 14-DEC-09
Brand: MAXOL FULL PLATE 2.0	Certified Model: FP 1.20.0 LE sc	Model Tested: 2009076A

Supplier: **Modulo Solar SA de CV**
 Calle 23 Este # 3, Col. Civac
 Cuernavaca, Morelos 62578 Mexico
 (+52) (777) 5169497

Description: Aluminum frame. Solar Glass cover. Aluminum absorber with Selective. side insulation and Polyurethane Foam back insulation. Water was the fluid for performance tests. Gross Area: 2.031 m² (21.9 ft²). Aperture Area: 1.886 m² (20.3 ft²).

GLAZED COLLECTOR THERMAL PERFORMANCE RATING

Megajoules Per Panel Per Day				Thousands of BTU Per Panel Per Day			
CATEGORY (Ti-Ta)	CLEAR DAY	MILDLY CLOUDY	CLOUDY DAY	CATEGORY (Ti-Ta)	CLEAR DAY	MILDLY CLOUDY	CLOUDY DAY
A (-5 °C)	30.2	22.9	15.6	A (-9 °F)	28.7	21.7	14.8
B (5 °C)	27.2	19.9	12.6	B (9 °F)	25.8	18.9	12.0
C (20 °C)	22.7	15.6	8.4	C (36 °F)	21.5	14.7	8.0
D (50 °C)	14.1	7.7	1.9	D (90 °F)	13.4	7.3	1.8
E (80 °C)	6.4	1.4	0.0	E (144 °F)	6.1	1.3	0.0

A- Pool Heating (Warm Climate) B- Pool Heating (Cool Climate) C- Water Heating (Warm Climate) D- Water Heating (Cool Climate) E- Air Conditioning

Efficiency Equation [NOTE: Based on gross area and (P)=Ti-Ta]

S I UNITS:	$\eta = 0.666$	$-3.71930 (P)/I$	$-0.01019 (P)^2/I$
I P UNITS:	$\eta = 0.666$	$-0.65520 (P)/I$	$-0.00100 (P)^2/I$

Y INTERCEPT

SLOPE

0.670	-4.40 W/m².°C
0.670	-0.80 Btu/hr.ft².°F

Incident Angle Modifier [(S)=1/cosθ - 1, 0°<θ<=60°]

Kα = 1 0.03 (S) -0.203 (S)²

Kα = 1 -0.13 (S) Linear Fit (S)²

REMARKS:

This award of certification is subject to all terms and conditions of the program Agreement and the documents incorporated therein by reference. It must be renewed annually. Any change in collector design, materials, specifications, parts, or construction must be reported to SRCC for evaluation of continued certification.



Technical Director

March 25, 2011



SOLAR COLLECTOR
CERTIFICATION AND RATING



SRCC OG-100

CERTIFIED SOLAR COLLECTOR

SUPPLIER: **Modulo Solar SA de CV**
Calle 23 Este # 3, Col. Civac
Cuernavaca, Morelos 62578 Mexico

MODEL: FP 1.20.0 LE sc

COLLECTOR TYPE: MAXOL FULL PLATE 2.0 Glazed
Flat-Plate

CERTIFICATION#: 2011002A

COLLECTOR THERMAL PERFORMANCE RATING

Megajoules Per Panel Per Day				Thousands of BTU Per Panel Per Day			
CATEGORY (Ti-Ta)	CLEAR DAY	MILDLY CLOUDY	CLOUDY DAY	CATEGORY (Ti-Ta)	CLEAR DAY	MILDLY CLOUDY	CLOUDY DAY
A (-5 °C)	30.2	22.9	15.6	A (-9 °F)	28.7	21.7	14.8
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D (50 °C)	14.1	7.7	1.9	D (90 °F)	13.4	7.3	1.8
E (80 °C)	6.4	1.4	0.0	E (144 °F)	6.1	1.3	0.0

A- Pool Heating (Warm Climate) B- Pool Heating (Cool Climate) C- Water Heating (Warm Climate) D- Water Heating (Cool Climate) E- Air Conditioning

Original Certification Date:

COLLECTOR SPECIFICATIONS

Gross Area: 2.031 m² 21.86 ft² Net Aperture Area: 1.89 m² 20.30 ft²

Dry Weight: 27.0 kg 60. lb Fluid Capacity: 2.2 liter 0.6 gal

Test Pressure: 1500. KPa 218. psig

COLLECTOR MATERIALS

Frame: Aluminum

Cover (Outer): Solar Glass

Cover (Inner):

Pressure Drop

Flow		ΔP	
ml/s	gpm	Pa	in H ₂ O
20.00	0.32	39.91	0.16
50.00	0.79	152.4	0.6
80.00	1.27	328.04	1.32

Absorber Material: Tube - Aluminum / Plate - Aluminum

Absorber Coating: Selective

Insulation Side:

Insulation Back: Polyurethane Foam

TECHNICAL INFORMATION

Efficiency Equation [NOTE: Based on gross area and (P)=Ti-Ta]

	Y INTERCEPT	SLOPE
S I UNITS: $\eta = 0.666 - 3.71930 (P)/I - 0.01019 (P)^2/I$	0.670	-4.404 W/m ² .°C
I P UNITS: $\eta = 0.666 - 0.65515 (P)/I - 0.00100 (P)^2/I$	0.670	-0.776 Btu/hr.ft ² .°F

Incident Angle Modifier [(S)=1/cosθ - 1, 0°<θ<=60°]

K_{τα} = 1 0.031 (S) -0.203 (S)²

K_{τα} = 1 -0.13 (S) Linear Fit

Model Tested: 2009076A

Test Fluid: Water

Test Flow Rate: 21.7 ml/s.m² 0.0319 gpm/ft²

REMARKS:

March, 2011

Certification must be renewed annually, For current status contact: