ICC-SRCC OG-100 SOLAR POOL HEATING COLLECTOR CERTIFICATION

LISTEE: Magen eco-Energy US 451 Prosperity Farms Road Suite 40 Ocoee, FL 34761 USA www.mageneco.com/us		**BRAND NAME:**	SunStar STR
		PRODUCT:	Unglazed Solar Pool Heating Collector
		CERTIFICATION NO:	10001888
		ISSUED:	November 20, 2013
		EXPIRATION DATE:	December 1, 2026
ADDITIONAL LISTEES: Novem Sistemas de Agua, Ave. Pedro Ramírez Vázquez No. 200-13 Torre Valmex Piso 6, Col. Valle Oriente, San Pedro Garza Garcia, N.L. 66269 Mexico			

The collector models listed below have been evaluated under the OG-100 certification program by the Solar Rating & Certification Corporation (ICC-SRCC), an ISO/IEC 17065 accredited Certification Body, in accordance with the latest version of the *ICC-SRCC Rules for Solar Heating & Cooling Product Listing Reports* and found to comply with:

- *ICC 901/SRCC 100 – 2020, Solar Thermal Collector Standard*

CERTIFIED MODELS*

Magen SunStar	Novem Medallion	HEADER (in)	WIDTH (in)	LENGTH (in)	AREA (ft^2)
MODEL NAME/NO.					
STR-8	MDN-8	2	12	91	7.6
STR-9.5	MDN-9.5	2	12	116	9.7
STR-10	MDN-10	2	12	128	10.7
STR-12.5	MDN-12.5	2	12	152	12.7
STR-30	MDN-30	2	47	91	29.7
STR-38	MDN-38	2	47	116	37.9
STR-40	MDN-40	2	47	128	41.8
STR-50	MDN-50	2	47	152	49.6

* 2' x 12' collector used for qualification and thermal performance testing. Other custom sizes may be covered under this certification where the design is identical to the models listed above.

OG-100 SEASONAL POOL HEATING EFFICIENCY

	SPRING	SUMMER	FALL
Efficiency[1]	81%	91%	81%
Wind Derating Factor[2]	0.75	0.94	0.74

1. Peak instantaneous hemispherical efficiency at G = 875/1000/750 W/m^2, dT = 5/0/3.9°C, m = 0.379 kg/s
2. Efficiency derating calculated at wind speed, u = 1.34 m/s

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10001888 TECHNICAL DATA SHEET

Thermal Efficiency Equation[1]			
$\eta_{hem,\dot{m}} = \eta_{0,hem}(1 - b_u u) - (b_1 + b_2 u)\frac{(Ti - Ta)}{G"}$			
$\eta_{0,hem}$	b_u	b_1	b_2
0.91	0.042 s/m	11.979 W/m^{2}K	14.289 W/m^{3}K
1: Second order thermal efficiency equation calculated in accordance with ISO 9806-2013 at a fluid flowrate, $\dot{m}$ = 0.379 kg/s.			

Incident Angle Modifier (IAM)										
θ	0°	10°	20°	30°	40°	50°	60°	70°	80°	90°
$K_b(\theta)$	1.00	1.00	1.02	1.04	1.07	1.10	1.03	0.57	0.25	0.00

PRODUCT LABEL

Certified systems must be identified with the OG-100 certification mark below in accordance with the *Rules for Certification Mark and Certificate Use* and labeled in with the information below per *ICC 901/SRCC 100*:

1. Manufacturer's name and model number.
2. OG-100 collector certification number
3. Maximum operating pressure
4. Dry weight
5. Fluid volume
6. Compatible heat transfer fluids
7. Standard stagnation temperature
8. Year of manufacture and/or serial number.

CONDITIONS OF CERTIFICATION

This award of certification is subject to all terms and conditions of the ICC-SRCC OG-100 Certification Program and the documents incorporated therein by reference. This document must be reproduced in its entirety.

1. The collector listed in this ICC-SRCC OG-100 certification has been evaluated to the standard indicated above and has been found to comply in accordance with the *ICC-SRCC Rules for Solar Heating & Cooling Product Listing Reports*. It is valid between the date of issuance and expiration and is subject to annual renewal. Certification validity should be confirmed on the ICC-SRCC website at www.solar-rating.org
2. OG-100 Thermal Performance Ratings have been calculated for the tested components using standardized conditions established by the OG-100 program and test standards. Actual results will vary based on the specific usage, installation, and local environmental conditions.
3. The listed collector must be installed in accordance with the manufacturer's published installation instructions and applicable codes. OG-100 certifications do not include mounting hardware and appurtenances. Solar thermal collectors must be mounted in accordance with the requirements of the collector and mounting hardware manufacturers to comply with local codes for structural loading for wind, seismic, snow and other loads.
4. Solar thermal collectors and mounting hardware and appurtenances must comply with all local codes and comply with applicable requirements for fire resistance.
5. Solar thermal collectors must be used with the heat transfer fluids listed in this document.
6. Solar thermal collector manufactured under a quality control program subjected to periodic evaluation in accordance with the requirements of ICC-SRCC.

Vincent Chui, S.E.
VP of Evaluation Services

ACCREDITED
CERTIFICATE # 3299.01, 3299.03

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