



# SUMMARY INFORMATION SHEET

April 2010  
FSEC # 00398N

## MANUFACTURER

Alternate Energy Technologies, LLC  
1057 N. Ellis Rd. Unit 4  
Jacksonville, Florida 32254

**Collector Model**  
MSC-24

This solar collector was evaluated by the Florida Solar Energy Center (FSEC) in accordance with prescribed methods and was found to meet the minimum standards established by FSEC. This evaluation was based on solar collector tests performed at Bodycote Materials Testing Canada Inc., Mississauga, Ontario, Canada. The purpose of the tests is to verify initial performance conditions and quality of construction only. The resulting certification is not a guarantee of long term performance or durability.

## DESCRIPTION

Gross Length	2.490 meters	8.17 feet
Gross Width	0.911 meters	2.99 feet
Gross Depth	0.079 meters	0.26 feet
Gross Area	2.269 square meters	24.42 square feet
Transparent Frontal Area	2.013 square meters	21.67 square feet
Volumetric Capacity	2.9 liters	0.8 gallons
Weight (empty)	41.3 kilograms	91.0 pounds
Recommended Flow Rate	63 ml/s	1.0 gpm
Test Pressure	1103 kPa	160 psig
Number of Cover Plates	One	
Flow Pattern	Parallel	Forced Circulation
Number of Tubes	Seven	

## MATERIALS

Enclosure	Aluminum frame, aluminum back
Glazing	Tempered low iron glass, 0.30 cm thick
Absorber	Copper tubes welded to copper fins
Absorber Coating	Selective coating
Insulation	Foil faced polyisocyanurate, 3.2 cm thick

## THERMAL PERFORMANCE

Tested per ASHRAE 93-1986

Incident Angle Modifier  $K_{\tau\alpha} = 1.0 - 0.19 [(1/\cos \theta) - 1]$

Efficiency Equations

SI Units °C / Watt/m<sup>2</sup>

$\eta = 67.8 - 472 (T_f - T_a)/I$

$\eta = 66.4 - 326 (T_f - T_a)/I - 1512 [(T_f - T_a)/I]^2$

English Units °F / Btu/hr-ft<sup>2</sup>

$\eta = 67.8 - 83 (T_f - T_a)/I$

$\eta = 66.4 - 57 (T_f - T_a)/I - 46 [(T_f - T_a)/I]^2$

## RATING

This collector has been rated for energy output on measured performance and an assumed standard day. Total solar energy available for the standard day is 5045 Watt-hour/m<sup>2</sup> (1600 Btu/ft<sup>2</sup>) distributed over a 10 hour period.

Output energy rating for this collector based on the second-order efficiency curve are:

Collector Temperature

### ENERGY OUTPUT

Low	35 °C (95 °F)	25,600 Kilojoules/day	24,300 Btu/day
Intermediate	50 °C (122 °F)	21,000 Kilojoules/day	19,900 Btu/day
High	100 °C (212 °F)	7,000 Kilojoules/day	6,700 Btu/day

Reference 00081N

