



SUMMARY INFORMATION SHEET

April 2010
FSEC # 00400N

MANUFACTURER

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

Collector Model
MSC-28

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	2.185 meters	7.17 feet
Gross Width	1.216 meters	3.99 feet
Gross Depth	0.079 meters	0.26 feet
Gross Area	2.657 square meters	28.60 square feet
Transparent Frontal Area	2.401 square meters	25.84 square feet
Volumetric Capacity	3.6 liters	1.0 gallons
Weight (empty)	46.7 kilograms	103.0 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	10	

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 $^{\circ}\text{C} / \text{Watt}/\text{m}^2$	English Units $^{\circ}\text{F} / \text{Btu}/\text{hr}\cdot\text{ft}^2$
$\eta = 69.1 - 480 (T_i - T_a)/I$	$\eta = 69.1 - 84 (T_i - T_a)/I$
$\eta = 67.6 - 332 (T_i - T_a)/I - 1539 [(T_i - T_a)/I]^2$	$\eta = 67.6 - 58 (T_i - T_a)/I - 47 [(T_i - T_a)/I]^2$

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/m² (1600 Btu/ft²) 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 $^{\circ}\text{C}$ (95 $^{\circ}\text{F}$)	30,500 Kilojoules/day	28,900 Btu/day	
Intermediate	50 $^{\circ}\text{C}$ (122 $^{\circ}\text{F}$)	25,000 Kilojoules/day	23,700 Btu/day	
High	100 $^{\circ}\text{C}$ (212 $^{\circ}\text{F}$)	8,400 Kilojoules/day	8,000 Btu/day	

Reference 00081N

