SUMMARY INFORMATION SHEET

FLORIDA SOLAR ENERGY CENTER

1679 CLEARLAKE ROAD, COCOA, FLORIDA 32922-5703 (321) 638-1000

June 1994
FSEC # 94020N

MANUFACTURER

Revised October 1999

Collector Model

EP-32

SunEarth, Inc.
4315 Santa Ana Street
Ontario, California 91761

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 the National Solar Test Facility, 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	2.492	meters	8.18	feet
Gross Width	1.222	meters	4.01	feet
Gross Depth	0.083	meters	0.27	feet
Gross Area	3.046	square meters	32.79	square feet
Transparent Frontal Area	2.769	square meters	29.81	square feet
Volumetric Capacity	3.8	liters	1.0	gallons
Weight (empty)	47.6	kilograms	105.0	pounds
Recommended Flow Rate	126	ml/s	2.0	gpm
Maximum Operating Pressure	552	kPag	80	psig
Maximum Wind Load	2155	Pa	45	psf
Number of Cover Plates	One			
Flow Pattern	Parallel		Forced Circulation	
Number of Flow Tubes	Ten			

MATERIALS

Enclosure	Aluminum frame, aluminum back
Glazing	Tempered low iron glass, 0.32 cm thick
Absorber	Copper tubes soldered to copper sheet
Absorber Coating	Moderately selective black paint
Insulation	Polyisocyanurate, 2.5 cm thick; Fiberglass, 2.5 cm thick

THERMAL PERFORMANCE

Based on tests conducted per ASHRAE 93-1986

Incident Angle Modifier $K\tau\alpha = 1.0 - 0.19\left(\frac{1}{\cos\theta} - 1\right)$

Efficiency Equations

$\eta = 70.6 - 470\ (Ti-Ta)/I$

$\eta = 68.9 - 348\ (Ti-Ta)/I - 1209\ [(Ti-Ta)/I]^2$

Units of Ti-Ta/I are °C / Watt/m²

$\eta = 70.6 - 82\ (Ti-Ta)/I$

$\eta = 68.9 - 61\ (Ti-Ta)/I - 37\ [(Ti-Ta)/I]^2$

Units of Ti-Ta are °F / Btu/hr•ft²

RATING

The 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-hours/m² (1600 Btu/ft²) distributed over a 10 hour period.

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

Collector Temperature	Energy Output			
Low Temperature, 35°C (95°F)	35,800	Kilojoules/day	34,000	Btu/day
Intermediate Temperature, 50°C (122°F)	29,500	Kilojoules/day	28,000	Btu/day
High Temperature, 100°C (212°F)	10,700	Kilojoules/day	10,200	Btu/day

Reference 93010N