SUMMARY INFORMATION SHEET

FLORIDA SOLAR ENERGY CENTER

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

February 2004
FSEC # 00100

MANUFACTURER

Collector Model

Beijing Sunda Solar Energy Technology Co. Ltd.
No. 3 Hua Yuan Road, Haidian District,
Beijing, China 100083

SEIDO1-8

This solar collector was tested by the Florida Solar Energy Center (FSEC) in accordance with prescribed methods and was found to meet the minimum standards established by FSEC. 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	2.127	meters	6.98	feet
Gross Width	0.940	meters	3.08	feet
Gross Depth	0.114	meters	0.37	feet
Gross Area	1.997	square meters	21.50	square feet
Transparent Frontal Area	1.809	square meters	19.48	square feet
Volumetric Capacity	0.7	liters	0.2	gallons
Weight (empty)	47.0	kilograms	103.6	pounds
Recommended Flow Rate	36	ml/s	0.6	gpm
Test Pressure	1000	kPag	145	psig
Number of Cover Plates	One			
Flow Pattern	Series		Forced circulation	
Number of Flow Tubes	Eight			

MATERIALS

Enclosure	Aluminum header/heat exchanger; Stainless steel frame
Glazing	Evacuated glass tubes, 0.25 cm thick
Absorber	Aluminum fins with integral copper tubes
Absorber Coating	Selective coating
Insulation	Evacuated tube, 10.1 cm wide; Polyurethane, 2.8 cm thick

THERMAL PERFORMANCE

Tested per ASHRAE 93-1986

Incident Angle Modifier $K\tau\alpha = 1.0 - 0.08 \left(\frac{1}{\cos\theta} - 1\right)$

Test Flow Rate 35.96 ml/s 0.57 gpm

Efficiency Equations

$\eta = 53.0 - 170\ (Ti-Ta)/I$

$\eta = 52.6 - 139\ (Ti-Ta)/I - 321\ [(Ti-Ta)/I]^2$

Units of (Ti-Ta)/I are °C / Watt/m²

$\eta = 53.0 - 30\ (Ti-Ta)/I$

$\eta = 52.6 - 25\ (Ti-Ta)/I - 10\ (Ti-Ta)/I]^2$

Units of (Ti-Ta)/I 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)	18,400	Kilojoules/day	17,400	Btu/day
Intermediate Temperature, 50°C (122°F)	16,800	Kilojoules/day	15,900	Btu/day
High Temperature, 100°C (212°F)	11,100	Kilojoules/day	10,500	Btu/day