SUMMARY INFORMATION SHEET

FLORIDA SOLAR ENERGY CENTER
1679 CLEARLAKE ROAD, FLORIDA 32922-5703, (321)638-1000

October 1991
FSEC # 91024C

MANUFACTURER

Revised August 2003

Collector Model
SD7CRW(4x8)S

Solar Development Inc.
P.O. Box 13139
North Palm Beach, Florida 33408-7139

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 Florida Solar Energy Center, Cape Canaveral, Florida. 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	2.444	meters	8.02	feet
Gross Width	1.189	meters	3.90	feet
Gross Depth	0.098	meters	0.32	feet
Gross Area	2.903	square meters	31.25	square feet
Transparent Frontal Area	2.743	square meters	29.53	square feet
Volumetric Capacity	1.9	liters	0.5	gallons
Weight (empty)	48.5	kilograms	107.0	pounds
Recommended Flow Rate	57	ml/s	0.9	gpm
Maximum Operating Pressure	552	kPag	80	psig
Maximum Wind Load	2633	Pa	55	psf
Number of Cover Plates	One			
Flow Pattern	Series		Forced circulation	
Number of Flow Tubes	Ten			

MATERIALS

Enclosure	Aluminum frame, aluminum back
Glazing	Tempered low iron glass, 0.48 cm thick
Absorber	Copper tubes welded to copper fins
Absorber Coating	Black chrome selective coating
Insulation	Fiberglass, 2.5 cm thick; Foil faced polyisocyanurate, 2.5 cm thick

THERMAL PERFORMANCE

Tested per ASHRAE 93-86

Incident Angle Modifier $K\tau\alpha = 1.0 - 0.31\left(\frac{1}{\cos\theta} - 1\right)$

Efficiency Equations

$\eta = 74.8 - 375\ (Ti-Ta)/I$

$\eta = 74.5 - 342\ (Ti-Ta)/I - 469\ [(Ti-Ta)/I]^2$

Units of Ti-Ta/I are °C/Watt/m²

$\eta = 74.8 - 66\ (Ti-Ta)/I$

$\eta = 74.5 - 60\ (Ti-Ta)/I - 14\ [(Ti-Ta)/I]^2$

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)	37,300 Kilojoules/day	35,400 Btu/day
Intermediate Temperature, 50°C (122°F)	31,900 Kilojoules/day	30,200 Btu/day
High Temperature, 100°C (212°F)	15,900 Kilojoules/day	15,100 Btu/day

Reference 82186