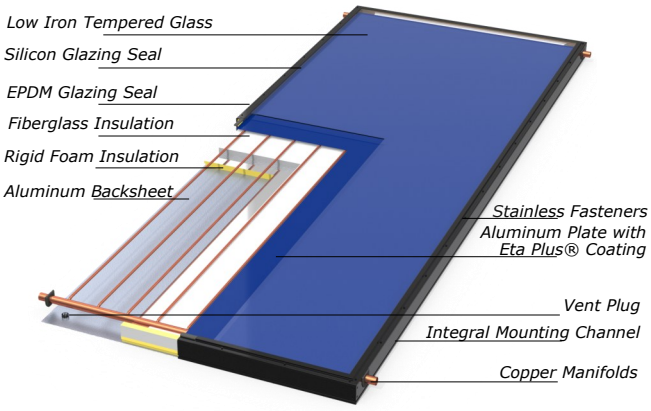
SUNEARTH®

THE THERMORAY SERIES

SOLAR COLLECTOR **SPECIFICATION SHEET**

Applications

- Solar Water Heating
- Solar Pool Heating



Thermal Performance Ratings*

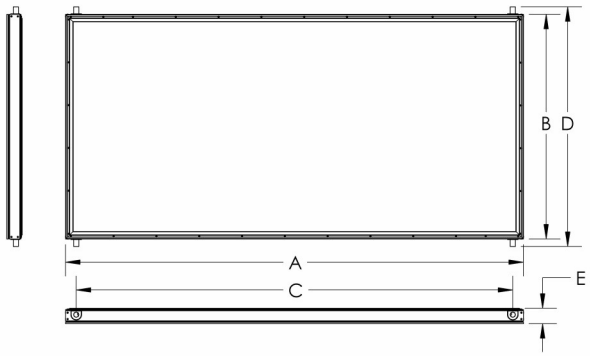
BTU/ft²*Day			
Category (Ti-Ta) Ti– inlet fluid temp Ta=ambient temp	Clear (2000)	Mildly Cloudy (1500)	Cloudy (1000)
A(-9°F)	1471	1115	758
B(9°F)	1340	984	627
C(36°F)	1136	789	445
D(90°F)	774	445	146
E(144°F)	452	171	-

A-Pool Heating (Warm Climate) B-Pool Heating C-Water Heating (Warm Climate) D-Water Heating (Cool Climate) E-Air Conditioning/Industrial Process Heat. **Thermal performance is obtained by multiplying the collector output for the appropriate application and insolation level by the total gross collector area** *Collector ratings are derived from the Solar Rating & Certification Corp (SRCC) Document RM-1 and OG-100. Tested at water design flowrate.

Available Connections

- 1" Sweat (Standard)
- 1" High Temperature FKM SX Press
- 1" High Temperature FKM O-Ring Union

Dimensions



Materials

Absorber Coating:	Highly Selective
Absorbtivity/Emissivity:	95%/5%
Absorber Plate:	Aluminum
Header Size:	1" Nominal Copper (1.125" OD)
Riser Size:	$^3/_8$" Nominal Copper (0.50" OD)
Glazing:	Low Iron Prismatic/Matt Tempered Glass
Glazing/Header Seal:	EPDM
Frame:	AA 6063-T6 Bronze Anodized Aluminum
Backing Plate:	AA3105-H26 Painted Embossed Aluminum
Insulation:	Polyisocyanurate and Fiberglass R≥12

Design Limits

Max Operating Pressure:	160psi
Max Wind/Snow Load:	±90psf
Max Operating Temperature	400°F
Max Flow Rate:	12gpm

F = Fluid Capacity (gal.)
G = Gross Area (ft²)
W = Dry Weight (lbs)
DF = Design Flow Rate (gpm)
ΔP = Pressure Drop at Design (psig)

MODEL	A(in)	B(in)	C(in)	D(in)	E(in)	F	G	W	DF	ΔP
TRB-40	122.2	48.2	115.63	51.38	3.25	1.2	40.9	130	1.20	0.009
TRB-32	98.2	48.2	93.63	51.38	3.25	1.0	32.8	98	0.97	0.006
TRB-30	89.2	48.2	84.63	51.38	3.25	0.9	29.9	90	0.88	0.006
TRB-26	80.2	48.2	75.63	51.38	3.25	0.8	26.8	80	0.79	0.005
TRB-20	61.9	48.2	57.31	51.38	3.25	0.7	20.6	62	0.51	0.005

Due to SunEarth's policy of continuous product improvement, specifications are subject to change without notice.

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MAR 2026

ENGINEERING SPECIFICATIONS

(Performance specifications subject to testing error of +/- 3%)

The following shall be the specifications for the solar collectors. Collectors shall be SunEarth ThermoRay model_____, and shall be of the glazed liquid flat plate type. Collectors shall be tested in conformance with ISO 9806-1:1994/ISO 9806-2:1995 and Solar Rating and Certification Corporation (SRCC) 100-10, and have their thermal performance rated according to SRCC Document RM-1. The collectors shall be certified by SRCC and listed by the International Association of Plumbing and Mechanical Officials (IAPMO).

GENERAL:

The dimensions of the collector shall be _____ inches in length, _____ inches in width and 3.25 inches in depth. The collector casing shall be an anodized aluminum extrusion (AA 6063 T6), minimum thickness 0.060 inch, with an architectural dark bronze finish. The casing shall have a notched framewalls for ease of plate removal and reinstallation. Sheet metal fasteners shall be stainless steel (18-8 #10). The backsheet shall be painted textured aluminum not less than .014 inch thickness. A 1 inch vent plug shall be installed in each of the four corners of the backsheet to minimize condensation. An integral mounting channel shall allow the solar collector to be mounted without penetration of the extruded aluminum casing.

GLAZING:

The collector glazing shall be on sheet of low iron tempered glass, with a minimum of .125 inch thickness (.15625 on TRB-40), and a minimum transmissivity of 91 percent (89 on TRB-40). The glazing shall be thermally isolated from the casing by a continuous EPDM gasket. There shall be a continuous secondary silicone seal between the glass and casing capstrip to minimize moisture from entering the casing.

INSULATION:

The insulation shall be foil-faced polyisocyanurate foam sheathing board of a minimum 1 inch thickness, silicone in place to the aluminum backsheet, covered by low-binder fiberglass of a minimum 1 inch thickness, providing thermal isolation of the foam from the absorber plate. Total thermal resistance shall be a minimum of R-12. The sides and ends of the collector shall be insulated with a minimum of 1 inch foil-faced polyisocyanurate foam sheathing board.

ABSORBER PLATE AND PIPING:

The absorber shall consist of an aluminum plate of no less than .017 inch thickness. Risers shall be a minimum of .50 inch O.D. copper with a wall thickness of .025 inches on no more than 4.7 inch centers continuously laser welded to the plate. The risers shall be brazed to 1.125 inch O.D. Type M copper manifolds utilizing a copper phosphorous brazing allow with no less than a minimum 5 percent silver content, and conforming to the American Welding Society's BCuP-3 classification. EPDM grommets shall isolate the manifold from the aluminum casing. The absorber plate shall be designed from a 160 psig maximum operating pressure and 400˚F maximum operating temperature.

ABSORBER COATING AND PERFORMANCE CURVE:

The absorber coating shall be blue sputtered with a minimum absorptivity of 95 percent and a maximum emissivity of 5 percent. The instantaneous efficiency of the collector shall be a minimum Y-intercept of 0.751 and a slope of no less than -0.734 Btu/ ft^2.hr.°F.

Note: Please refer to the SRCC website at www.solar-rating.org for the current y-intercept and slope for each collector model.

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