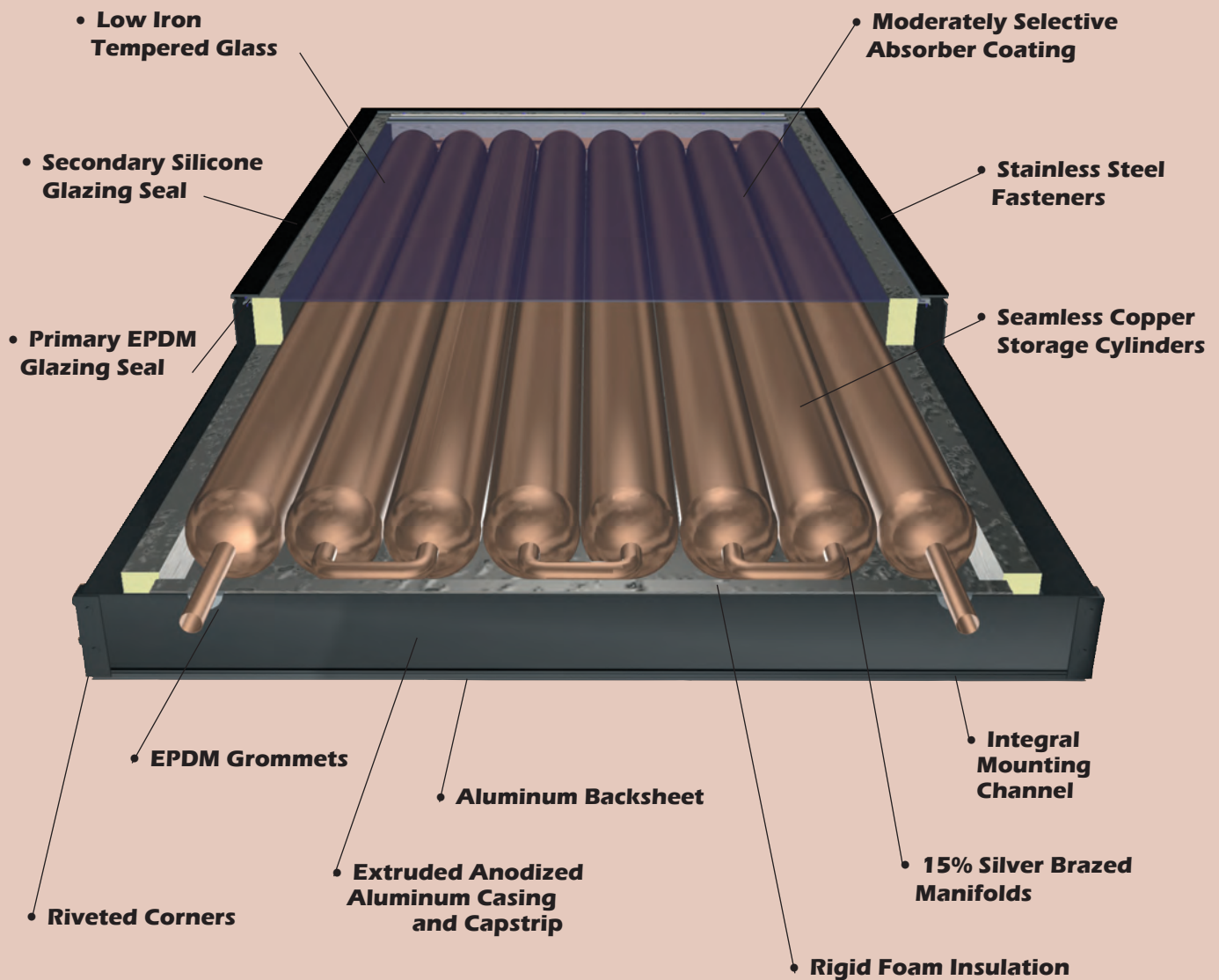




## SIMPLE, DURABLE, AND RELIABLE The CopperHeart Integral Collector Storage System



# SUN EARTH INC. COPPERHEART ICS SPECIFICATIONS

SunEarth Model No.	Fluid Capacity U.S. Gallons	Dry Weight, Lbs.	Wet Weight, Lbs.	Width Inches	Length Inches	Depth Inches	Gross Area Sq Ft	Net Aperture Sq Ft	Rated Internal Working Pressure @ 200F in PSIG	Inlet and Outlet Piping, Inches	Inlet to Outlet Center to Center, Inches
CP-20	19	143	301	36.2	50.2	6.8	12.6	10.6	120	3/4	28.9
CP-40	40	281	615	36.2	98.2	6.8	24.7	21.5	120	3/4	28.9

## COLLECTOR THERMAL PERFORMANCE RATINGS (IP Units)

CP-20 Thousands of Btu Per Panel Per Day			
Climate ->	High Radiation	Medium Radiation	Low Radiation
Category (T <sub>i</sub> - T <sub>a</sub> )	(2000 Btu/ft <sup>2</sup> .day)	(1500 Btu/ft <sup>2</sup> .day)	(1000 Btu/ft <sup>2</sup> .day)
A (-9°F)	17.1	13.3	9.6
B (9°F)	12.6	8.9	5.1
C (36°F)	5.8	2.0	0.0

CP-40 Thousands of Btu Per Panel Per Day			
Climate ->	High Radiation	Medium Radiation	Low Radiation
Category (T <sub>i</sub> - T <sub>a</sub> )	(2000 Btu/ft <sup>2</sup> .day)	(1500 Btu/ft <sup>2</sup> .day)	(1000 Btu/ft <sup>2</sup> .day)
A (-9°F)	33.4	25.9	18.4
B (9°F)	25.9	18.4	10.9
C (36°F)	15.0	7.5	0.0

A-Pool Heating (Warm Climate) B-Pool Heating C-Water Heating (Warm Climate). Collector ratings are derived from the Solar Rating & Certification Corporation (SRCC) in accordance with SRCC OG-100 certification. Testing was performed as prescribed in FSEC Standard 105-10 and SRCC TM-1.

## ENGINEERING SPECIFICATIONS

The solar water heating system shall be of the integral collector storage (ICS) type, and shall require no pumps, controls, or parasitic energy consumption for its normal operation. The ICS unit shall be the SunEarth CopperHeart ICS model number \_\_\_\_\_. The CopperHeart ICS unit shall be tested in conformance with SRCC Standard OG-100 by an independent testing laboratory, certified by the SRCC under system standard OG-300, and also by the Florida Solar Energy Center (FSEC).

### GENERAL

The dimensions of the CopperHeart ICS model number \_\_\_\_\_ shall be \_\_\_\_\_ inches in length, 36.2 inches in width, and 6.85 inches total depth to the top of the glazing capstrip, and be rated at a nominal capacity of \_\_\_\_\_ U.S. gallons. The casing shall be an anodized aluminum extrusion (alloy 6063 T5), a minimum .125 inch in thickness, with an architectural dark bronze finish. Sheet metal fasteners shall be stainless steel (18-8 #10 X 1/2). The framewall shall be secured by four exterior anodized aluminum corner brackets attached with 8 each AD54BS aluminum rivets per corner. The casing backsheet shall be textured aluminum of not less than .014 inches in thickness.

### GLAZING

The glazing shall be one sheet of low iron tempered glass of not less than .125 inch thickness, and have a minimum transmittance of 91%. The glazing shall be thermally isolated from the casing by a continuous EPDM gasket. There shall be a secondary silicone seal between the glass and the aluminum capstrip to minimize the intrusion of moisture into the casing.

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

### INSULATION


The backing insulation shall be a foil-faced polyisocyanurate foam sheathing board with a minimum thickness of 1.5 inches, and shall be siliconed in place to the aluminum backsheet. Aged thermal resistance R-value of the backing and side-wall insulation shall be not less than R-12 at 75° F mean temperature. The ends of the ICS shall be insulated with 1 inch polyisocyanurate foam sheathing board with an aged thermal resistance R-Value of no less than 7.2.

### ABSORBER/STORAGE CYLINDERS

The CopperHeart ICS shall combine the collector and storage tank as one unit. The all copper storage cylinders shall be seamless drawn 4.125 inch O.D. copper tubing with a minimum wall thickness of .058 inches, and have machine spun ends to accept 0.75 inch O.D. Type L copper internal manifolds. Eight storage cylinders shall be manifolded in series to form a storage vessel. The rated internal working pressure shall be 120 PSIG at 200° F. All internal manifold braze joints shall be joined utilizing a copper phosphorous brazing alloy with no less than 15% silver content and conforming to the American Welding Society's BCuP-5 classification. EPDM grommets shall isolate the manifolds from the aluminum casing.

### ABSORBER COATING

The absorber coating shall be a moderately selective paint with a minimum absorptivity of 94 percent and a maximum emissivity of 56 percent.

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