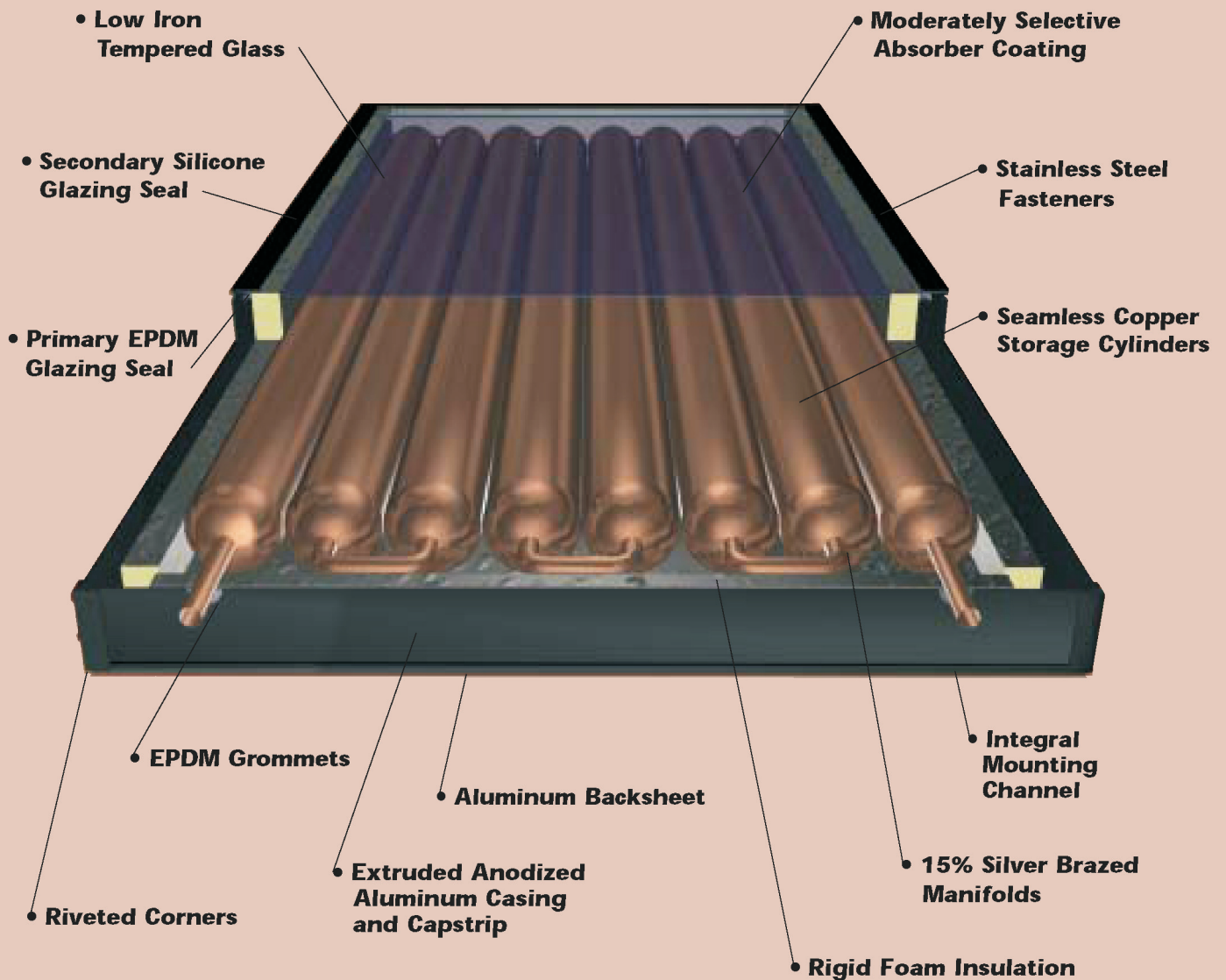


# SIMPLE, DURABLE, AND RELIABLE

## The CopperHeart Integral Collector Storage System



# 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	20	154	321	36 1/2	50 1/4	6 7/8	13.90	10.90	120	3/4	29
CP-30	32	210	477	36 1/2	78 1/4	6 7/8	21.10	17.40	120	3/4	29
CP-40	40	264	597	36 1/2	98 1/4	6 7/8	24.60	21.91	120	3/4	29

\* For systems where two individual CopperHeart ICS units are required or preferred, the model numbers are CP-40-2 (two CP-20), CP-60 (two CP-30), and CP-80 (two CP-40).

## THERMAL PERFORMANCE RATINGS\*

Model	Btu/Day/Unit Output		
	CLEAR DAY 2000 Btu/ft <sup>2</sup> /Day	MILDLY CLOUDY DAY 1500 Btu/ft <sup>2</sup> /Day	CLOUDY DAY 1000 Btu/ft <sup>2</sup> /Day
CP-20	18,675	11,900	9,940
CP-30	31,730	21,690	16,465
CP-40	35,810	24,750	18,505

\* Performance results are for the Solar Rating and Certification Corporation (SRCC) rating day and are derived from TRNSYS simulation in conjunction with SRCC OG-200 system test results. OG-200 tests were independently conducted by DSET Laboratories, Inc. Phoenix, AZ.

## ENGINEERING SPECIFICATIONS

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

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-200 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 1/2 inches in width, and 6 7/8 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 1/8 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 backsheets 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 1/8 inch thickness, and have a minimum transmissivity 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.

### INSULATION

The backing insulation shall be a foil-faced polyisocyanurate foam sheathing board with a minimum thickness of 1 1/2 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 7/8 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.