



SUN EARTH

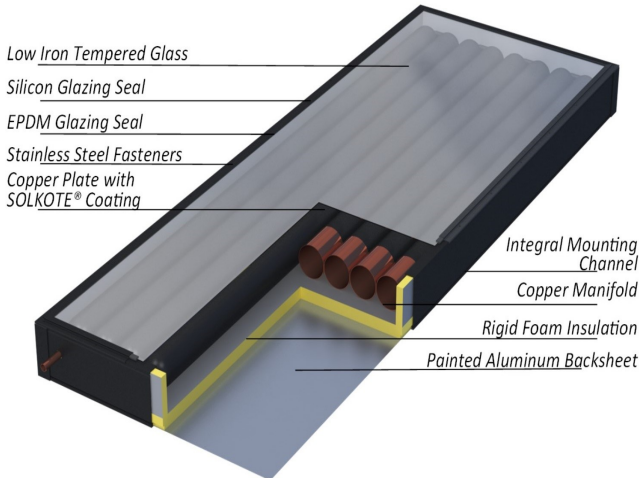
THE COPPERHEART SERIES

INTEGRAL COLLECTOR Storage System SPECIFICATION SHEET

Applications



Solar Water Heating



Low Iron Tempered Glass
 Silicon Glazing Seal
 EPDM Glazing Seal
 Stainless Steel Fasteners
 Copper Plate with SOLKOTE® Coating

Integral Mounting Channel
 Copper Manifold
 Rigid Foam Insulation
 Painted Aluminum Backsheet

Thermal Performance Ratings*

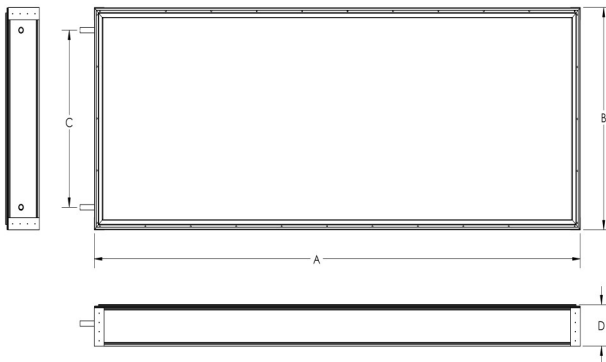
Category (Ti-Ta) <small>Ti= inlet fluid temp Ta=ambient temp</small>	BTU/ft ² *Day		
	Clear (2000)	Mildly Cloudy (1500)	Cloudy (1000)
A(-9°F)	1,350	1,049	745
B(9°F)	1,049	745	441
C(36°F)	607	304	-

A-Pool Heating (Warm Climate) B-Pool Heating C-Water Heating (Warm Climate)
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) in accordance with SRCC OG-100 certification.

Available Connections

- 3/4" Sweat (Standard)

Dimensions



Materials

Absorber Coating: SOLKOTE®
 Absorptivity/Emissivity: 94%/56%
 Absorber Plate: Copper
 Header Size: 3/4" Nominal Copper (0.875" OD)
 Storage Cylinder Size: 4" Nominal Copper (4.125" 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≥10.8

Design Limits

Max Operating Pressure: 160psi
 Max Wind/Snow Load: ±90psf
 Max Operating Temperature: 200°F

F = Fluid Capacity (gal.)
 G = Gross Area (ft²)

AA = Aperture Area (ft²)
 W = Dry Weight (lbs)

WW = Wet Weight (lbs)
 RIW = Rated Internal Pressure @ 200 °F (psig)

MODEL	A(in)	B(in)	C(in)	D(in)	F	G	AA	W	WW	RIW
CP-40	98.2	36.2	28.9	6.8	39	24.96	21.5	281	615	120
CP-20	50.2	36.2	28.9	6.8	19	12.72	10.8	143	301	120

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



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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-100 by an independent testing laboratory, certified by the Solar Rating and Certification Corporation (SRCC) under OG-100 as well as listed by the International Association of Plumbing and Mechanical Officials (IAPMO).

GENERAL:

The dimensions of the CopperHeart ICS model number _____ shall be _____ inches in length, 36.2 inches in width, and 6.8 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 T6), a minimum 1/8 inch in thickness, with an architectural dark bronze finish. Sheet metal fasteners shall be stainless steel (18-8 #10). 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 collector glazing shall be one sheet of low iron tempered glass, with a minimum of 0.125 inch thickness and a minimum transmissivity of 91 percent. 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 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-10.8 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 PLATE AND PIPING:

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 0.875 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 5% silver content and conforming to the American Welding Society's BCuP-3 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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