



Water-to-Air Heat Exchanger

The Model C100 cooling system is designed to provide water-cooling for small Research Inc. aluminum reflector heaters. The photograph to the left shows the C100-1 providing cooling for a Model 5305 heater. (Note: Heater and lamp are sold separately.) The base cooling unit includes a self-contained pump, coil, blower unit, and 6-gallon (23 liter) reservoir. A kit with quick plumbing disconnects fittings is included (simple assembly is required). The C100 provides cooling for the following heaters:

- StripIR® 5306 (all sizes)
- LineIR® 5194 (all sizes)
- ChambIR® E4 (up to 7 KW)
- ModuleIR (small custom systems)

Closed System

No need to go tap-to-drain with re-circulating water/glycol loop

Efficient Cooling Performance

Handles up to 3.3 KW cooling load

Compact Design

Requires small footprint, yet handles large cooling load

Easy to Maintain

Accessible water fill port, filter, water level indicator, and quick plumbing disconnects

Sturdy Design

Allows for continuous 24/7 operation

Reliable

Stainless steel water tank, copper radiator coils, and reinforced hose

Fast. Focused. Controlled.



RESEARCH INC.
PROVIDING CONTROLLED ENERGY
DRYING ▲ CURING ▲ HEATING

Rev. 002

Description

The Model C100 CoolIR heat exchanger provides a simple solution for water cooling of several Research Inc. heaters including models 5306, 5194, smaller E4, and certain ModuleIR systems. A water/glycol mixture is circulated through the closed system. The liquid cools the heater. The liquid is then cooled by the self-contained blower/coil unit in the C100. Table 1 is used to for sizing.

Table 1: Model C100 Sizing		
Size CoolIR		
1. Determine heater(s) wattage Example: E4-10 w/500 watt lamps Wattage = 4 x 500 = 2000 watts		
2. Determine cooling factor (Fc)		
Model	Fc	Description
E4	0.9	All
5194	0.9	Multiple 5193's facing each other
5194	0.7	5194(s) facing target > 800 °C
5194	0.5	5194(s) facing target from 400 °C to 800 °C
5194	0.3	5194(s) facing target < 400 °C
5306	0.9	Multiple 5306's facing each other
5306	0.6	5306(s) facing target > 800 °C
5306	0.4	5306(s) facing target from 400 °C to 800 °C
5306	0.2	5306(s) facing target < 400 °C
3. Calculate cooling load (Lc) Lc = Heater wattage x Fc Example: Lc = 2000 x 0.9 = 1800 watts		
4. Determine number of C100's needed C100 rating = 3300 watts 1 - Model C100-1 systems required (handles 8600 watts)		

Specifications (Base Unit)



The base cooling unit of the model C100 CoolIR includes a self-contained blower, coil, pump, and reservoir. The Model C100 CoolIR base unit specifications are

shown below.

Performance

- Cooling capacity: 3.3 KW (11,300 Btu/hr)
- Maximum water temperature: 140° F (60°C)

Size/Dimensions

- Reservoir: 6.0 gallon (23 liter)
- Length: 21.25 inch (54 cm)
- Width: 13.125 (33.3 cm)
- Height: 20.75 (52.7 cm)
- Weight: 56 lbs. (25.4 kg)

Pump Capacity

- 100 psi max.
- 1.5 gpm (5.68 lpm) @ 50 psi.

Heat Exchanger:

- High efficiency, copper core, rustproof

Power Requirements

- Voltage: 115V AC or 230 V AC, 1 ph, 50/60 Hz
- Amperage: 5.0 amps / 2.5 amps

Water Connections

- ¼ inch N.P.T. supplied with 5/8 inch -18 UNC left hand thread fitting.

Ordering Information

Table 2 shows the ordering information for the Model C100. Note: only one C100 unit can be plumbed into a single 5306/5194. Up to 2 cooling units may be plumbed to an E4.

Table 2: Model C100 Ordering Information	
Model	Product Description
C100	Cooling System
Code	Number of Heaters to Connect
1	Connect to 1 heater
2	Connect to 2 heaters
3	Connect to 3 heaters

Assembly of the fittings/tubing to the heater and cooling unit is required.

- The C100-1 comes with the C100 base unit and quick disconnect plumbing (106217-001) for a single heater.
- The C100-2 includes one C100-1 kit and one tee kit (106218-001) to connect to a second heater.
- The C100-3 includes one C100-1 kit and two tee kits (106218-001) to plumb to the second and third heater.

Table 3: Spare Parts	
Part Number	Product Description
086813-004	C100 Base Unit (cooling unit only)
106217-001	Fitting and Hose Kit (connect 1st heater)
106218-001	Tee Kit (connect additional heaters)
099076-001	Spare water pump

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