



### 5kW Water-to-Air Heat Exchanger

The Model C104 cooling system provides a circulating water-cooling system for small Research Inc. aluminum reflector heaters. The cooling unit has a durable plastic housing with 4 gallon (15 liter) reservoir, industrial pump, cooling coil, and 115/230vac motor/fan. A kit with quick connect plumbing fittings is included. The C104 provides cooling for the following Research Inc. heaters:

- StripIR® 5306B (all sizes)
- LineIR® 5194 (all sizes)
- ChambIR® E4 (up to 7 KW)
- HiTemp 5080 (and custom heaters)

### Closed System

*Complete recirculating water/glycol coolant loop that will support one or more IR heaters.*

### Efficient Cooling Performance

*Handles up to 18k BTU/hr. cooling load, connect one or more IR heaters.*

### Compact Design

*Has small footprint yet handles large cooling load in a portable self-contained package*

### Easy to Maintain

*Accessible water fill port, screen filter on pump and quick plumbing disconnects.*

### Sturdy Design

*Heavy duty, non-rusting enclosure with carrying handle and industrial grade components for continuous 24/7 operation*

### Reliable

*Industrial grade components motor, pump and radiator*

**Fast. Focused. Controlled.**

**Description**

The Model C104 CoolIR heat exchanger provides a simple solution for water cooling of several Research Inc. heaters including models 5306B, 5194, smaller E4 chambers. A water/glycol mixture is circulated through the closed system. The liquid cools the heater then is cooled by the self-contained blower/coil unit in the C104. Table 1 is used to for sizing.

Table 1: Model C104 Sizing		
<b>Size CoolIR</b>		
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
5306B	0.9	Multiple 5306's facing each other
5306B	0.6	5306(s) facing target > 800 °C
5306B	0.4	5306(s) facing target from 400 °C to 800 °C
5306B	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:**



The Model C104 CoolIR is a self contained water to air heat exchanger and includes a motor w/ fan, copper cooling coil, pump, and reservoir and fittings for 1/4" poly tubing.

**Performance**

- Max. Cooling capacity: 5500W (18,000 Btu/hr.)
- Max. water temperature: 140° F (60°C)

**Size/Dimensions**

- Tank capacity: 4.0 gallon (15 liter)
- Length: 18.75 inch (47.6 cm)
- Width: 15.25 (38.7 cm)
- Height: 16.25 (41.3 cm)
- Weight: 40 lbs. (18 kg)

**Pump Capacity**

- flow rate 1.1 qt.pm (1 lpm) @ 50 psi typical, 5.9 qt./minute max.

**Heat Exchanger:**

- High efficiency, copper core, rustproof

**Power Requirements**

- 115vac 4.7A (60Hz), 5.9A (50Hz)
- 230vac 2.5A (60Hz), 3.5A (50Hz)

**Water Connections**

- 1/4 inch N.P.T. supplied with push to connect fittings for 1/4" poly tubing

**Ordering Information**

Table 2 shows the ordering information for the Model C104. Note: only one C104 unit can be plumbed into a single 5306B/5194. Up to two cooling units may be plumbed to an E4.

Table 2: Model C104 Ordering Information	
Model	Product Description
C104-120	Cooling System, 115vac motor
C104-120-PK	Cooling system,230v, heater protect kit
C104-230	Cooling system, 230vac motor
C104-230-PK	Cooling system, 230v, heater protect kit

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

Table 3: Spare Parts	
Part Number	Product Description
106217-001	Fitting and Hose Kit (connect 1st heater)
106218-001	Tee Kit (connect additional heaters)

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