



## Remote Low-Side Ice Flaker (Rack or Split System) INSTALLATION SPECIFICATION

### NOTICE

**Only qualified refrigeration technicians should start-up & adjust system. It is not the intent of this leaflet to be a substitute for, or to cover basic sound refrigeration practice.**

### NOTICE

	Connected to Rack System *	Split System
<b>REFRIGERANT PIPING</b>		
Suction line (See chart below for line sizes)	Connect suction line to low temp rack suction header connection.	Connect suction line to condensing unit suction line connection.
E.P.R (Back Pressure Regulator)	Required	Recommended
Suction Strainer	Recommended	Recommended
Isolation valve	Required	Recommended
Liquid Line (See chart on following page for line sizes)	Connect Flaker liquid line to receiver side of any control valve in liquid header to assure Flaker maintains a full column of liquid at all times	Connect to condensing unit liquid line connection.
Pressure test & evacuate	Required	Required. Connect refrigerant cylinder to charging connection at receiver or Schrader connection on suction line. Break Vacuum

**\* CONSULT FACTORY FOR PROPER ICE FLAKER CONFIGURATION WHEN RACK SYSTEM IS KNOWN TO OPERATE WITH EITHER OF THE FOLLOWING REFRIGERATION CONDITIONS:**

- 1) **HIGHLY SUB-COOLED LIQUID**
- 2) **FLOATING HEAD PRESSURE**

### WATER PIPING

Connect Flaker to a constant water supply	<ul style="list-style-type: none"> <li>Minimum 20 PSI</li> <li>Maximum 60 PSI</li> <li>Shut-off valve is required</li> </ul>	
Install water filter	Recommended	Recommended

### WIRING

Install disconnect	Required	Required
Power to flaker	Connect power supply (208-230/1/60) to black wires labeled L <sub>1</sub> & L <sub>2</sub> . (1000, 2000 & 3000RLE series) or connect power to terminals L1 & L2 (4000, 6000RL Series)	

	<b>Connected to Rack System *</b>	<b>Split System</b>
Power to condensing unit	N/A	Connect power supply 230/3/60 (or 460/3/60) to condensing unit panel (Install disconnect as required per local code)
Line “A” & “B”	Two red wires tied together in junction box on rear of flaker (1000, 2000, & 3000RLE models). Jumper is placed between terminals “A” & “B” in control panel, (4000 & 6000 RL).	Connect line “A” & “B” terminals in condensing unit to red wires (untie two red wires on RLE models) in junction box on rear of RLE flaker. Or to terminals marked “A” & “B” in flaker control panel (Remove jumper) on RL flakers. Connect wires from terminals in condensing units to terminals in control panel for condensing unit indicating lights (RL models)
Connect ground connection to reliable ground.	Required	Required
Infrared sensors	<ul style="list-style-type: none"> <li>• Plug both ice level control sensors (emitter and receiver) to Molex plugs in ice flaker cabinet. (1000-3000RLE), or wire directly into control panel (4000-6000RL).</li> <li>• If sensor cable has Molex plug, install and route cable to avoid plug coming in contact with water.</li> <li>• Use Di-electric grease in Molex plug to keep plug dry.</li> <li>• Use drip loop at sensor to allow water to drip off cable &amp; not run back to sensor (or plug).</li> </ul>	

#### Line sizes, standard voltage, and maximum fuse rating

Model	Suction Line	Liquid Line	Water Line connection.	Standard Voltage	M.O.P.
1000-RLE	7/8 ODS	3/8 ODS	3/8 Comp. Ftg.	208-230-1/60	15
2000-RLE	1-1/8 ODS	½ ODS	3/8 Comp. Ftg	208-230-1/60	15
3000-RLE	1-3/8 ODS	½ ODS	3/8 Comp. Ftg	208-230-1/60	15
4000-RL	1-3/8 ODS	5/8 ODS	3/8 Comp. Ftg	208-230-1/60	15
6000-RL	1-5/8 ODS	5/8 ODS**	3/8 Comp. Ftg	208-230-1/60	15

\*\* 7/8 ODS for 50 Ft & longer runs.

## START-UP

1. Open water shut-off valve.
2. Turn the on-off switch to the on position
  - Models 1000, 2000, & 3000-RLE, switch is located under enclosure front cover.
  - Models 4000 & 6000-RL, switch is located on front of remote mounted control panel.
  - Ice flaker will start
    - Ice flaker gear motor & water pump will start.
    - Liquid line solenoid valve will open
  - If ice flaker does not start, check alignment of photo eye ice level control.
    - Both controls, Emitter & Receiver have LED light on rear of sensor.
    - Emitter LED should be on whenever the flaker has power.

- Receiver LED will be on when it sees the signal from the emitter. (eyes not blocked & see each other).
  - Check fuses in control panel, replace if blown.
  - Condensing unit will start automatically when suction pressure rises. (Condensing unit is a continuous pump down system).
3. Adjust water levels in water sump and distribution pan.
  5. Open isolation valves in suction & liquid lines (Start condensing unit for split system.)
  6. (Split system). Charge refrigerant until bubbles disappear in sight glass
  7. (Split systems) Charge additional amount of refrigerant for winter operation (Winter Charge - see condensing unit instructions).
  8. Ice flaker should start making ice when TXV has liquid at inlet.

## ADJUSTMENTS

### 1. Water Sump Water Level

- Adjust water float valve to maintain water level just below the return from evaporator.

### 2. Distribution Pan Water Level (in top of flaker)

- Adjust ball valve located next to water pump to maintain water level in distribution reservoir. Water level in pan should be ½ full.
  - Open ball valve slightly to raise level,
  - Close ball valve slightly to lower level.

### 3. EPR Valve

- Connect suction service gauge to Schrader connection on suction elbow on flaker.
- Adjust the Evaporator Pressure Regulating (EPR) Valve to maintain
  - -5°F to -10°F (-20.6°C to -23.3°C) 2000 & 3000-RLE, 4000 & 6000RL (depending on water temp & conditions).
  - 0°F to +5°F (-17.8°C to -15.6°C) for 1000-RLE evaporator temperature (depending on water temp & conditions).
    - Using an Allan wrench, raise temperature, (turn clockwise) or lower temperature, (turn counterclockwise) as needed.

### 4. TXV Valve

- Adjust the expansion valve (TXV) so that you see the ice flaker is freezing *AND* harvesting ice over the entire evaporator, top to bottom, on each rotation.
- If ice is freezing, but not harvested along the bottom of the evaporator, the TXV valve must be opened slightly.
- Wait up to 10 minutes for valve to balance before making additional adjustments.
- If freezing pattern still appears to vary (ice completely freezes from top to bottom of evaporator, and 10 minutes later, ice appears soft at bottom or top of evaporator) check to verify the liquid line is piped directly to the receiver side of any refrigeration control valve on the liquid header. A fixture (case) attached to the rack may be going through hot gas defrost, restricting liquid to ice flaker. For factory recommendation, please call Howe.

### 5. Overload Set-Point Adjustment

- Overload is preset at the factory for normal conditions.
  - If overload trips, check amp draw to verify overload condition. (motor amp draw exceeds nameplate rating)
    - If it exceeds name plate rating, check for loose connection or other cause)
      - If it does NOT exceed name plate rating, the adjust as follows:

- Turn set-point adjustment, counterclockwise until control trips.
- Turn set point clockwise slightly above trip point.
- Press reset button to reset, verify control does not trip under normal loads.

- Re-adjust if necessary to eliminate nuisance shutdowns.

#### 6. Off Delay Timer Adjustment

- Off delay timer should be adjusted for minimum running time.
- Should be adjusted so the drive motor & water pump run for about 1 minute after the evaporator is cleared of ice. (E.G., if it takes 2 minutes to clear the evaporator, the timer should be set for about 3 minutes)

#### 7. Adjust High Pressure switch (HP Cutout)

(Split system only)

#### 8. Adjust Low Pressure switch ,

(Split system only)

- a. Cut-out set point approximately 3#,
- b. Differential set point approximately 20# (Differential may vary with ambient temperature).

**To activate warranty of the ice flaker, fill out and return (via fax or mail) the Start & Adjust form.**