

# Heat Exchanger Operation and Installation

## **\*IMPORTANT\***

**For safe and satisfactory operation, please read the following instructions. Keep these instructions for future reference. Some information may not apply to your system.**

## **Introduction**

**Ice Qube** Heat Exchangers have been designed to provide cooling for computer and electronics enclosures in environments where the enclosure temperature may be maintained at temperatures at least 5 degrees Fahrenheit above ambient. Models range from 5.7 to 83 watts/degree Fahrenheit cooling capacity.

## **Basic Operation**

**Ice Qube** Heat Exchangers are very easy to operate. The only moving parts are two maintenance free fans or blowers. These fans or blowers are used to move air over the heat exchanger core. In the closed-loop cool air stream, a fan removes heated air from the enclosure and moves it over the core which removes the heat from the air. This cool air is then returned to the enclosure where it can absorb more heat. In the warm air stream, a fan moves ambient air over the core where the heat from the enclosure is rejected and dissipated to the ambient air surrounding the enclosure.

## **Unpacking Inspection: What to look for:**

Damage to the shipping container: If the shipping container has been damaged or marred in any way, carefully inspect the **Ice Qube** system for damage which may have occurred during shipping. Check for scratches, dents, or noises indicating loose components, or any other irregularities. Any evidence of damage should be recorded on the freight bill. The freight carrier's claim procedure should be followed.

***Ice Qube Inc. cannot accept responsibility for damages which occur during shipping.***

## **Pre-installation Test**

Before installing the Ice Qube heat exchanger on the enclosure, it is recommended to operate the unit for a few minutes to be sure it is functioning properly. Although the system has been factory tested, damage may have occurred during shipping which may have not been apparent during the unpacking inspection. It is recommended to not wear loose clothing or jewelry during this procedure.

1. Place the system on a solid base such as a workbench or table. Be sure there is adequate space for the two air streams.

2. Check the name plate for proper electrical requirements. Connect the power cord to a properly grounded electrical outlet of sufficient capacity. The use of an extension cord is not recommended. *\*\* If any unusual noise or vibration is present, immediately disconnect the power cord and inspect the unit for the cause.*
3. After power is supplied to the system, both fans, or blowers should begin to operate immediately
4. After making these few simple checks, you are ready to prepare the electrical enclosure for installation of the Ice Qube system.

## Preparing the Enclosure

A few modifications must be made to your enclosure to provide adequate air flow, maintain enclosure integrity and insure secure installation. Required modifications will vary with Ice Qube model.

1. Determine the location of the Ice Qube system on your enclosure.

### **\*\*\* Caution \*\*\***

Be sure the weight of the system will not cause the enclosure to become unbalanced causing bodily harm or injury. For units mounted on enclosure doors, be sure the hinges will support the weight of the Ice Qube system. Refer to system specifications for model weights.

2. Using the cutout drawing as a reference, make opening in the enclosure surface for intake and exhaust air, along with the holes for the mounting hardware and electrical connection. Be sure that the Ice Qube system will be mounted level and air flow will not be restricted by components in the enclosure or the surrounding ambient.
3. Slide the mounting studs through the matching holes in the enclosure and check to see that all holes are aligned.
4. After checking that all openings are aligned, apply gasket as shown in gasket diagram (provided with your system) to the Ice Qube system to maintain the enclosure's integrity.

### **\*\*\* Caution \*\*\***

Be careful not to stretch the gasket material when removing the backing.

5. After the gasket material has been installed, mount the Ice Qube system onto the enclosure using the nuts and bolts provided with your system. Check to be sure all nuts have been tightened securely and the gasket material is in place to maintain enclosure integrity. You are now ready to operate your system.
6. Connect power to the unit from a properly grounded receptacle of sufficient capacity. Check to be sure that both fans, or blowers are operating. Installation is complete.