



HOSHIZAKI TECHNICAL SUPPORT TECH-TIPS

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TUBING FACTS

The size of the incoming water supply line is an important factor in proper ice machine operation. Many manufacturers use a float valve assembly to fill their reservoir. Generally, they require only a 1/4" OD inlet line. A 1/4" OD tube has a 1/8" internal diameter which has a .049 in² internal area. This 1/4" tubing will allow about a 1/2 gallon per minute service flow rate. A float valve assembly slowly fills the reservoir as needed. This allows make up water to enter the reservoir during the freeze cycle. In the summer, warm inlet water tempers the reservoir water and extends the freeze cycle time reducing efficiency.

Hoshizaki uses an inlet water valve solenoid to bring in make up water during the harvest cycle only. This batch method provides better efficiency. The KM sequence fills the reservoir with enough water to make a full batch of ice then leaves the inlet water valve off during the freeze cycle. This allows the unit to cool the water and make a batch of ice without being affected by additional water entering the reservoir.

Proper water line size is important for both ice making and to assist the harvest. Hoshizaki KM cuber models up to KM-800 require a 3/8" OD inlet water line. KM-1200 and larger units require a 1/2" OD inlet water line. You can use 1/2" tubing on all models as a standard. This will allow you to stock one size tubing and fittings for any installation. A 3/8" tubing has a 1/4" internal diameter which has an area of .196 in². Almost four times the internal area of 1/4" tubing. A 1/2" OD tube has a 3/8" internal diameter and a total area of .442 in².

The correct size tubing is necessary to provide adequate flow rate to the reservoir. It is important to remember that a 1/4" water line will not provide the flow rate necessary to fill a KM reservoir and assist in harvesting the ice. If the water line is undersized or the flow rate is restricted, you can expect poor harvest and possible low production.

Before installing a KM unit always check the water supply line size. Check the supply all the way back to the source. Look for restrictions caused by improper connections. For example, a cut off valve that is smaller than the supply will cause a restricted flow rate. Restrictions can also occur if the filter manifold and connections are smaller than the supply line. If you are stacking two "S" models, make sure that the main supply line is large enough to supply adequate water flow for both units at the same time. If two 1/2" supplies are needed, a 3/4" main is required. This is standard plumbing practice.

Always check the installation manual or your Tech-Specs pocket guide for the proper water line size. You will find that following Hoshizaki specifications and using standard piping practices will eliminate many water related problems.

VIDEO REVIEW

The purpose of this article is to let you know about the videos produced by the Technical Support Department. We now have a total of six service training videos available at a nominal charge through your local Hoshizaki distributor. Three new videos were just completed in mid August.

Videos are an excellent training tool because you have the ability to stop and back up to review a subject as many times as necessary. The old adage “a picture is worth a thousand words” is true.

The KM Cuber video #80017 and the Flaker & DCM video #80018 were made available in December 1995. These videos cover the service features, a thorough operational sequence and the cleaning and preventative maintenance procedures for their respective models. A good understanding of the sequence of operation is the most important tool you can carry to a service call. These tapes provide you with that tool.

The Preventative Maintenance video #80031 includes KM, Flaker, & DCM products. You will find the cleaning and PM sections from #80017 & 80018 which provide details on the PM steps including auger bearing inspections. This is a good tape to supply for the customer who likes to do their own minor maintenance.

The new videos include Hoshizaki Ice Machine Installation #80035. Technicians are walked through an installation of two stacked KM-1200SRE units. General specifications as well as the important aspects of a proper installation for all models are highlighted. It would benefit every technician to see this video.

KM Cuber Diagnosis video #80033 and Flaker diagnosis #80034 covers the procedures for diagnosing the control circuits for each model. A detailed explanation of how to use the ten minute check out procedure to find a problem on the KM and steps for checking the Flaker timer board are covered. Both symptoms and check out procedures for the control components are included. It is a good idea to review the basic sequence videos prior to viewing these diagnosis videos.

SERVICE Q & A

Question: I am servicing a KM cuber that has consistent 5 minute freeze cycles. What can cause this short cycling?

Answer: ***by Rodd Burger***

This is one of the most common questions asked to the Technical Advisors. Before we look at the possible causes we must understand two things. The first is that the KM series goes into harvest by water level, and not by temperature. This occurs as the water level drops and the float switch opens.

The second is that the water level is controlled by the stand pipe in the reservoir and not by the float switch or control board. The reservoir of the KM series cuber fills with water one time during the ice making cycle. This occurs during the initial fill and harvest cycle only. The reservoir should fill and begin to overflow the stand pipe within about 90 seconds if proper water flow is available.

Now, we will look at the possible causes for a 5 minute freeze time. The first items to check are the float switch and control board operation. This is done by placing a jumper across the float switch connector and allowing the unit to sequence into the freeze cycle. If the unit continues to sequence into the harvest cycle after 5 minutes, replace the board.

If the unit remains in the freeze cycle, check the operation of the float and the following items. It is possible that the reservoir was not completely full at the beginning of the freeze cycle. This can be easily checked by watching the unit drain during the harvest cycle. Water should overflow the stand pipe and drain within the first 60 to 90 seconds of a normal harvest cycle.

If water does not overflow the drain, check for proper water line size and pressure. Also check for a plugged external filter system or inlet water valve screen, and check for proper operation of the water valve. If the reservoir fills properly, the next possibility is that the pump out check valve is stuck open. The easiest way to check for this problem is to see if you have water coming from the drain during the freeze cycle. This tells you that the check valve is stuck open, dirty, or has a weak spring. Disassemble the check valve housing and clean the valve seat. If the spring is weak, a temporary fix is to stretch it a little. This will get you by until you can replace it with a new one.

Checking these items should help you resolve a consistent 5 minute freeze cycle.

COMING NEXT MONTH...

1. Refrigerant Recovery
2. Low Profile KM
3. Service Q & A

Volume 143 Page 2