HOSHIZAKI CARE
TECH-TIPS

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Volume 128
May 16, 1996

SQUEAKY FLAKER

Your customer complains of a strange sound coming from his flaker. The sound is explained as a high pitch squeak or squeal which may vary in tone. **"Sort of sounds like the song of a humpback whale."** Also they noticed low production and soft, wet or mushy ice. DCM "cubelets" may stick together or bridge in the bin, causing dispensing problems. The unit could also shut down on the manual gear motor overload.

These are all symptoms of a dirty evaporator on a Flaker or DCM product. When scale builds up on the evaporator cylinder, it tends to insulate the freezing surface. This insulation factor impedes heat transfer causing reduced production and poor ice quality. The ice will not freeze as hard and will come out of the extruding head wet.

The noise is caused by the scale on the extruding head and the fact that soft wet ice does not extrude easily. This also causes stress in the auger / gear motor system which may increase the gear motor running amperage enough to kick the overload reset. This would only occur in extreme conditions.

The cleaning instructions are included on the inside of the front panel. Mix the cleaning solution in a separate container, according to the recommended type and mixture. Use warm water for better results. Drain the water system and pour the cleaning solution into the reservoir. Fill the reservoir until it overflows the stand pipe. The unit should set for 15~20 minutes to allow the acid based cleaner to loosen the scale.

----------EXTRA STEP----------

This extra step is not included in the written instructions, however it will improve the cleaning

procedure. Lightly pinch off the rubber tube that feeds water to the evaporator using vice grips. Pour additional cleaning solution over the extruding head until the evaporator cylinder is completely full. This will allow cleaner to soak the top of the cylinder and loosen scale formed on the extruding head as well.

Once the cleaner has set long enough, remove the vice grips and allow the solution to balance out in the reservoir. The excess will overflow the reservoir standpipe and drain. Check to insure the inlet water line is shut off and start the unit. Make ice with the cleaner. **CAUTION, catch this ice and discard it in a safe place.** As the unit runs, the squeaking sound will get louder due to the poor ice quality.

Allow the unit to run until it shuts off on the low water safety and inspect the reservoir. If the reservoir is clean, the evaporator is clean. If not, repeat this procedure again. Follow the same procedure when sanitizing the unit using a commercial grade of sanitizer. Nu-Calgon IMS-II sanitizer is available through your local Hoshizaki distributor, along with Hoshizaki Scale Away ice machine cleaner.

Once the ice machine is cleaned and sanitized, you will notice increased production and harder, crisper ice. Also the annoying squeaky sound is gone. Throw away the first 10 minutes of ice production to guarantee clean fresh ice for your customer.

ICE STRIPS

As you lift the bin door, you notice long ice strips laying in the bin. Ice strips, commonly known as bridging, can be the result of a water problem or a refrigerant system failure. If bridging continues, the strips will eventually stick to the evaporator plate and a freeze-up may occur.

To find the reason for ice bridging, you need to observe the build-up of ice on the plate. If you see ice bridging on some channels of the plate and no ice on the others, the water distributor tubes are likely plugged. All of the water in the reservoir has to freeze on the plate before the float switch can initiate harvest. If some of the distributor holes are plugged, the water flows down the channels with open holes causing this "spot" bridging.

When bridging occurs on the entire evaporator assembly, the reservoir has more water than it needs. This generally is the result of an inlet water valve not shutting off completely or leaking by. This adds additional water to the reservoir during the freeze cycle. The float switch remains closed and normal cubes grow into strips. This is the beginning of a freeze-up. To correct this problem, clean the water valve diaphragm bleed port or replace either the diaphragm or the defective valve.

If bridging occurs on the inlet evaporator plate and no ice is produced on the outlet plate, you have a refrigeration problem. Check the system charge, TXV operation, and refrigerant flow. There is not enough refrigerant flow to fill the entire evaporator assembly during the freeze cycle.

You may also find bridging on the last plate and normal ice cube formation and harvest on the inlet plate. In this case, you do not have enough hot gas to flood the entire evaporator assembly during harvest. Check for a hot gas valve that does not open all the way, low head pressure, or an inefficient compressor. Correcting these problems should eliminate the ice strips and allow for properly formed KM crescent cubes.

SIZING ICE MACHINES

From time to time, service technicians are asked "What size ice machine do we need?". Giving the correct answer to this question requires some research. One thing you should always remember is that it is better to have too much ice than not enough. This article will cover some aspects of sizing a unit correctly.

Consider the type of business and how they will use the ice. Remember, ice can be used for many things other than cooling drinks. List the different uses at this customer's location.

Ask the customer**:**

1. What is the seating capacity and turns per day?
2. What days are they open?
3. What are their hours of operation and peak periods?
4. Are cocktails, ice water, or iced soft drinks served? What is the cup or serving size?
5. Do they offer any promotional drink sales? (Super duper 64 oz. specials)
6. Is there a salad bar or other ice holding area?
7. Are there any special ice uses such as icing down produce or meats for storage?

Estimate how much ice is used for each purpose. This may require measuring the containers such as a salad bar or fish display cases, storage trays, or holding bins. You should also look at how many times during the day these containers are refreshed. To calculate how much these containers hold, use this rule of thumb. A cubic foot of KM cube ice weighs approximately 32 lbs. A cubic foot of flake ice weighs around 27 lbs.

Once you calculate the actual ice usage, add approximately 20~25% as a safety factor to accommodate for future business growth and peak summer demands.

Now that you know the ice demands, choose the model that provides the proper ice production. The unit should meet the demand under a worst case scenario of high ambient and water temperature conditions. The ice storage bin should be sized to provide adequate storage capacity to meet that peak demand draw.

For more sizing information, see our next months issue. The ice usage chart will show how much ice is needed per day by different types of customers.

COMING NEXT MONTH...

1. ALTERNATE REFRIGERANT UPDATE
2. COMPRESSOR BURNOUT
3. ICE USAGE GUIDE