HOSHIZAKI TECHNICAL SUPPORT
TECH -TIPS

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IM-51 INSTALLATION

The IM-51 model is a small ice machine that was designed for applications requiring either counter top or under counter installations. The airflow is in the left front of the louver and out the right front so that it can be built in if desired. A 16"w x 30"h cabinet opening is required for a standard installation. Optional 6-inch legs are available if the installation requires more height. If only a small amount of height is required, 4-5/8 x 2 ~ 4" bolts can be added to the leg mounting holes to give the desired height. In this case, a back up nut should be used on each leg bolt to secure the mounting.

As for utility connections, a separate 15-amp circuit is required to supply power to the unit. A 3/8" water supply and an adequate ¾" drain should also be supplied. For applications where a drain is not available, a drain pump assembly can be used to remove the drain water. This pump assembly will be similar to one used to remove condensation from an AC unit. An optional universal IM drain pump is available through Hoshizaki sales or a standard, properly sized, condensate pump assembly can be purchased at a wholesale supply house. Use of the optional legs may benefit a drain pump installation.

To size the pump, the distance to the drain waste location and the height or lift should be considered. It should be sized to remove 2~3 GPM to allow for the overflow-flush period and for normal bin drainage. The optional pump assembly offered by Hoshizaki includes a safety that will shut the unit down if the pump fails to operate. The IM actually plugs into the pump controls. This feature may also be available on some over the counter condensate pump units.

If the application requires a built in installation, the use if flexible tubing is recommended for the drain and water supply. This will allow for easy removal of the unit if service is required. Care should be taken to avoid crimping of the flexible tubing or damage to the power cord when sliding the unit into the cabinet space.

In the event that the IM-51 is installed on a counter top without the optional legs, it is recommended to seal around the base of the unit. This will prevent water from seeping under the unit in case of an accidental spill. The right side panel should be removed prior to applying silicone so that it can be easily removed later if service is required.

As always, these installation details are provided in the instruction manual supplied in the accessory bag inside the bin.

FLAKER BEARINGS

The bearings are an integral part of the flakers auger gear-drive assembly. They are a wear item that should be inspected on a regular basis. Most manufacturers use steel roller bearings which are subject to damage due to the harsh wet environment of the evaporator. Hoshizaki uses water friendly, sleeve type alignment bearings.

Hoshizaki bearings are made of a poly-carbon material. The carbon has a graphite base for self-lubrication. The upper bearing is pressed into the stainless steel extruding head. The lower bearing is pressed into the brass lower housing. Both extruding head and lower housing are bolted to the evaporator cylinder to provide maximum stability for the auger.

This design reduces bearing wear by keeping the auger perfectly straight inside the cylinder. The idea is to eliminate the possibility of wobble in the auger. This eliminates movement at the lower end of the auger and reduces stress on the output shaft of the gear motor. It also reduces the possibility of the auger flute contacting the inner wall of the stainless steel evaporator cylinder.

Bearing life will be directly proportional to the amount of preventative maintenance preformed on the unit. It is not unusual for these bearings to last many years (8~10 or more) if proper maintenance is preformed. A properly maintained external filtration system will also extend bearing life.

Hoshizaki recommends a preventative maintenance schedule that includes cleaning of the water system and annual bearing checks. Only the top bearing can be checked since there is no way to access the lower bearing while it is in place. The bearing check includes checking the bearing gap between the auger shaft and the inner bearing surface. This is done by using a Hoshizaki **.**02" bearing gauge. The PM video # 80031 details the proper steps necessary to perform this preventative maintenance.

SERVICE Q & A:

Question from web site: In a nutshell, could you explain what happens to the TXV when a KM cuber is in the harvest mode? The hot gas valve opens up, bypassing the condenser, entering the evaporator. Obviously, the suction pressure rises due to the heat load, and the head pressure is lowered. The sensing bulb is hot due to discharge gas being sensed so the TXV must be totally opened. What prompted this question was that I read something that mentioned problems with the TXV leaking by in the harvest mode. Please shed some light on this subject.

Answer by: *Lonnie Clayton* In order to answer this question, we must look at the operation of the TXV. This will give us an understanding of what occurs in harvest.

During harvest the TXV has pressure applied to the bottom of the diaphragm from three areas.
1. The liquid line pressure. On most models this pressure will stay around 190 to 210 pounds during harvest. This pressure is directly applied to the bottom of the diaphragm.
2. The discharge pressure entering the evaporator also applies pressure to the diaphragm.
3. The spring in the TXV is also applying constant pressure on the diaphragm. This is a set pressure for the specific valve and is set by the valve adjustment.

We end up with liquid pressure + discharge pressure + spring pressure. Couple this with a lower bulb pressure and you can see that the valve is closed. Yes, it is true that the remote bulb sensor is heating up and trying to open the valve due to the warmer evaporator tmperature. However, due to the higher pressure being exerted on the diaphragm from these three sources, the valve remains closed.

There is a situation in which the valve may possibly leak by. This occurs when a machine has an extremely long harvest cycle, and does not have a liquid line valve. In the long harvest the head pressure and discharge pressure will reach a point at which the pressures actually start to drop. This is due to the natural condensing occurring in the condenser.

They may eventually reach a pressure range that will allow the sensing bulb pressure to overcome them and allow the valve to open slightly, thus allowing a bleed-by effect. Once this bleed-by starts, we then will see a drop in temperature at the TXV outlet and eventual refrigeration occurring in the evaporator.

This is just a brief overview of the TXV operation in the harvest cycle. Hopefully it answers your question as to why the valve remains closed during harvest.

COMING NEXT MONTH...

1. Eliminating Bypass Cooling
2. Natural Built-in Cleaning
3. Service Q & A