

# RINK REFRIGERATION 101

## PART 4 OF 6

This year RINK Magazine will discuss refrigeration in an educational 6-part series written by Dave Wescott. We encourage you to share your comments, ideas and repairs related to rink refrigeration systems by sending them along with pictures to [davew@starrinks.com](mailto:davew@starrinks.com).

## Start-Up and Spare Parts

*In this installment we discuss the start-up of the refrigeration plant and the importance of spare parts for your refrigeration plant.*

First off, we recommend that seasonal start-ups be performed by your refrigeration service professional. However, we also recommend that rink staff assist in the start-up and learn how the procedure works, as well as learning as much as possible about the refrigeration system at your facility from your service company. Add this knowledge with the information your employees can receive from a Basic Refrigeration class and your facility will benefit greatly.

Seasonal start-ups give you a chance to make sure your plant is operating efficiently. During the shutdown period you have the opportunity to clean, inspect and evaluate your refrigeration equipment. It's a good idea to check out the refrigeration room a couple of weeks before the scheduled start-up and complete a list of pre-start-up procedures.

This list of prestart-up operations should be developed with your service company and will be specific to your system. There will be items like inspecting drive belts and couplings and checking valves for leaks and proper operation along with the refrigerant and oil levels.



**The Chicago Blackhawks will sure be looking forward to Start-Up of this plant next year.**

If you wait until it's too close to start-up time to perform the pre-startup checks and find out you need something replaced or repaired, you may not have the time to get the parts and complete the repairs before start-up.

The last start-up item is to schedule plenty of time to make the ice. Planning one extra day for any unexpected delay is always a good idea.

Another topic that goes hand in hand with the start-up is having a good inventory of spare parts. There have been many plant start-ups that have been interrupted by a lack of spare parts. Some facilities are fortunate to be located in major cities that have parts within a day or



### Sample pre-start Procedures

- Check seal on water pump for leaks
- Check spray nozzles on condenser – make sure they are not plugged
- Check all water and brine valve stems
- Check all v-belts for wear/cracking
- Grease all bearings
- Check brine headers for corrosion – wire brush & paint if necessary
- Conduct an internal inspection of compressors (to manufacturer's specifications)
- Check brine/glycol level and strength (specific gravity)
- Drain the chiller of oil – ammonia systems
- Replace oil in compressors – check lines/filters
- Check seal on brine/glycol pump for leaks
- Drain/clean condenser water tank

**Drive Belts are a very important part to have on hand.**

two of the facility. However, for facilities located in more remote places it can take longer to receive parts, so having spare parts on hand is invaluable.

It's a good idea to create a spare parts inventory with both your manufacturer and service company. Things to consider: batteries for your computer controls, back-up software or discs, fuses, motorstarter contacts, relays and coils. Also consider belts for the compressors and condenser and drive couplings for compressors and pumps. If not locally available, a spare condenser motor should be

considered since there is no redundancy for it and ice could be lost without it.

Preparation is the most important part of the start-up process — the turning of valves and flipping of switches is the easy part. So, make sure you are prepared! ★