

ICEAIRE

Solving Ice Arena Humidity Problems



Humidity is a concern for all indoor ice arenas. It causes fog, condensation, mildew, odors, wet floors and rust. To create ideal ice surface conditions and optimum indoor air quality, the dewpoint should be close to the ice surface temperature. Many recreational ice arenas rely on desiccant dehumidifiers to deliver air between 20F and 30F dewpoint. Many NHL teams practice at recreational arenas offering this level of control. Skaters and the media know when the ice sheet is less than ideal. It seems every rink manager claims to have the “best ice in town”. Rink managers know selling ice time is very competitive and ice quality and the overall environment of the arena helps sell ice.

Using Desiccant Technology

Munters desiccant dehumidification technology is extremely efficient at removing moisture. Its dehumidifying wheel acts as a sponge to absorb the moisture from the air while providing fresh air for ventilation and spectator comfort. Every Munters IceAire unit includes the Munters Honeycombe desiccant dehumidification wheel for superior moisture removal and efficiency.



Munters IceAir® “A” Unit

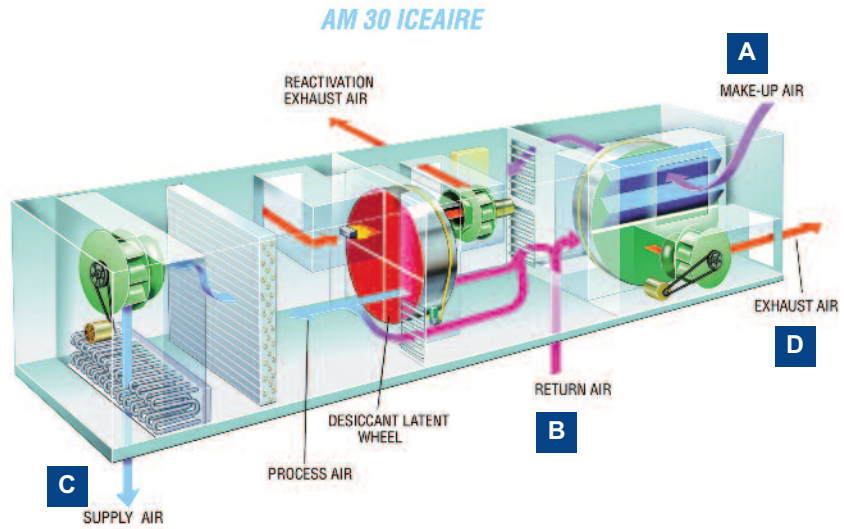
Standard “A” units range in size from 1,250 to 20,000 scfm with a variety of wheel sizes to address the specific moisture load of every arena. Often, the “A” model is controlled solely by a space humidistat to operate only when dehumidification is required. Many recreational arenas with limited spectator capacity often rely on the cold ice surface to provide cooling of the space. When the ice fails to provide adequate cooling capacity or if the arena has significant spectator capacity, Munters offers optional post cooling. Heating, various ventilation modes and controls are also available.

Munters IceAir® “AM” Unit

The Munters “AM” series system is also designed to maintain desired space conditions while allowing the introduction of larger volumes of outside air to satisfy ventilation codes. Ventilation requirements vary throughout North America depending on local codes.

A recreational facility usually requires between 10,000-20,000 scfm of outside air. Because outside air is by far the largest source of moisture in an ice arena, it is important to condition it before it is introduced to the space.

The “AM” system includes an energy recovery wheel to precondition incoming outside air followed by the desiccant dehumidifier wheel for deep drying. The “AM” unit can be equipped with post-cooling and post-heating options to provide temperature control of the arena. This approach offers tremendous flexibility. For large arenas with high spectator capacities multiple systems may be required.



| | A | B | C | D |
|-----------------------------------|-----------|-----------|-----------|-----------|
| Unoccupied (Mode 1) | 0 | 15000 CFM | 15000 CFM | 0 |
| Minimum Occupancy (Mode 2) | 6000 CFM | 9000 CFM | 15000 CFM | 6000 CFM |
| Maximum Occupancy (Mode 3) | 15000 CFM | 15000 CFM | 15000 CFM | 15000 CFM |

Cost Savings

All Munters systems use a titanium-enhanced desiccant wheel, the most efficient way to provide humidity control for ice arenas. The Munters systems are specifically designed to remove huge amounts of moisture to lessen the load on the ice refrigeration system saving operating costs.

Cooling based dehumidifiers with less moisture removal capacity place an increased latent load on the ice sheet itself. Desiccant dehumidifiers offered by other manufacturers require more reactivation energy than Munters systems.

Code Issues

National building codes have been revised for ice arenas in the United States to conform to the Indoor Clean Air Act. *BOCA 1993 CODE* requires and *ASHRAE Standard 62- 1989* recommends 0.5 SCFM of outside air per square foot of ice sheet and 7.5 SCFM of outside air per spectator for events less than three hours.

- For an NHL size ice sheet of approximately 16,500 square feet, typical make-up air requirements are as follows:

Arena requires 8,250 SCFM Make-Up Air @ 0.5 CFM/Sqft. Ice 400
Spectators require 3,000 SCFM Make-Up Air @ 7.5 CFM/Person

TOTAL REQUIREMENT = 11,250 SCFM Make-Up Air

RINK MOISTURE LOAD 80 GR/LB DIFFERENTIAL = 578 Lbs/Hour

The Munters “AM” system is designed as a make-up air system that satisfies code issues and still provides the benefits of low dewpoints for the arena. This is a total environmental control system.