



What System Is Right for You?

Mechanical - When choosing the right ice rink system for your arena, understanding your local environmental options is critical. Ice rink system designs can draw from different industries and technologies. The cold storage industry design for subzero temperatures and are built to deliver cooling for large warehouse spaces known as “Central Distribution Centers” or CDC’s. Their system design is rooted in the “Industrial” sector. Another design comes from the refrigeration industry where their focus is on grocery store coolers and refrigeration. These cooling systems are classified as “Commercial” chillers. A third option comes from the “Air Conditioning” sector, typically designed to supply 44-degree water to large “Air Handling Units” distributing a cool air supply throughout the building. These “Air-Conditioners” can be factory reconfigured to supply as low as 15-degree fluid (ie: Glycol) required for making skating ice. Each one of these designs are appropriate for their intended application and in our next newsletters, we will be diving deeper into each design to help you better understand the advantages and drawback of each chiller type. Let’s start with exploring the “Industrial” chiller design.

The “Industrial Refrigeration” market has varied little over the decades, however; optimization of thermal and energy efficiency is a key modifier in the system design. Each cold storage facility is unique in its application and each application must conform to a specific business plan observing up-front or capital costs, cost of operation and the long-term cost of maintenance as well. Variables in the design specification that are expected in an Industrial Refrigeration System include but not limited to: Typical large-scale facilities select Ammonia as their primary refrigerant for its highest energy efficiency, the lowest environmental impact and low charge or replacement cost. Key components for consideration are the evaporative condensers, again selected for its system energy efficiency but they also represent the smallest footprint. The single most important mechanical consideration in any refrigeration system is the compressor. All large-scale refrigeration markets have settled in on the “Screw Compressor” over the reciprocating compressor, again for its energy efficiency, compact size and long-term reliability.

What is often over looked in the system design is the control system. With all the attention paid to the mechanical thermal and energy efficiency, surprisingly the optimization available of the mechanical side is found in the method to which it is controlled taking into consideration the environment both inside and outside of the application. American Arena will expand on our unique and customizable control system in upcoming newsletters.