



AIR MANAGEMENT TECHNOLOGIES, INC.
Building Energy & Environmental Services



Spiral Product Conditioning System

Guaranteed Solutions:

Process Cooling

- ◆ Mixer & Sponge Systems
- ◆ Chilled Ingredient Water
- ◆ Finished Product Cooling
- ◆ Blast Freezing
- ◆ Refrigeration

Process Heating

- ◆ Water Heating
- ◆ Steam & Hot Water Systems

Environment Conditioning

- ◆ Proofing/Retarding
- ◆ Spiral (Finished) Products
- ◆ Oven Steam
- ◆ Mold & Particulate Control

Industrial HVAC

- ◆ Makeup Air Systems
- ◆ Spot Cooling
- ◆ Space Pressurization
- ◆ Filtration
- ◆ Mechanical Cooling
- ◆ Ventilation

Waste Heat Recovery

- ◆ Ovens & Oxidizers
- ◆ Solar/Fuel Cells
- ◆ Compressed Air
- ◆ Industrial Fryers

Specialized Technologies

- ◆ Absorption Refrigeration
- ◆ Cascade Refrigeration
- ◆ Industrial Heat Pumps
- ◆ Solar/Fuel Cells
- ◆ Organic Rankine Cycle

Commercial and Industrial wholesale bakeries have recognized the value of enclosing product coolers in a conditioned environment. This is important when considering that the finished product spends greater than 90% of its time in this process. Several key benefits are achieved including consistent product temperatures, regardless of variety or time of the year, as well as food safety and quality control benefits.

Our spiral conditioning system not only provides the cooling benefit, but also much more while operating at 75-90% less than traditional refrigerated systems providing substantial energy savings and annual greenhouse gas reductions of several hundred tons. Other benefits include enhanced filtration for mold and particulate removal, positive pressurization to prevent infiltration of plant air, enhanced air distribution, sanitation benefits, corrosion protection, as well as enhanced design to prevent mold growth from cooling coils.



Enclosures

It is difficult to maintain acceptable conditions when coolers are not enclosed and situated “somewhere” inside the plant. Many variables exist that can impact Food Safety and Quality; however, when a cooler is enclosed the footprint is now reduced and can be managed as a clean room that protects the product from a variety of conditions. Enclosing the cooler requires special ventilation provisions but this can also be beneficial to the overall process and also keeps unwanted moisture and heat from entering the plant.

System Operation

Custom air handling systems with sanitary design and access locations are designed to condition the space and in most cases are roof-mounted with airflow orientation that pulls air vertically from the top of the cooler and provides a low velocity supply air around the perimeter. Supply air distribution can be in the form of a pressurized plenum, double wall ducting or fabric duct. Controlled variables are managed to provide safety, quality and consistency.

Cooling:



Supply air temperature is typically maintained between 60-80°F and in most cases mechanical refrigeration is used and combined with an economizer cycle that uses outside air providing substantial energy savings. Under most modes of operation the only energy expended is fan energy. UV lighting is optional to protect coil and drain pans from microbial growth.

Humidity Control:



Space humidity can be controlled by indirect means that manage the moisture released from the process and or direct means that use humidification which is less common but necessary when precise control is desired.

Mold & Particulate:



Space mold and particulate levels are controlled in several manners that include air filtration designed to remove >90% of all atmospheric mold spores and enclosure pressurization that prevents any particulates or insect's from entering through conveyor inlet and outlet openings.

Sustainability & Cost Saving Benefits



It is a common misconception that the product conditioning systems consume more energy than traditional means and in most cases that is not correct. Consider the ambient cooler that does not cost anything except for maybe some exhaust. What is not considered is 300% more airflow due to inefficiencies when compared to enclosed systems. In turn, this air needs to be made up which means more molds entering the plant. In Northern Climates, a substantial winter heating cost will be present.

Our systems, in almost all cases, operate at less than traditional measures. When compared to refrigerated enclosures, many times savings of 80% operation and maintenance cost are also minimal since the mechanical cooling runtime is . In addition, our control logic determines times when its better to use outside air then return from an energy perspective that also saves money and reduces Greenhouse Gas emissions. Capital cost for this system when compared to conventional refrigeration provides a payback usually in 2-4 years with substantial benefits in Food Quality and Safety that can actually be compromised with other systems.

About Us

Air Management Technologies has delivered energy, thermal process conditioning, and environmental solutions for over twenty years. Our written performance guarantee places the responsibility in our hands and the life cycle benefits in yours. Cost conscious decisions are made with the customer in mind and every project is guaranteed to operate as specified.



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