



AIR MANAGEMENT TECHNOLOGIES, INC.
Building Energy & Environmental Services



COOL-SHOT for Worker Comfort and Heat Stress Management

COOL-SHOT was developed by Air Management Technologies to provide a lower cost solution for bakery worker spot cooling in comparison to dedicated “air conditioning” equipment.

What exactly is Spot Cooling?

Spot Cooling is primarily used in to help manage worker heat stress in specific locations, or “spots”, providing a stream of cooler and dehumidified air compared to the overall area.

Typically refrigerated spot cooling is about ten degrees warmer than typical “air conditioning” temperatures with an objective to improve the workers’ conditions.

Spot cooling is not “air conditioning” a space and spot cooling will have negligible effectiveness outside of the supply air location.

Spot cooling using only outside air exchange is the lowest cost option. Seasonal temperature and humidity variability present challenges limiting this type of spot cooling effectiveness and in many climates may actually increase heat stress when considering humidity and supply airflow impact on the workers’ ability to perspire. The negative health and safety impacts on perspiration and adding moisture into a bakery are also why adiabatic “swamp” cooling should never be used except in the most arid environments.

To help attract and retain workers, facility managers have been searching for cost effective ways to provide a more comfortable working environment. Self-contained refrigerated spot coolers have a high investment cost and outside air exchange performance is insufficient for year-round usage. In response we developed COOL-SHOT to overcome these financial and health safety obstacles.



How does it work?

COOL-SHOT is a refrigerated spot cooling system with single or multiple outlets engineered for ease of installation and for connection to existing utilities. Cooling is provided by utilizing the higher temperature “return” from the existing glycol refrigeration system after it has been used to cool the mixer jackets and other process uses as most of these chillers are installed with substantial reserve capacity. Should this reserve capacity be unavailable or a facility desires many different spot cooling locations, a separate chiller may be required. If needs are for summer only a seasonal rental is also an option.

Intelligent design may allow systems to reuse existing line voltage wiring and roof openings by retrofitting existing supply and exhaust fan locations. Ductwork is typically limited to the supply drop and a plenum minimizing initial cost and cleaning requirements.

The COOL-SHOT package is available with equipment and controls supplied by Air Management for installation by others, with engineering and commissioning support available. Or we can provide a full turnkey installed project. Three sizes are available; 2,000, 4,000, and 6,000 cfm depending on the number of locations and the concentration of workers inside the spots.

Equipment & Maintenance

COOL-SHOT is easy to maintain with a direct-drive motor, motorized damper and air filtration section accessible from roof level. Evaporator coils are easily washed-down through a plenum access door with dirt hosed off into a container below. Since the systems use outside “makeup” air, they will not contribute to negative pressurization. Make up air is preferred from an energy and food safety perspective as it is usually cooler outdoors than inside a bakery, and flour dusts and other particulates will not be recirculated through the equipment.



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