



POLAIR™

EVAPORATIVE COOLING SYSTEMS

- High-Pressure Atomization Systems
- Recirculating Pad Systems
- Spray-On Pad Systems



VALCO

High Pressure Fog System

Cooling • Humidity Control • Chemical Application

The PolAIR High Pressure Fog System is VAL-CO's most efficient and requested cooling system. With operational pressures of 1000 to 1500 PSI, it atomizes water into billions of micron-sized droplets which flash evaporate upon contact with the air, for the greatest possible temperature reduction. PolAIR High Pressure Fog Systems are custom designed and installed with little or no structural modifications. VAL-CO sales and application engineers gather the required project information and, using a software program developed by VAL-CO, perform psychrometric calculations to ensure that the proper amount of water is evaporated to achieve maximum results.

PolAIR High Pressure Fog Systems are used worldwide in environmental applications that require cooling, humidity control, chemical applications, dust control and odor control.

Heart of the System

The PolAIR PM8 Stainless Steel Fog Nozzle features a unique patent-pending removable atomization pin and all-metal seals. These nozzles are designed for a lifetime of use, and can be fully disassembled for cleaning (In other High Pressure Fog Systems, the nozzle and internal atomization pin cannot be removed for cleaning). The PM8 nozzle also incorporates VAL-CO's unique check valve, which prevents dripping during system pressurization and depressurization. The check valve also helps keep the nozzle free and clear of interior mineral build up.

The PolAIR's all-metal seals provide years of trouble-free service. Designed for maximum sealing, the PolAIR metal seal does not crack, chip or flatten out and is not effected by UV light as is the case with plastic seals used in other high pressure fog cooling systems.

Each PM8 atomization nozzle is custom machined into the P1000 Stainless Steel Tube using a unique manufacturing process developed by VAL-CO which allows the nozzle to be torqued directly into the thin wall stainless-steel tube. All nozzle line sections are joined together with instrument grade compression fittings for a quick, easy installation. Every PolAIR System is shipped complete, so when the system arrives on the job site, all that is required to carry out the installation of the system is to provide water and power to the Pump / Filtration / Control Module and install the stainless steel tubing.



System Components

The PoAIR High Pressure Fog System consists of the following components, which have been matched together for years of trouble-free service.

Atomization mainlines

PoAIR high pressure stainless steel atomization lines come complete with the PM8 atomization nozzles and check valves. Each atomization line is inspected and pre-tested at 1000 PSI to ensure proper flow from the nozzles. Atomization line is shipped in 10 ft. sections for ease of handling and includes one PMCF20 compression coupling per section.

PoAIR stainless steel mainline is made with 316-grade stainless steel tubing.

Instrument grade compression fittings are used for weld-free, flare-free installation.

PoAIR CM high pressure pump and filtration system

The CM High Pressure Pump provides operational pressures between 1000 PSI and 1500 PSI. Each custom-built, pre-tested system includes the pump, motor, and water treatment/filtration cartridges to remove contaminants which may foul the nozzles.

PoAIR 400 HC pump controller

The PoAIR 400 HC pump controller can operate as a stand-alone controller or as an interface for host computer operation. The PoAIR 400 HC Controller has the following features:

- Programmable setup and operation
- Solid state circuitry
- Control by temperature, humidity and time, or any combination of the three
- Programmable stress index monitoring (See note on last page)
- Humidity over-ride capability
- Multiple sensor inputs
- Digital readouts in Fahrenheit or Celsius
- Pre-wired to the CM Pump System and pre-tested prior to shipment
- Complete installation hardware includes clamps, cable, cable ties and screws



Poultry House Applications

The PoAIR High Pressure Fog System is used in layer, broiler, breeder and turkey sheds to provide temperature and humidity control during critical phases of poultry production.

PoAIR Cooling Benefits:

- Reduces mortality caused by heat stress
- Allows winter stocking densities during the summer
- Increases egg mass and quantity during the summer
- Accelerates weight gain – broilers go to market sooner or heavier
- Provides even cooling throughout the building

PoAIR Humidifying Benefits:

Provides excellent dust control

Maintains ideal humidity range during brooding

Brooders commonly reduce humidity levels in the house to 10 to 20%. This is far below the 60 to 65% humidity recommended for proper lung development in chicks during the first 10 days.

Disinfection and Air Sterilization

When birds are removed from the house, the PoAIR High Pressure Fog System makes an excellent delivery vehicle for chemical concentrates such as disinfecting agents. During brooding, the system can disperse chemicals to sterilize the air that young chicks breathe. European growers typically introduce chemicals such as hydrogen peroxide and iodine through the fog system.

Additional Applications

- Greenhouses – cool and humidify, plus deliver chemicals
- Concrete curing rooms – control humidity levels
- Swine and Dairy barns – cooling and humidity control
- Hatcheries and egg rooms – maintain desired humidity
- Outdoor public areas – cool open air restaurants, patios, train stations
- Textile factories – cool buildings and suppress airborne fibers
- Co-generation – gas turbine inlet cooling
- Large warehouses – general cooling
- Cold-storage rooms – control humidity

Odor control – With the addition of odor-neutralizing agents, the PoAIR High Pressure Fog System can also be used to effectively control odors from farms, water treatment ponds, processing plants, etc.

Disinfection and Sterilization – Atomize sterilization agents to control and eliminate bacteria and harmful pathogens, such as Salmonella, in processing plants, food processing rooms, etc.

All VAL-CO PoAIR products come with the most comprehensive warranty in the industry and are backed by a worldwide distributor network. VAL-CO also provides support through its own distribution and manufacturing facilities in North America, Europe, Asia, India and Latin America.



PoAIR 6" Recirculating Evaporative Cooling Systems

6" Recirculating Systems

The PoAIR 6" Evaporative Cooling Pad Recirculating System is VAL-CO's best pad system. The system is the latest in pad cooling technology and is available in an extended or flush mount model.

Both models are easy to install and are designed for maximum water evaporation.

Standard System Features

PoAIR 400 Command Center

Programmable digital controller allows control by temperature, humidity and/or time. The PoAIR 400 offers the ability to monitor temperature and humidity and to use the combined readings to stop cooling when a programmed stress index level is reached. This unique feature ensures maximum cooling without putting the birds into a stress condition.

All-in-one Recirculating Tank and Return System

Stainless steel components are used in critical areas to reduce or eliminate the corrosion typically found in many pad cooling systems. The PoAIR Pad Cooling System includes a stainless steel bottom trough to hold the pad and drain away water to the collection pipe. Stainless steel is also used for all wall mounting brackets. The top cover and bottom collection pipe are made from durable PVC for years of trouble-free service. The recirculating tank is made from PVC and is supplied with all required fittings. Painted aluminum side-covers protect the pad edges and prevent dirt and contaminants from entering the return troughs.

Pumps are available in two capacities – 30 GPM for systems under 50 ft. in length and 60 GPM for systems over 50 ft. in length.

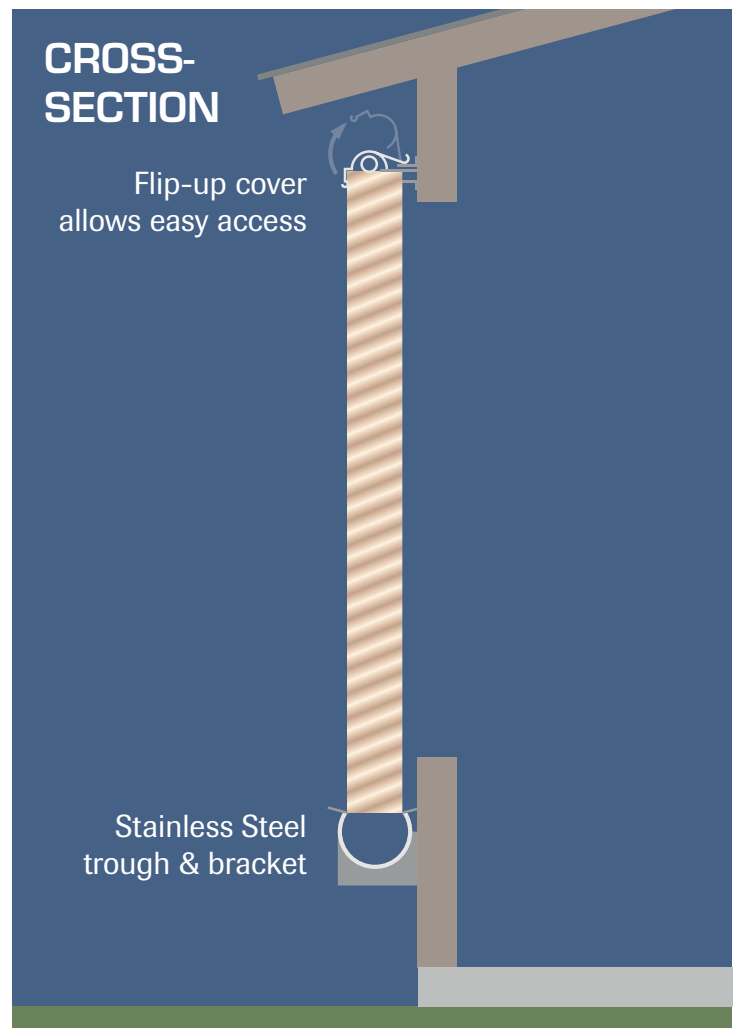
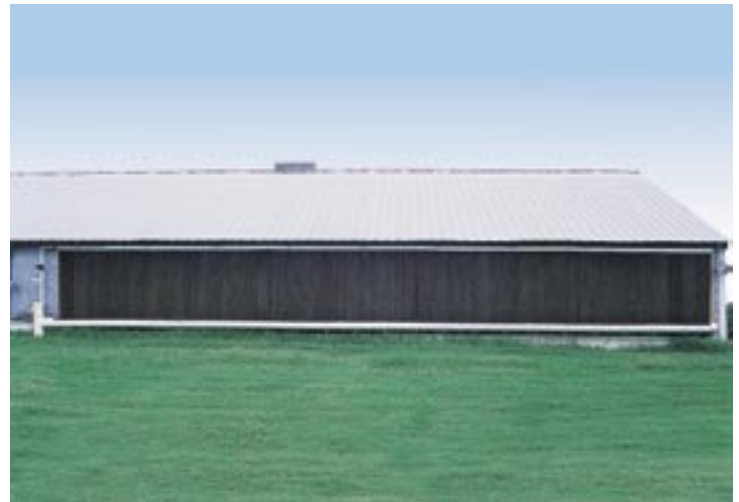
VAL-CO Sales and VAL-CO Distributors can assist you in selecting the correct material for your pad system. The PoAIR 6" recirculating pad comes in the following sizes and options:

Heights – 36", 48", 60" and 72"

Widths – 12" and 24"

Flute Angles – 30/30 and 45/45

Pads are available with edge guarding which strengthens the face of the pad and extends material life.



Flush-Mount Model

This model offers all of the standard features with a pad system designed to be installed directly on the structural wall. For applications that allow this type of installation, the flush-mount model offers the following features:

PVC and aluminum top-cap extrusion – Mounts directly to wall for fast installation. Unique PVC top-cap profile prevents water from spilling out and evenly distributes the water over the entire length of the pad.

Stainless steel bottom trough and return pipe – Attaches directly to the wall.

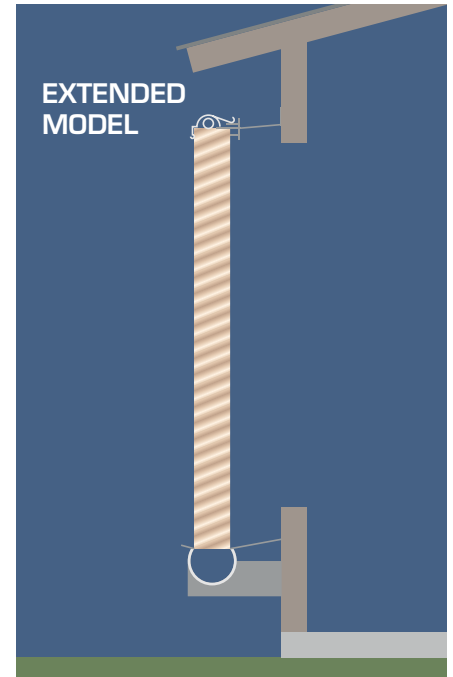
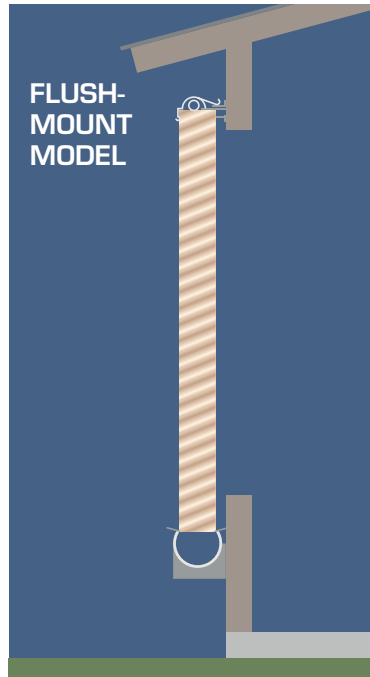
Flush-mount side caps – Attach directly to the wall and provide a professional finish to the entire system.

Extended Model

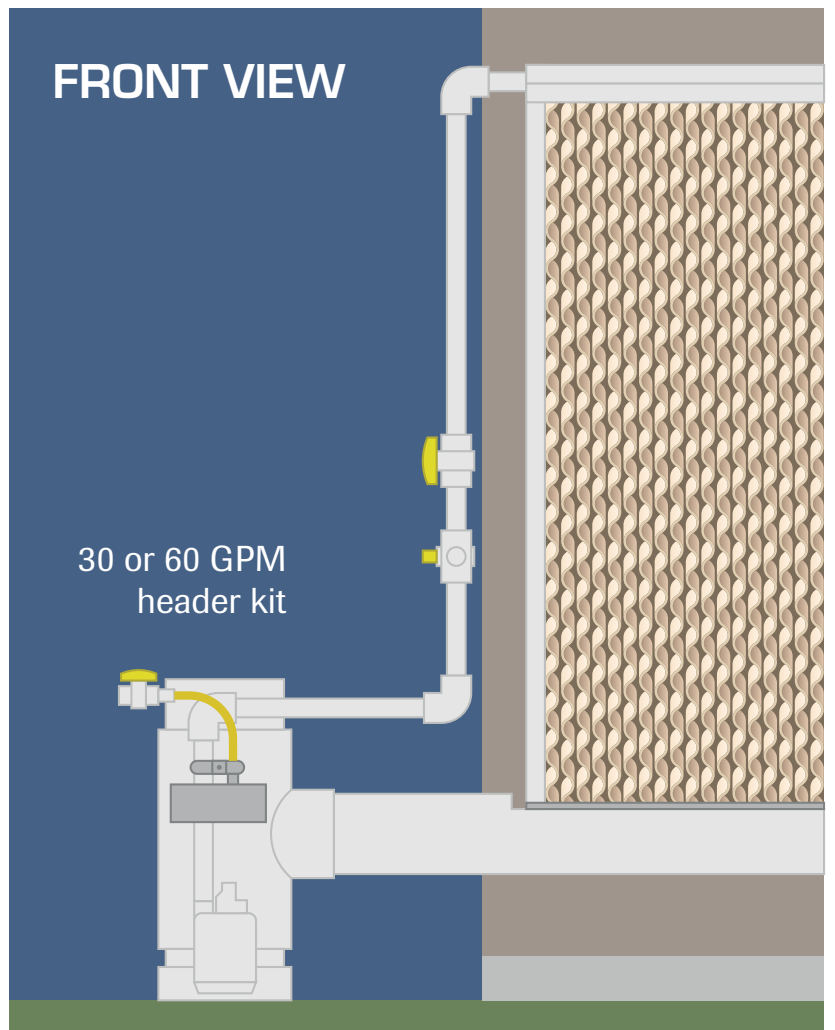
This model offers all of the standard features with a pad system that is installed 12" off the structural wall. This unique design provides a space between the pad and the wall, eliminating the need for fabricating a "dog house." The extended model also features:

Stainless steel top extension plate

Single piece stainless steel bottom extension plate and trough – The bottom plate has a built-in slope to direct any condensation back into the trough and prevent it from flowing into the house.



Close-Up of Pad Material





PolAIR 2" Spray-On Evaporative Cooling Systems

2" Spray-On Pad Cooling Systems

VAL-CO's PolAIR Spray-On Pad Systems are basic, non-recirculating cooling systems. Designed as an introductory system to provide low-cost, cooling protection for your house, these systems offer many features and benefits and are available in both extended and flush-mount models.

Standard System Features

PolAIR 400 Command Center

Programmable digital controller allows control by temperature, humidity and/or time. The PolAIR 400 offers the ability to monitor temperature and humidity and to use the combined readings to stop cooling when a programmed stress index level is reached. This unique feature ensures maximum cooling without putting the birds into a stress condition.

Booster pump and inlet solenoid

Spray nozzles and manifold

Complete with low pressure mist nozzles which can be disassembled for easy cleaning. Each nozzle has its own filter screen.

Mainline header and drain kits

Unique, sealed PVC "no air leak" framing system – Offers quick, easy installation and assures full airflow through the pad.

Extended Model

Prevents water from entering the house

Stainless steel extender brackets – attaches the PVC "no air leak" framing to the structure

Stainless steel hanger brackets for nozzle manifold

2" Pad material available with or without edge guard

Pad widths – 12" and 24"

Pad heights – 48", 60" and 72"

Pad flute angles – 30/30 and 45/45

Flush-Mount Model

Fast, simple installation

PVC "no air leak" framing provides a complete air tight seal

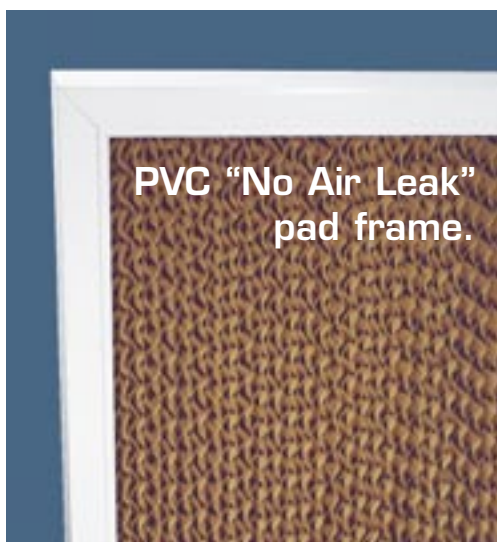
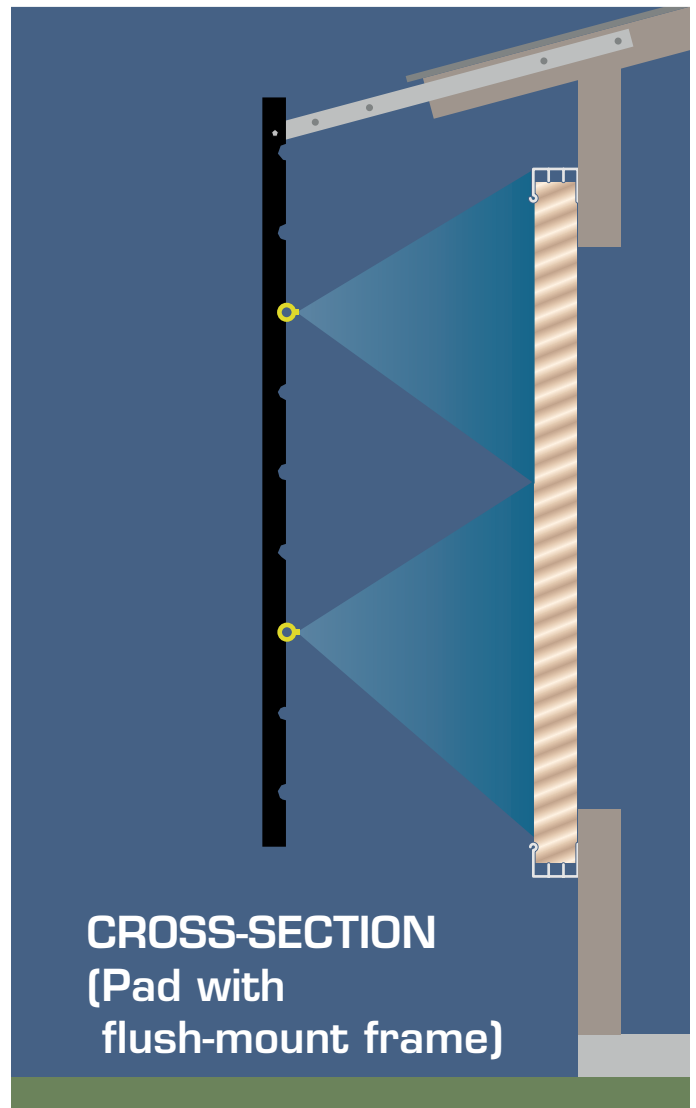
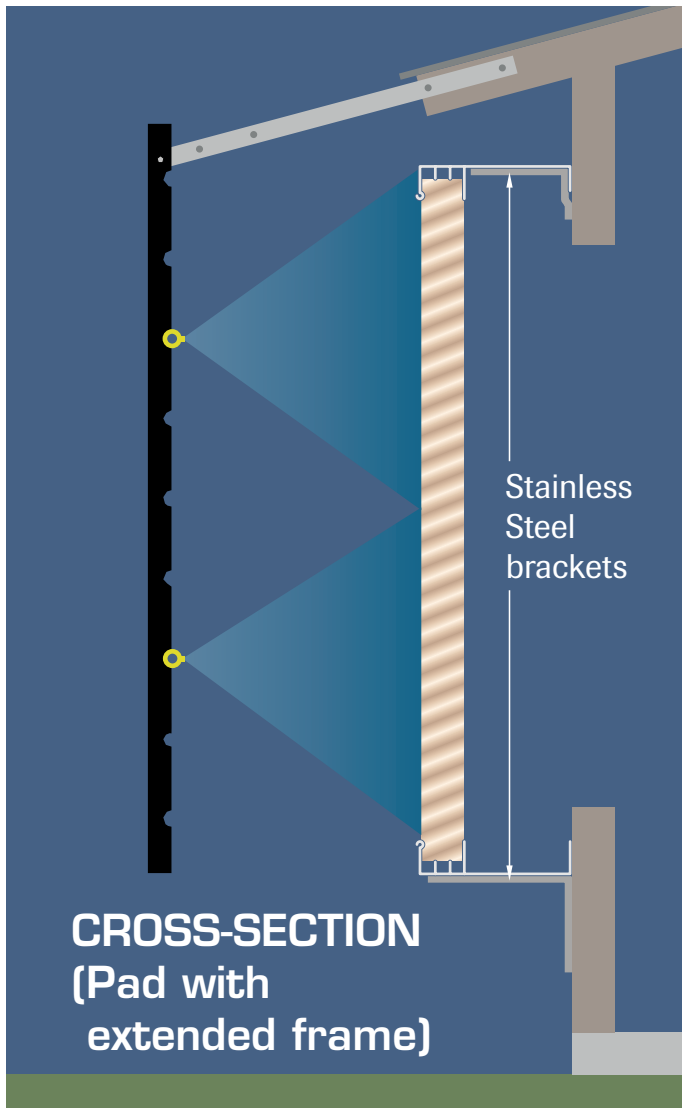
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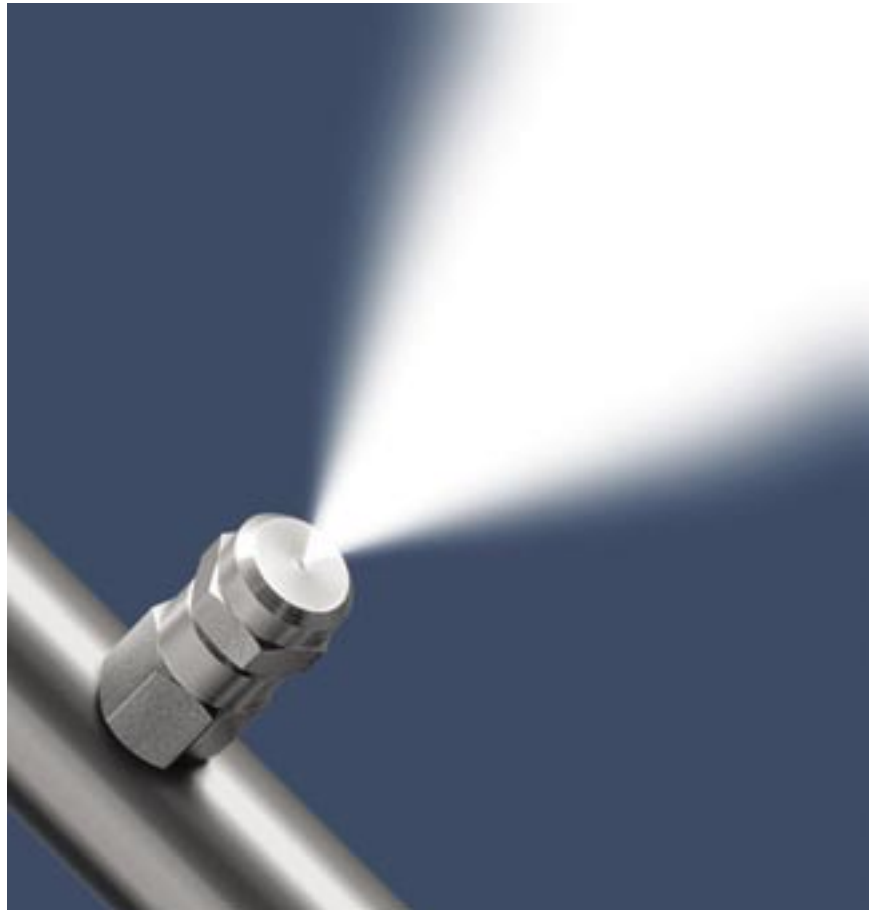
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A Note on Evaporative Cooling

For any evaporative cooling system to work properly, the relative humidity inside the house needs to be low. The temperature/humidity stress index must be below 160. An air temperature of 85° F and relative humidity of 80% will produce a stress index of 165. In this case, running any evaporative cooling system may lower the temperature, but will also raise the relative humidity and increase bird stress.



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