



# CLOSED LOOP EVAPORATIVE COOLERS

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Air Solutions Group  
Davidson, NC 28036

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## INDUCED DRAFT DESIGN

### SUGGESTED EQUIPMENT SPECIFICATIONS

Provide an I-R Closed Evaporative Cooler Model \_\_\_\_\_. Each unit shall have the capacity to cool \_\_\_\_\_ GPM of \_\_\_\_\_ from \_\_\_\_\_°F to \_\_\_\_\_°F with a \_\_\_\_\_°F entering wet bulb temperature.

#### Pan and Casing

The pan and casing shall be constructed of G-235 hot-dip galvanized steel for long life and durability. The heat transfer / fan section shall be removable from the pan to provide easy handling and rigging. The heat transfer section shall be located in the top section to provide maximum service life and ease of maintenance. Standard features shall include access doors, stainless steel strainers, wastewater bleed line with adjustable valve and brass make-up valve, with unsinkable foam filled plastic float.

#### Fans

Fans shall be heavy-duty axial propeller types. The fans shall be factory installed into the heat transfer, (top) section, and statically and dynamically balanced for vibration free operation. The fans shall be constructed of aluminum alloy blades, installed in a closely fitted cowl with venturi air inlet for maximum fan efficiency. Each fan blade shall be individually adjustable. Fan cowl shall be covered with a heavy gauge hot dip galvanized wire fan guard.

#### Fan Motor

\_\_\_\_\_ Horsepower totally enclosed air over (TEAO) on 4, 12, and 24 foot wide, and/or a totally enclosed fan cooled, (TEFC) for 8 foot wide units, the motors will incorporate ball bearings with a 1.15 service factor shall be furnished suitable for outdoor service on \_\_\_\_\_ Volts, \_\_\_\_\_ Hertz and \_\_\_\_\_ phase. For 12 foot wide units and larger the motor(s) shall be mounted on an adjustable base which allows the motor to swing to the outside for servicing.

For 8-foot wide units, the motor(s) shall be mounted on an adjustable base, which is accessible from the outside of the unit for servicing.

For 4-foot wide units, the fan shall be mounted on the motor in a direct drive configuration.

#### Heat Transfer Coil

The coil(s) shall be all prime surface steel, encased in steel framework with the entire assembly, hot-dip galvanized after fabrication. Coil(s) shall be designed with sloping tubes for free drainage of liquid and tested to 400 PSIG air pressure under water.

#### Water Distribution System

The system shall provide a water flow rate of not less than six (6) GPM over each square foot of unit face area to insure proper flooding of coil. The spray heater shall be constructed of schedule 40 polyvinyl chloride pipe for corrosion resistance. All spray branches shall be removable and include a threaded plug for cleaning. The water shall be distributed over the entire coil surface by precision molded ABS spray nozzles (1" x 1/2" orifice) with internal sludge ring to eliminate clogging. Nozzles shall be threaded into spray header to provide easy removal for maintenance.

#### Water Recirculation Pump

The pump(s) shall be a close coupled centrifugal type with mechanical seal, installed vertically at the factory to allow free drainage on shut down. \_\_\_\_\_ Horsepower TEFC motor shall be furnished suitable for outdoor service on \_\_\_\_\_ Volts, \_\_\_\_\_ Hertz, and \_\_\_\_\_ phase.

#### Eliminators

The eliminators shall be constructed entirely of inert polyvinyl chloride (PVC) that has been specially treated to resist ultra violet light. Assembled in easily

handled sections, the eliminator blades shall be spaced on one (1) inch centers and shall incorporate three changes in air direction to assure removal of entrained moisture from the discharge air stream. The eliminators shall have a hooked leaving edge to direct the discharge air away from the fans to minimize recirculation.

#### Pump Module

The pump provided shall be a horizontal close coupled centrifugal pump complete with non-overloading TEFC motor. The pump(s) will be mounted on a structural steel base primed and painted with weather resistant machinery enamel paint. A strainer at the pump inlet is provided along with an isolation valve and inlet pressure gauge. A throttle valve, pressure gauge, and temperature gauge will be provided at the discharge of the pump as indicators of the system performance.

For dual pump operation a switch will be used to detect improper pump performance and initiate automatic switch over to the standby pump in the event of a pump failure. An audible and visual alarm will be provided with this option to warn of primary pump failure.

#### Control Panel

The control panel will be NEMA 4 weather resistant and enclosure and feature a disconnect switch, control transformer, fused branch circuits, motor starters for all fans and pumps plus door mounted indicating lights and selector switches. The panel will be mounted and wired on the pump module (package).

#### Surge Tank

A surge tank will be supplied as standard equipment and will be of heavy gauge steel construction equipped with fill port, vent cap and sight glass. The tank will be primed and painted and shipped loose for field installation.