CLOSED LOOP EVAPORATIVE COOLERS

Air Solutions Group
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I-R EVAPORATIVE COOLERS (FORCED) DRAFT DESIGN
MODELS IR25E-1 to IR150E-3

GENERAL INFORMATION

Operation

The I-R Closed Evaporative Cooler operates by taking the heat laden water (coolant) from the compressor(s) and through a pump, directs the coolant to a closed coil in the cooler. The process fluid is circulated through the coil of the closed circuit cooler. Heat from the process fluid is dissipated through the coil tubes to the water cascading downward over the tubes. Simultaneously, ambient air is blown upward by centrifugal fans through the coil opposite the water flow. A small portion of the water is evaporated which removes heat.

The warm moist air is discharged to atmosphere after PVC eliminators located at the top of the cooler strip entrained water droplets from the leaving air stream. The remaining water falls to a sump and is recirculated. The result is cool water (approximately 7°F above wet bulb temperature) flowing back to the compressor(s). Since the coolant is in a closed system scaling, corrosion and sludge formation is eliminated. This saves maintenance and downtime of the compressor system.

The Process Precooler option is exclusive to the Ingersoll-Rand offering. This option allows for the elimination of spray water at ambient temperatures below 50°F and the elimination of a heater unit, to protect against freeze-ups, by automatically draining the sump of water at 40°F ambient. The cooler uses only the cool ambient airflow across the coil section and the Process Precooler for cooling purposes. This results in substantial savings for those areas with prolonged ambient temperatures below 50°F. Nobody offers a system of same design as Ingersoll-Rand.