Evaporative Cooling System

Product Description

- An evaporative cooling system for turbine inlet air is a useful option for installations where high ambient temperatures and low relative humidity are common.
- The evaporative cooling system will cool compressor intake air through humidification.
- The intake air will have a higher relative humidity and lower temperature.
- Inlet air cooling will increase the air mass flow rate and pressure ratio, yielding higher turbine output power and efficiency.

- The system consists of:
  - Evaporative cooling unit bolted to the incoming air face of the filter house.
  - A single bank of evaporative cooling media made of corrugated layers of fibrous material, allowing minimal air pressure loss. Water flows down the channels by gravity. The media consists of 2 modules.
  - The bottom module features a sump containing the pump and fill valves.
  - The upper module has a drain pan and piping to cycle water back to the sump.
  - A drift eliminator to limit water entering the turbine.
  - Some units may have the evaporative cooler pre-installed, others will require the filter house to be opened.
  - To control the inlet chilling system, GE will provide a modular hardware style PLC.

Customer Value

- Significantly increases turbine power output.
- Increases thermal engine efficiency.
- PLC integrated controls sample weather conditions every 30 seconds, allowing rapid adaptability to changing conditions.
- PLC integrated controls system allows evaporative cooling system to work as a stand alone unit, limiting control integration complexity. Only alarm systems need to be integrated in.
- Adaptable to extrinsic control systems.

![Schematic of Evaporative Cooling System](image)

Increased Power Output of LM6000 Engine at Various Humidities.

Applicable Units:

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<th>LM6000</th>
<th>LM2500</th>
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GE's global service network provides life cycle support for more than 3,500 aeroderivative gas turbines worldwide to help you meet your business challenges and success metrics – anywhere and anytime. Our global service network connects with you locally for rapid response to your service needs.

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