

Fogging System for Gas Turbine Air Inlets



Optimize Experience in the Power Business

Evaporative Air Inlet Cooling for Combustion Turbines has been a working field for the members of Optimize for over 16 years. Personal experience of more than 300 evaporative cooling units installed worldwide provides us sufficient experience with all possible inlet designs. We either sell preassembled units being manufactured in ISO 9001 factories ex-works by trained workers or turn-key installed systems

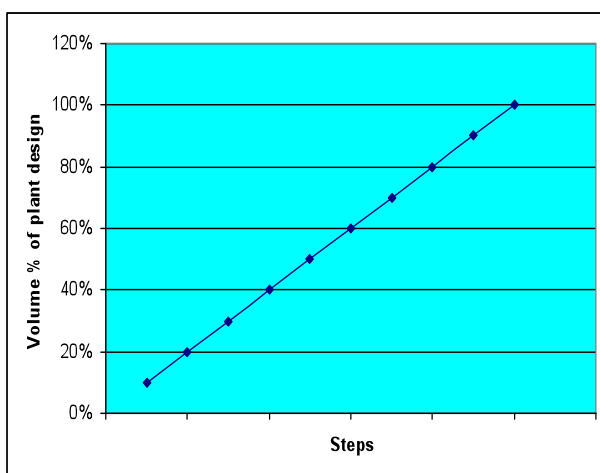
including commissioning. A team of application engineers takes care of design and installation of any possible on-site installation.

Optimize can analyse the power enhancement of your turbine at a specific location based on the weather data of this location.

Opt!m!ze

Customer Benefits

- Approach 100 % Saturation and more with Minimal Pressure Drop
- Decrease Heat Rate
- Reduce NOx emissions
- Easy to Retrofit in Existing Structures
- Rapid Return on Investment
- Helps to meet Peak Demand
- Turn-key packages ex-works or turn-key installed



Seamless water injection



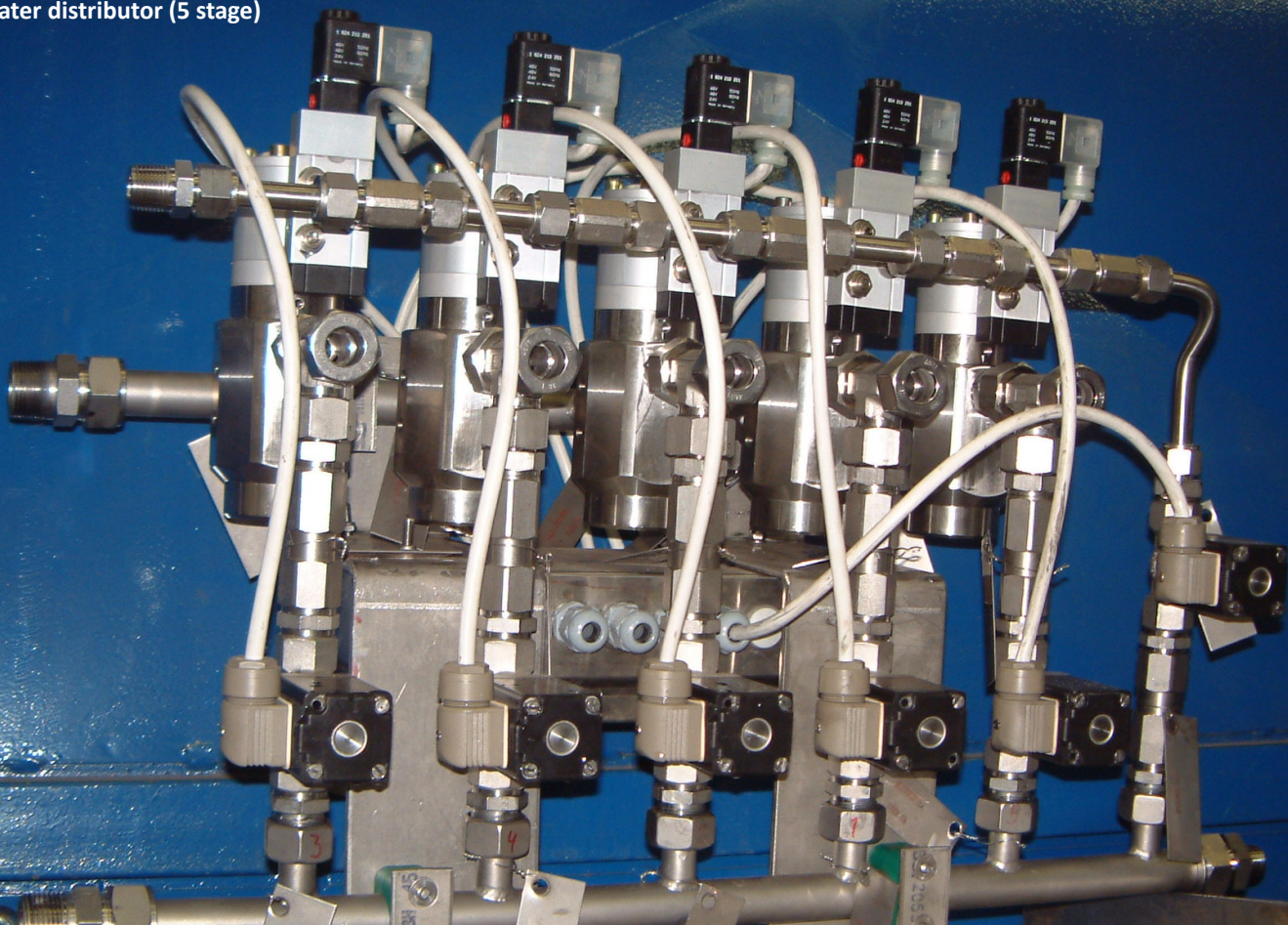
System-Design

Optimize uses the infinitely variable water injection for our fogging systems which requires for most of the applications only one frequency controlled pump. We have put emphasis in smart controls in order to monitor any deviation of the system from the designed operation and to act immediately in case of serious damage (pipe break, nozzle failure etc.). Thus we have reduced the number of parts to a minimum by simultaneously providing a maximum of output and flexibility. Please see also the attached P&ID.

Due to the 5 nozzle arrays installed we achieve a highly unique droplet distribution over the air intake during all operation modes. We have carefully tested all the selected nozzles on droplet test benches.

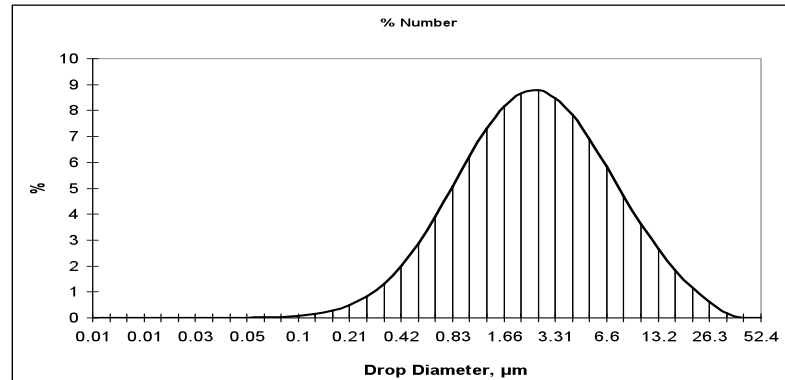
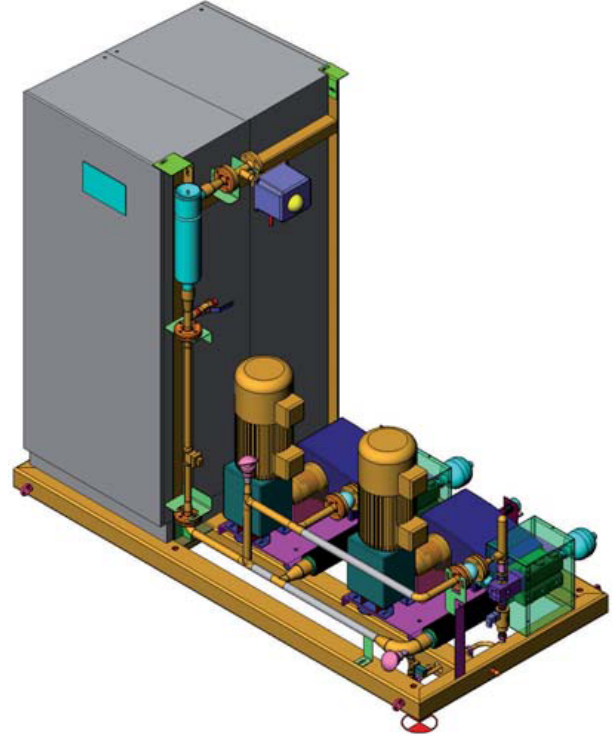
We do deliver the systems either boxed or unboxed or on request of the client as a „built into container“ solution - ready to be connected and started up.

Water distributor (5 stage)



Engineering Features

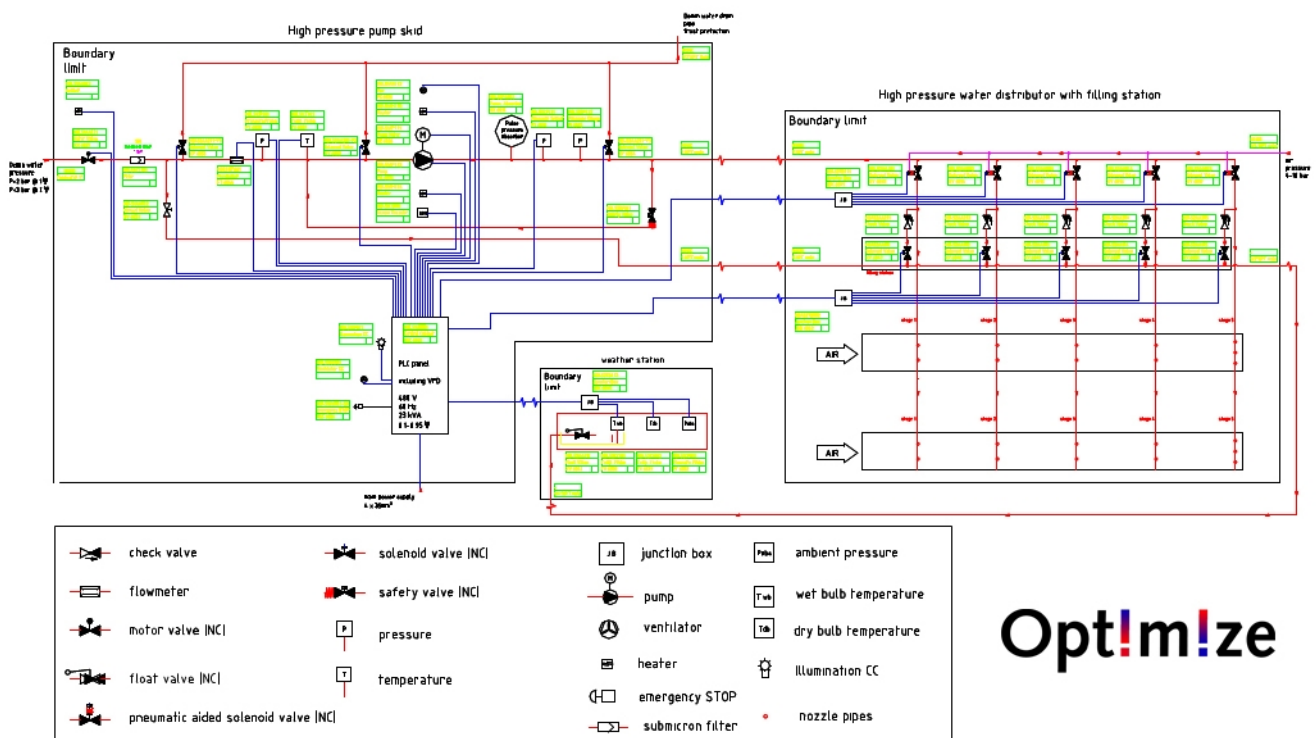
- Pumpskid with switchboard + frequency converter(s)
- Stainless steel water pipes with stainless steel high pressure nozzles
- Operating pressure 1500-2100 psi for seamless injection of water
- Submicron filtration of incoming demin water
- Safety valve
- Incoming water pressure control
- Outgoing water pressure control
- Motor temperature control
- Optional: two pumps (2x50%)
- Nozzle failure detection
- Supply water failure detection
- High pressure failure detection
- Filter failure detection
- 1 (2) x 100% water filter + alarm
- Thermocouple failure detection
- highly precise weather station including amb.pressure sensor
- Very compact skid footprint (up to 3.3 l/s):
~2.0 m x 1.1 m



Droplet size distribution curve

(6/1000" nozzle, 0.172 l/min, $D_{32}=14.33$ mm,
 $D_{v0.5}=18.74$ mm, $D_{v0.9}=29.21$ mm)

P&ID (5 stages)



Optimize



Gearbox type after workshop assembly prior to FAT (1.5 kg/s)

Optimize personal have a long experience in measuring droplet contents in air flows. We have extensively tested various nozzle types of the relevant nozzle suppliers in the market in their own laboratories with regards to droplet spectrum, droplet size and droplet distribution, depending on residence time and ambient air condition. This knowledge gives us the basis to select the appropriate nozzles for each project.



Field installation of fogging system for GE LM 6000 gas turbine (1.0 kg/s)

For further information pls do not hesitate to contact us

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