

# 11 Ways to Improve GT Fog System Performance

Plus reduce maintenance of MeeFog cooling system



MeeFog Skid before upgrade



MeeFog Skid after upgrade

Mee Industries offers cost-effective solutions to upgrade older fog systems for better performance and reliability. If you have one of the almost 1,000 existing MeeFog systems installed over the past 25 years, then you'll want to know about these.

## Upgrades For Older Fog Systems

### 1. Seal-flushed pumps

Demineralized water causes rapid pump seal wear, resulting in frequent maintenance requirements. Seal-flushed pumps extended seal life to 6,000 hours or more by circulating re-mineralized water through the cavity between the high- and low-pressure seals.

### 2. Water lubricated pumps

Water lubricated pumps can run up to 8,000 hours between rebuilds and eliminate the need to change pump crankcase oil every few thousand hours.

### 3. High-pressure filters

Pump seal wear introduces small particles into high-pressure pipes, which can result in frequent fog nozzle plugging. High-pressure filters, installed downstream of the pumps capture these particles and can greatly reduce fog nozzle maintenance.

## 4. Fog nozzle reconditioning

Nozzles should be visually checked annually to ensure proper operation. Mee Industries offers a nozzle reconditioning service to keep nozzles in top shape. Nozzles that cannot be reconditioned are replaced with new nozzles. Some operators keep a spare set of nozzles, so nozzles in need of service can be quickly replaced, even during a short outage, and returned for reconditioning.

## 5. Stainless steel braided hoses

Replace old rubber hoses with high-quality stainless steel braided hoses and get maintenance-free operation for many years.

## 6. TIG welded nozzle adapters

In the early years of gas turbine fogging, fog nozzle adapters were often soldered or brazed onto the stainless steel fog lines. Over the years these joints have been known to fail. TIG welding creates a nozzle adapter joint that will last indefinitely.

## 7. Programmable logic controllers (PLCs)

Early fog systems often have PLCs that are no longer supported by the manufacturer, which makes reprogramming them impossible. MeeFog offers a PLC replacement that can be done in a few days in the field. Control software can then be upgraded.

## 8. Fogging at below base load

Early fog systems were designed to operate only when the gas turbine is above base load. If the gas turbine is often operated below base load this can be a problem. When the GT ramps up to base load, the fog starts and GT output spikes. To avoid this problem, the control software can be modified to allow for below base load operation of the fogging system.

## 9. Duct drainage systems

Duct drainage systems should be capable of removing any flowing or pooling water from the duct so un-atomized water is not suctioned into the compressor. Some early installations did not include properly designed drainage systems. Viewing windows, to allow visual inspection of fog nozzle manifolds or the conditions at the compressor inlet can also be installed.

## 10. Correctly designed fog nozzle lines

It is important that nozzle lines distribute the fog nozzles across the entire airflow. If nozzles are not properly distributed some areas in the airflow can have more fog than can evaporate and other areas can have no fog. This can result in poor cooling performance, excess water accumulation on duct surfaces and temperature differences across the compressor inlet.

## 11. Wet compression for increased power boost

Wet compression consists of spraying more water into the inlet duct than can evaporate. The additional fog spray is carried by the airflow into the compressor where it evaporates and gives an intercooling effect, which reduces the work of compression so the turbine produces more power.

MeeFog has installed many wet compression systems on turbines ranging from aeroderivatives to modern F-Class turbines with fog flow rates of as much as 2.5% of the gas turbine air mass flow. Injecting 1% of the air mass flow as wet compression can produce a power boost of 5% or more, depending on the gas turbine.

For questions and pricing please contact: [customer.service@meefog.com](mailto:customer.service@meefog.com)



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