



*MEE INDUSTRIES INC.
GAS TURBINE DIVISION*

**Mee Industries Inc.
GAS TURBINE DIVISION**

204 West Pomona Ave. • Monrovia, CA 91016-4526
tel. 800-732-5364, 626-359-4550 • fax 626-359-4660 www.meefog.com

MeeFog TECHNICAL APPLICATION NOTE AN-GT-201

*Information Required for
Proposals/Design of Fog Inlet Cooling
Systems*

AN-GT- 201

APPLICATION NOTE: AN-GT-201

Date: March 07, 2002 Rev: 02

MEE INDUSTRIES INC
PROPRIETARY INFORMATION.
DISTRIBUTION OR COPYING
WITHOUT OUR PRIOR PERMISSION
IS PROHIBITED.



Information Required for Proposal/Design of MeeFog Inlet Cooling System for Gas Turbines

This Application note covers the information required for the design of MeeFog Gas Turbine Inlet Cooling Systems.

As a general rule, Mee Industries tries to provide a design when submitting a detailed proposal in order to minimize the need for detailed engineering after the order. By doing this, a significant reduction in the lead-time can be attained. Because of the critical nature of the fogging system it is important that the designer have detailed information regarding the engines that they are designing for.

This application note has been designed as a Checklist Tabulation that can be used by prospective clients to submit data.

Please fill out data to the extent possible defining the units used. Either metric or FPS units may be used. Much of the data can be obtained from the gas turbine manuals- specifically the performance curves, and general arrangement drawings showing the intake system and specifications of the gas turbine and intake filter system. Items highlighted in yellow are not required for initial proposals. **However, the more data that we have, the better the system can be designed.** If Gas Turbine simulations have to be run, then it is imperative to have specific engine data as gas turbines come in a wide range of models and firing temperatures vary with vintage.

It is also invaluable to get digital photographs of the intake duct externals and internals.



Date:

1	CUSTOMER INFORMATION	
1.1	Name of Client	
1.2	Location of Plant: Please provide location of nearest major city.	
1.3	CONTACT Address: Tel No Fax No Email	
2	GAS TURBINE-GENERATOR DATA	
2.1	EXACT TYPE OF TURBINE Please provide exact Make/ model number Number of Turbines considered for Inlet fogging	
2.1.1	Uprates if Any In particular have there been any flow uprates (eg. IGV modification)	
2.2	CONFIGURATION Simple Cycle/ Combined Cycle/ Cogen Plant/	If CCPP, provide no. of GT and HRSGs and ST
2.3	DUTY Base load or Peaking Hours Operated /Year Number Starts/Year	
2.4	ISO Power, kW	
2.5	ISO Heat Rate, KJ/Kwhr (Btu/Kw hr)	
2.6	ISO Air flow, Kg/sec [lbs/sec]	
2.7	Site Rating Conditions	TEMP PRESSURE RELATIVE HUMIDITY
2.8	Site altitude, Meters (ft)	
2.9	Turbine Firing Temperature °C (°F)	



2.10	Year Of Commissioning	
2.11	Running Hours/ EOH at this time.	
2.12	GT OEM OUTPUT CURVES	<p>Append OEM Curves/ data sheets Providing,</p> <ul style="list-style-type: none"> • GT specifications • Output/Heat Rate/ airflow/ etc vs. Ambient temperature. • Power vs. Relative Humidity <p>This data is typically provided in the front of the main Gas Turbine Manual)</p>
2.13	Gas Turbine Fuel (s) Used Fuel LHV	
2.14	Standard Combustor Or DLN/DLE Combustor Please state DLN1, 2 , 2.6 etc	
2.15	NO _x Control Method if any- Water/ steam injection	
2.16	Highest Summer Dry Bulb Temperature, C (F) and Coincident Relative Humidity	If Data exists, please provide hour by hour data of coincident Dry Bulb and Relative Humidity during the summer months at the site.
2.17	Method of Fouling Control	On Line/ Off Line washing.
2.18	Frequency of Washing	
2.19	Compressor Blading Materials and Coatings.	
2.20	Generator Max Capacity, MW ¹	
2.21	Generator Cooling Method Please indicate limitations if any.	
2.22	Generator Cooling flow rate	
2.22.1	Lube Oil Cooler limitations if any.	
2.23	HRSG Manufacturer	
2.24	Number of Pressure Levels	
2.25	Combined Cycle Plant	Please provide a process flow diagram showing all appropriate flow rate/ temp/ pressure conditions at different stations for the full combined cycle showing performance at site rated conditions. (This data is typically available in the performance section of the Manuals)

¹ Generator capacity limitations are never a problem with inlet fogging applications.



3	<i>INTAKE SYSTEM DETAILS</i>	
3.1	Manufacturer	
3.2	Filter stages and types	
3.3	Clean Delta P, inch H2O wg	
3.4	Anti Icing method if present	
3.5	Blow In Doors Present? Inlet Bleed Heating Present (for DLN control)	
	Evaporative Cooler Present?	
	Silencer- Materials of construction	
	Trash Screen Present, Location and Material	
	Intake System Drawings	Please provide: <ul style="list-style-type: none">• Filter manufacturers specification sheet providing technical details of the filtration system.• General Arrangement Drawings of the intake system including all views, dimensions, details of structures and layout. <u>Drawings should include the intake system and duct till the turbine compressor inlet.</u>• Drawing of inlet Cone or Bellmouth area of the gas turbine• Details regarding the Materials and Paint system used on the internals of the ducting .• Details of Silencer including materials• Details of drains located on the compressor intake floor (Near Bell mouth)- are drains automatic or manual.• Photographs of intake system internals is also valuable specifically of the clean air plenum after the filters (typical location of the MeeFog manifolds)

Note:

[1] ISO conditions are 15° C (59°F) and 1.013 bar (14.7 psia), 60% RH

[2] Demineralized water to the Gas Turbine OEMs, specifications for online water washing is required at a pressure of 2-4 barg at the customer connection point of the MeeFog skid.