



Infrared prevents Gas Turbines Intake Filter Icing

Gas turbines need air to work correctly. This air must be free of dust and other particles and therefore is always filtered. Cold and damp intake air in the winter months can easily lead to the icing-up of the filters. These then only let through little air and the gas turbine must be throttled or switched off – just in the season in which it would be needed most. Infrared systems of Heraeus Noblelight prevent successfully the freezing of air intake filters of gas power and gas compression stations in the cold season. An example of a gas compression station in Germany shows how an efficient and energy saving infrared module could be integrated into the combined filtration and sound insulation system. The total acoustic protection package includes silencing of the gas turbine inlet and exhaust systems and has been designed, installed and project managed by Mechtol Engineering of Darlington. However, as gas turbines often operate in conditions of very low ambient temperature, it is important that intake air filtration systems incorporate some means to prevent icing up, as this could seriously affect filtration efficiency. Various icing prevention techniques have been tried, including large hot water radiators using process heat and even taking compressed air from the system and blowing this directly at the filters. In this installation, it was decided to use infrared and tests showed that an infrared system uses less power and is easier to install than competitive techniques. Consequently, three systems, each comprising 12 medium wave, 4.5kW emitters was specified and installed for various filters. The modules are arranged in 3 banks of 4 emitters to give complete coverage over the filter surface. They are controlled by a thermostat, which switches on the heaters when the temperature falls below a set level and switches them off when the temperature rises to a pre-set level. The use of gold reflectors enhances the proven efficiency of infrared for this application and further improvements in efficiency are provided by the rapid response of the emitters.



Features

- Filters of non-woven material in arrays of small filters within large filter housings
- Anti-Icing systems with infrared emitters
- Infrared heaters use less power and are easier to install than other heating techniques

Technical Data

- Medium wave Infrared heaters
- 12 modules, with 4.5kW each
- M 85 modules
- Three banks of four emitters, to give complete coverage over the filter surface
- Control by a thermostat

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