

Bergen K gas engine projects

Cartiera della Madonnina, Italy



Fact sheet

Project description



Located in the small town of Pracando near Lucca, Tuscany, a Rolls-Royce Bergen KVGS-18G4 generator set provides the power for a new cogeneration plant producing electricity and saturated steam for the adjacent Cartiera della Madonnina paper mill.

The plant has been developed by PA Engineering, an energy management specialist trading electrical energy to paper mills in the region. Enthused by the benefits of cogeneration, PA Engineering will operate the plant as a cogeneration pilot scheme.

The natural gas fired plant has been built as a turnkey project by Rolls-Royce, which also supplied the cooling system, ventilation and noise reduction system, heat recovery equipment operating on the exhaust system and comprising recovery boiler and feed pumps, instrumentation and controls, LV and MV systems, step-up transformer, piping for steam, water, oil, exhaust, stack and expansion joints and steel structures.



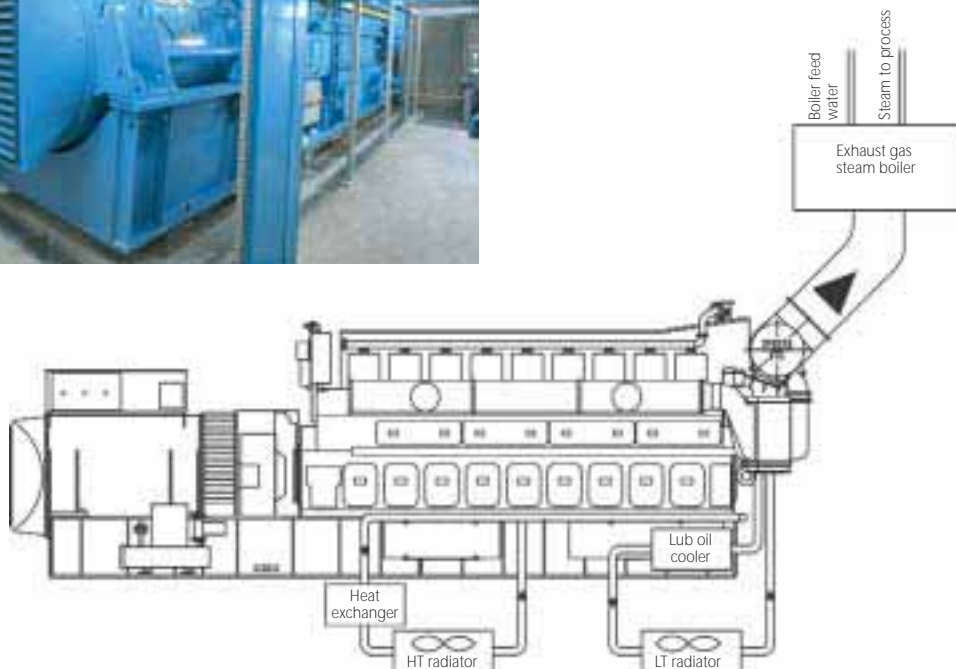
The spark-ignited KVGS-18G4 lean-burn gas engine at the heart of the plant will provide a partial substitution for the existing steam production system. A natural gas fired boiler will help it attain higher energy-conversion efficiency while ensuring a more reliable electrical energy supply – a critical factor in the paper industry. The engine runs for 24 hours per day.

Technical specification

Engine	1 x KVGS-18G4
Shaft power	1 x 3675kW
Electrical power	1 x 3530kW
Gas consumption	8365kW
Energy consumption	8195kJ/kWh
Electrical efficiency	42.2%
Exhaust gas emissions, NOx @ 5% O ₂	250 mg/Nm ³
Exhaust gas emissions, CO @ 5% O ₂	300 mg/Nm ³

Cooling system

Heat from exhaust gases is used to produce saturated steam (13.5barg, 2500kg/h). At present heat from the cooling circuits is dissipated by two air coolers but the HT circuit has been designed to produce hot water at 85°C for the plant when required.



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