

# ECLIPSE FLUEFIRE BURNERS

## *Supplemental firing for cogeneration and combined cycle installations*

In power generation stations, the exhaust gases from gas turbines contain a significant quantity of energy in the form of heat. This energy can be used either directly in heating processes or to generate steam, which can again drive steam turbines to generate more electricity. When the heat requirement is greater than that available from the turbine exhaust gases, supplementary firing can be applied. Eclipse has designed the FlueFire burner specifically for this purpose. It is an in-duct burner which can be located directly in the exhaust gases between the turbine and waste heat boiler. The burner is also suitable for fresh air operation.

**Turndown** The FlueFire burner optimizes system efficiency as it takes its oxygen requirement from the turbine exhaust gases. A turndown over 10:1 is generally obtainable across the full burner matrix without the need to isolate burner rows. This enables the burner to meet changing heat demands while maintaining uniform distribution across the duct area.

**Flame stability and low Nox** The design of the FlueFire burner ensures intimate mixing of the turbine exhaust gases with the fuel which creates exceptional flame stability at 100Pa (0.4" w.c.) pressure drop across the burner even on low calorific gases, which in turn ensures clean combustion with low NOx emissions. This is achieved by swirling the turbine exhaust gases into the gas jets. The swirling also cools the module material and stabilizes combustion just in front of the burner, allowing high downstream temperatures.

## *Proven Reliability For Supplemental Firing*

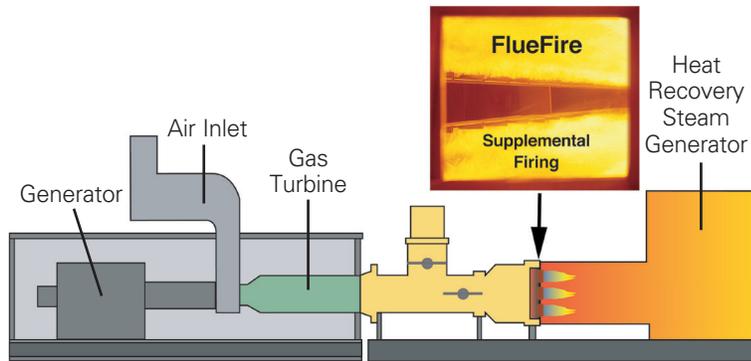


**Operating Temperatures** Burner modules are manufactured from high temperature alloy steel, precision cut by laser to ensure uniformity. This, together with the self-cooling design, enables the burner to function with inlet temperatures up to 700°C (1300°F) and outlet temperatures up to 1200°C (2200°F).

**Description** FlueFire burners consist of a rolled steel channel framework internally insulated and covered with a heat resistant sheet which is attached on the mounting frame and provided with expansion allowance. Each burner module comprises a 6" stabilization plate perforated to create a local swirl in the turbine gas. Rows can be fired individually, or provided with vertical flame propagation plates linking each manifold row. When equipped with propagation plates, the pilot is located at the bottom of the rows and a UV scanner is mounted at the end of the flame run.

# FlueFire Burners

*Eclipse supplies the complete combustion system including FlueFire duct burner, fuel train skid and control panel.*



Typical Cogeneration system



FlueFire burner head



FlueFire system installed in a cogeneration plant



Flame propagation plate connects burner rows



FlueFire duct unit

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