

HOT GAS GENERATORS (HGG)

PRODUCT OVERVIEW

ENEVA Hot Gas Generators (HGG) are direct-fired thermal systems designed to produce high-temperature process gas by mixing combustion products directly with process air.

These systems are ideally suited for industrial applications where hygienic conditions are not required and high-capacity hot gas demand is essential. HGG units are widely used in cement, chemical, mineral, and ceramic industries, delivering reliable operation, flexible control, and high thermal efficiency. The system is engineered to operate under demanding industrial conditions while ensuring stable temperature control and long-term performance.

MAIN ADVANTAGES

- Direct-fired high-efficiency hot gas generation
- Outlet gas temperatures exceeding 500°C
- Thermal capacity up to 30 MW per unit
- High efficiency through process return air integration
- Reduced refractory usage faster commissioning
- Low maintenance requirements
- Flexible design for different fuel types and process conditions
- Robust industrial construction for continuous operation



ENGINEERING APPROACH

ENEVA Hot Gas Generators are designed as process-specific engineering solutions, not standard products.

Each unit is developed based on:

- Fuel characteristics and combustion behavior
- Required thermal capacity and outlet temperature
- Process gas flow rate
- Plant altitude and ambient conditions
- Fluid dynamics optimization in combustion and mixing zones

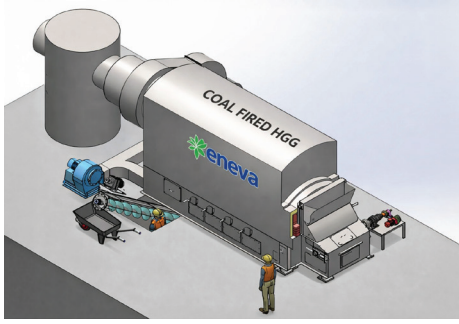
This engineering approach ensures maximum efficiency, safety and durability.

OPERATING PRINCIPLE

ENEVA Hot Gas Generators operate based on a direct combustion and controlled mixing principle.

The process occurs in the following stages:

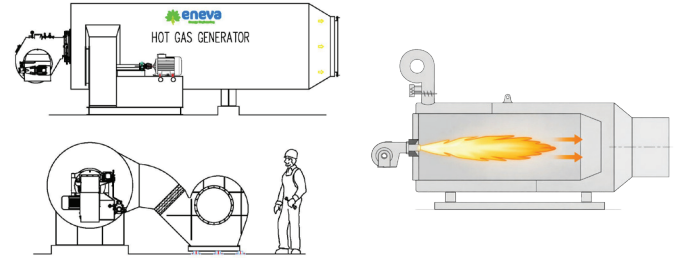
- 1-** Fuel is burned in a specially designed - cooled combustion chamber.
- 2-** High-temperature flue gases are generated under controlled conditions.
- 3-** Cooling air flows around the combustion chamber.
- 4-** Flue gases are mixed with cooling air to reach the desired outlet temperature.
- 5-** The final hot gas is supplied to the process.



Thermal Capacity	Up to 30 MW (project specific)
Outlet Temperature	500°C and above
Heating Principle	Direct-fired hot gas generation
Fuel Type	Natural gas, fuel oil, coal or alternative fuels
Application Type	Non-hygienic industrial processes
Control System	PLC-based automation

MATERIAL & DESIGN PHILOSOPHY

- High-temperature resistant stainless steels in critical zones
- Carbon steel or alloy steel body depending on application
- Minimal or no refractory design for gas/liquid fuels
- High quality refractory usage for coal fuel
- Advanced thermal expansion compensation solutions
- External insulation to reduce heat losses



APPLICATION AREAS

ENEVA HGG systems are widely used in:

- Cement plants
(Raw material drying, coal grinding, clinker processes)
- Chemical and mineral industries
(Detergents, powder coating, industrial drying)
- Ceramic plants
(Spray dryer powder production)
- Brick and refractory production facilities
- Fertilizer plants

CONTROL & SAFETY SYSTEMS

ENEVA HGG systems are equipped with advanced safety and control features:

- Outlet gas temperature control systems
- Metal surface temperature monitoring
- Air flow and pressure/vacuum sensors
- Automatic safety shutdown scenarios
- PLC-based control and monitoring infrastructure

All systems are designed in compliance with industrial safety standards.

WHY ENEVA?

- Custom-engineered solutions for each project
- Strong thermal and mechanical design expertise
- High manufacturing quality and strict testing procedures
- Reliable performance in heavy industrial applications
- Optimized efficiency and low operational cost

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