



SGC

Step Grate combustion

Precision and control in the combustion of heterogeneous materials, maximizing thermal efficiency and plant profitability.



TVS - ThermoValue Solutions



SGC

Step Grate combustion

An industrial boiler designed to transfer energy from combustion gases to water, converting it into steam. It is available in various configurations to optimize performance based on the fuel type: water-tube.



UNMATCHED OPERATIONAL

Thanks to its robust design and automatic cleaning system, the system can operate for more than 8,200 hours a year with only one scheduled shutdown.



FUEL ECONOMY

The primary and secondary airflow rates are electrically controlled and injected into separate zones below and above the grate, ensuring an optimal process based on energy demand.



MAXIMUM THERMAL EFFICIENCY

The refractory brick vault acts as a mirror that reflects radiation, significantly improving the evaporation of the water contained in the fuel.

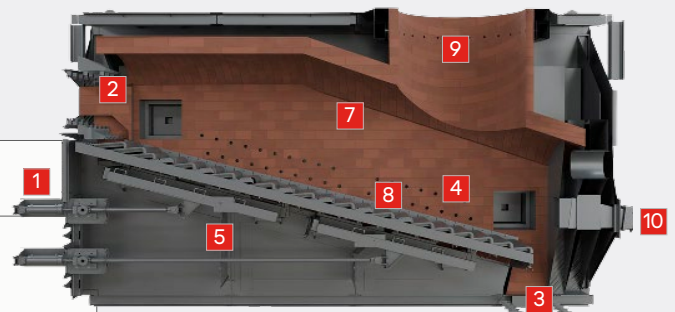


ADVANCED COMBUSTION CONTROL

The primary and secondary airflow rates are electrically controlled and injected into separate zones below and above the grate, ensuring an optimal process based on energy demand.

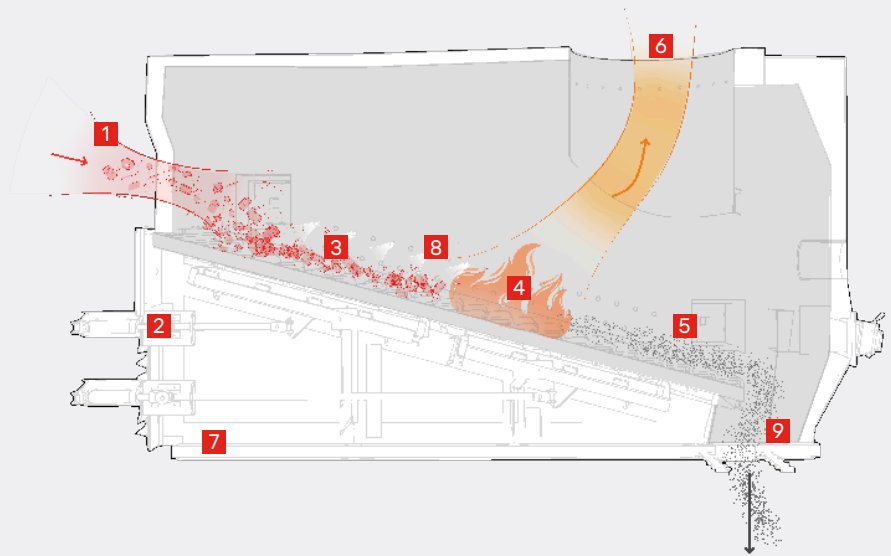
Components

- 1 Movable grate
- 2 Fuel inlet
- 3 Ash removal
- 4 Secondary air inlet
- 5 Primary air inlet
- 6 Inspection and maintenance log
- 7 Refractory lining
- 8 Cast iron parts
- 9 Flue gas outlet
- 10 Inspection ports
- 11 Pilot burner port



Key Machines

- 1 Feed hopper
- 2 Hydraulic drive
- 3 Zone 1: Drying and Gasification
- 4 Zone 2: Main Combustion (Oxidation)
- 5 Phase 3: Depletion and Ash Formation
- 6 Flue Gas Outlet
- 7 Primary Air
- 8 Secondary Air
- 9 Ash Discharge



How It Works

The SGC system operates by continuously feeding and turning the waste on a moving grate with a controlled air supply.

Feeding and mixing

Alternating movement of the grate that moves the material and separates it as it passes through the drying and combustion zones.

Controlled combustion

Precise injection of primary air through the grate steps to ensure complete combustion of the waste.

Slag Removal

Automatic and continuous removal of ash and non-combustible materials to the discharge zone.

Valuation

The moving grate combustion system helps maximize the utilization of mixed waste and RDF, improves stability in thermal power generation, and drastically reduces the volume sent to landfills, ensuring a more efficient and competitive waste-to-energy process.



At Bianna, we are a leading multinational company specializing in the engineering, design, manufacturing, and financing of advanced technological solutions for waste management, treatment, and recovery.

With over 40 years of experience and more than 1,100 projects and references worldwide, we transform waste from an environmental liability into an economic asset. We are committed to driving the circular economy and leading the decarbonization of strategic sectors, demonstrating that sustainable waste management will be profitable—or it won't be at all.

Full-service technology provider

We offer “turnkey” technology that integrates 360° solutions within our core technology areas:

Service ecosystem

We have designed a comprehensive ecosystem of services built around our technology, designed exclusively to maximize the return on your investment, ensure the viability of your projects, and guarantee your peace of mind in the long term

Mechanical
and Biological
Treatments

MBT

Equipment and
facilities for
material recovery



Thermo
Value
Solutions

TVS

Thermal processes
for combustion,
drying, and energy
recovery



Bianna
Renting
Services

BRS

Financial flexibility
related to your
operations



Bianna
Green
Ways

BGW

The place
where Bianna
technologies come



Bianna
Aftersales

BAS

Comprehensive
solutions for
optimal operations



Our technology creates real value by reducing our environmental impact and ensuring the sustainability of the planet and people, both inside and outside Bianna.

Smart waste **Profit energy**



■ More information

STEP GRATE COMBUSTION



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