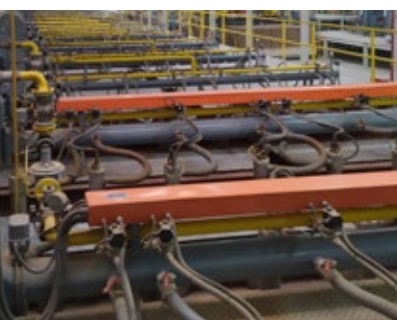


ENGINEERING IN COMBUSTION SYSTEMS AND NEW
ENERGIES FOR A SUSTAINABLE FUTURE



LEADERS IN COMBUSTION AND NEW ENERGIES

We offer the most complete range of combustion equipment on the market, operating with all available fuels for drying and firing heavy clay products.

BERALMAR provides all types of equipment and engineering projects for drying and firing processes. All equipment is designed and manufactured in our facilities.

The offer couldn't be more complete in combustion equipment for both dryers and kilns. BERALMAR is distinguished by its will of finding solutions for any new available fuel.

BERALMAR is a supplier who creates and generates technology. Its ID Department proves it and it enables a non-stop evolution of the equipment and projects it proposes as well as the development of new prototypes.

FIRING

Gas burners

FOC

- ▶ High speed
- ▶ Vertical and lateral

Min/Max 20.000 / 200.000 Kcal/h (23 / 232 kWh)

ICV

- ▶ Variable pulses
- ▶ Continuous, variable pulses

Min/Max 10.000 / 120.000 Kcal/h (12 / 140 kWh)



Biogas burners



The whole range of BERALMAR gas burners can adapt to the supply of dual biogas and natural gas groups.



Syngas and gasification burners



Dual groups for injecting syngas and natural gas. BERALMAR also supplies gasification complete projects based in biomass.

BERALMAR understands the required characteristics of gasification in the ceramic industry.

- ▶ Reliable technology
- ▶ Financial feasibility
- ▶ Without waste management



Heavy oil burners

For kilns with gasification injection.

Min/Max 30.000 / 150.000 Kcal/h
(35 / 175 kWh)

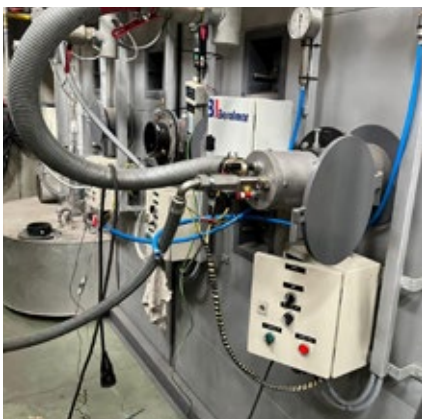


Hydrogen burners



Beralmar Energies currently develops hydrogen burners for dryers and tunnel kilns.

With simple or dual burners for different types of fuel.



FIRING

Promatic

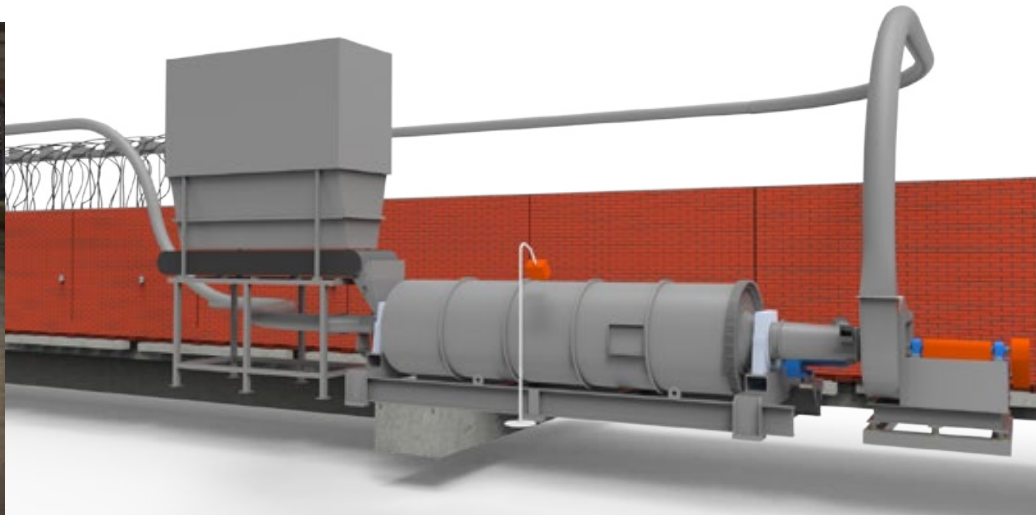
PROMATIC system can operate with cheap fuels while keeping the quality of the product thanks to: low maintenance of the installation, operational hygiene resulting from a closed distribution circuit, and the automated control all over the process. The result is a modern system for firing with traditional fuels.

Fuels:

- ▶ Petroleum coke
- ▶ Mineral carbons

Fuel drying and grinding up to $<2\% \text{ H}_2\text{O}$ y $\phi <100 \mu$.

- ▶ Pneumatic transport
- ▶ Injection by control of temperature
- ▶ Low maintenance

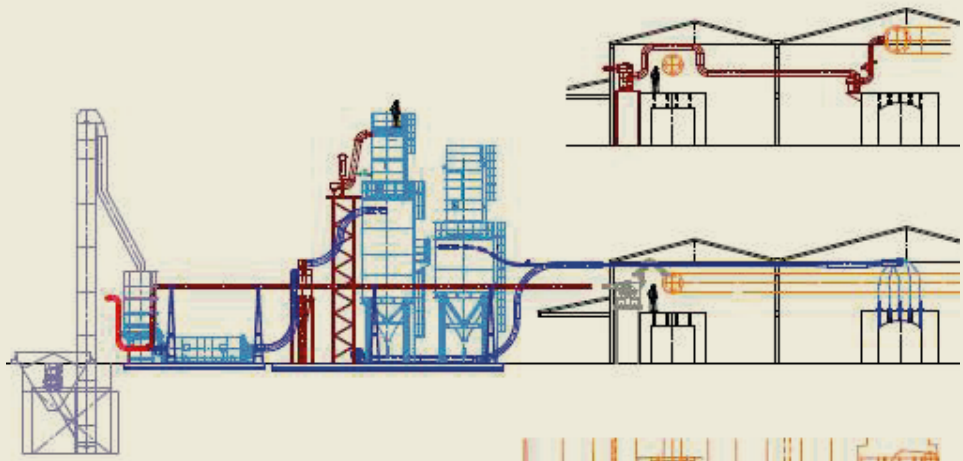


Grinding Station

It is also possible to benefit from all the advantages of MICROMATIC system when there is no supply of dry and micronized fuel by adding a GRINDING STATION to the MICROMATIC installation.

Fuels:

- ▶ Petroleum coke
- ▶ Mineral carbons
- ▶ Drying and grinding of fuels up to $<2\% \text{ H}_2\text{O}$ y $<100 \mu$
- ▶ Pneumatic transport



Micromatic

The MICROMATIC system is similar to the PROMATIC system in terms of distribution and injection. The use of micronized fuel makes unnecessary the use of a mill which is replaced by storage silos that can also feed to the distribution circuit,

Fuels:

- ▶ CFuels to <1% H₂O y Ø <100 µ:
- ▶ Petroleum coke and Mineral Carbons.
- ▶ Pneumatic transport
- ▶ Injection by control of temperature
- ▶ Low maintenance
- ▶ Simple, clean storage of fuel



Biomatic

The Biomatic installation consists of a system designed for operating with a broad range of biomasses, such as agricultural waste and forestry by-products, among others.

This system includes pneumatically or mechanically operated groups of burners to distribute fuel and control the excess of air, this way optimising the combustion efficiency. It also allows adjusting the length and intensity of the flame to ensure an optimal performance adapted to the needs of the process.



- ▶ Biomass specifications: H₂O: <5%, Ø <3 mm.
- ▶ Injection by control of temperature
- ▶ Low maintenance



DRYER

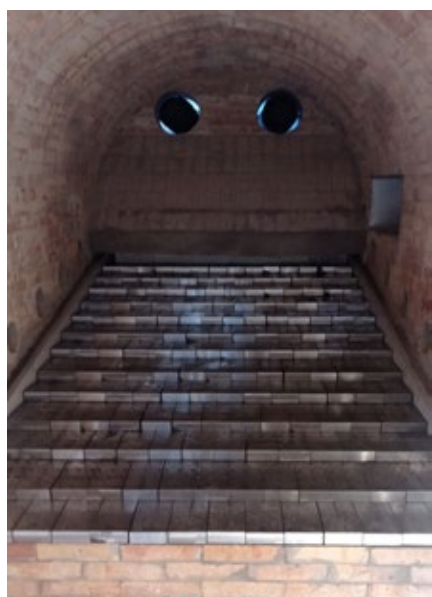
Direct combustion chambers for solid biomass and mineral carbon fuels

CGM

Combustion chamber model CGM with step grate

Continuous, automatic evacuation of ashes.

Maximum power 12.000.000 Kcal/h (14.000 kWh)



PULS

Combustion chamber model PULS for micronized solid fuels

Pneumatic injection of fuel to chamber. Rotational combustion.

Two applications:

- ▶ Direct-fired combustion chamber
- ▶ Production of hot air with combustion gases.

Powers from 1.000.000 to 9.000.000 Kcal/h (de 1.150 a 10.500 kWh).



CSD

Combustion chamber model CSD with fixed grate

1.000.000 Kcal/h to 18.000.000 Kcal/h (1.150 a 21.000 kWh)



Gas line burners

Combustion of gas for generating hot air for drying.

Highest temperature: 300°C.

They are for mixing chambers and air ducts.

Powers from 250.000 a 14.000.000 Kcal/h (from 290 to 16.300 kWh).



Combustion chamber for petroleum coke

CCP

It is always inserted to a heat exchanger, production of clean hot air to $<150^{\circ}\text{C}$.

Tangencial pressure injection of fuel.

Fuels: Dry petroleum coke fuel ($<1\%$ H_2O) and micronized ($<100\ \mu$).

Maximum power 3.000.000 Kcal/h (3.500 kW/H)



Heat exchange generators

GB

For liquid fuels

Output of hot, clean air at a maximum temperature of 150°C .

Fuels: Heavy-oil, diesel and crude oil.

Weishaupt Monarch burner, modulant or 2-speed, model according to the type of fuel and the necessary output.

Outputs from 600.000 to 2.500.000 Kcal/h (from 700 to 2.900 kWh).



GBS

For solid fuels



Equipped with a burner for solid vegetable fuel.

Production of hot, clean air to a maximum of 150°C .

Fuels: Biomass and coal.

Mechanical supply of fuel to interior fixed grid.

Powers from 1.000.000 2.500.000 Kcal/h (de 1.150 a 2.900 kWh).



Heat exchanger GB



Clean air exchanger to be installed on combustion chambers: CSD, PULS CGM Y CCP, to a maximum of 150°C .





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