



Bioblock

The modular concept



What is **Bioblock**?

- Compact Combined Heat & Power Plant for Non Standard Solid Fuels.
- A solution for:
 - Industry needs (Combined Heat & Power)
 - Small scale IPPs
 - Industry residues
- Range of power between 2 to 8 MWe.
- Size adapted to industrial needs/ constraints
- Dimensions approx. < 5,000 m².
- Easy Logistics (container size) to deliver anywhere in the world.
- Simplified assembly reducing onsite construction time & resources.
- An efficient option to reuse many agro or industrial residues (suitable for a wide range of Biomass/ Waste fuelsa/ RDF)
- Plant equipped with all needed elements (water Treatment Plant, Effluents Treatment, Filters, Stack, Pumps, Turbine, Control, Medium voltage system, Air cooling, Fuel conveyors, Ash collection system, etc.)

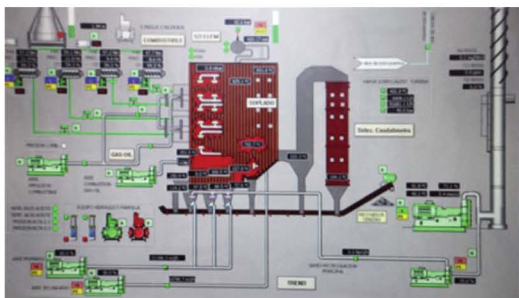
Advantages of **Bioblock**

- Reuse the residues of the industrial process, reducing disposal costs, environmental liabilities & external dependence on fossil fuels (example: fiber in palm oil extraction, rice husk in rice mills...).
- Cost effective and reliable source of steam and/or power for the Industry.
- Industry can become an IPP (Independent Power Producer), and obtain an additional source of incomes or saving (self consumptions or export to grid)
- Simplified O&M (that enables synergies with O&M host industry).
- Relatively low construction time (when compared to a non modular concept biomass plant).
- Reduced footprint due to optimized dimensions.
- Sustainable and circular economy enhancement for any industry replacing fossil fuels and reducing CO₂ footprint.
- Flexible, reliable and adapted to each specific fuel.

Bioblock

Standard solutions with different options

- Supply based on a standardized modular design that can be adapted to Project/Client specific requirements.
- Boiler design adapted to specific fuel.
- Training for operators or full O&M services.
- Remote support for control (if required).
- Layout adapted to industry constraints.
- Product delivery FOB (with assembly and commissioning supervision) or full Turnkey supply.
- If required, ENSO Energy Environment & Sustainability group (owner of ENSO Global Energy Solutions) can provide Project Development Services and Support to structure the Financing of the project.



Some Applications

By type of fuel (some examples)

- Cocoa Pod Husk
- Palm Oil Residues
- Cashew Residues
- Rice Husk
- Woody Biomass
- RDF (Refuse Derived Fuels)



By location

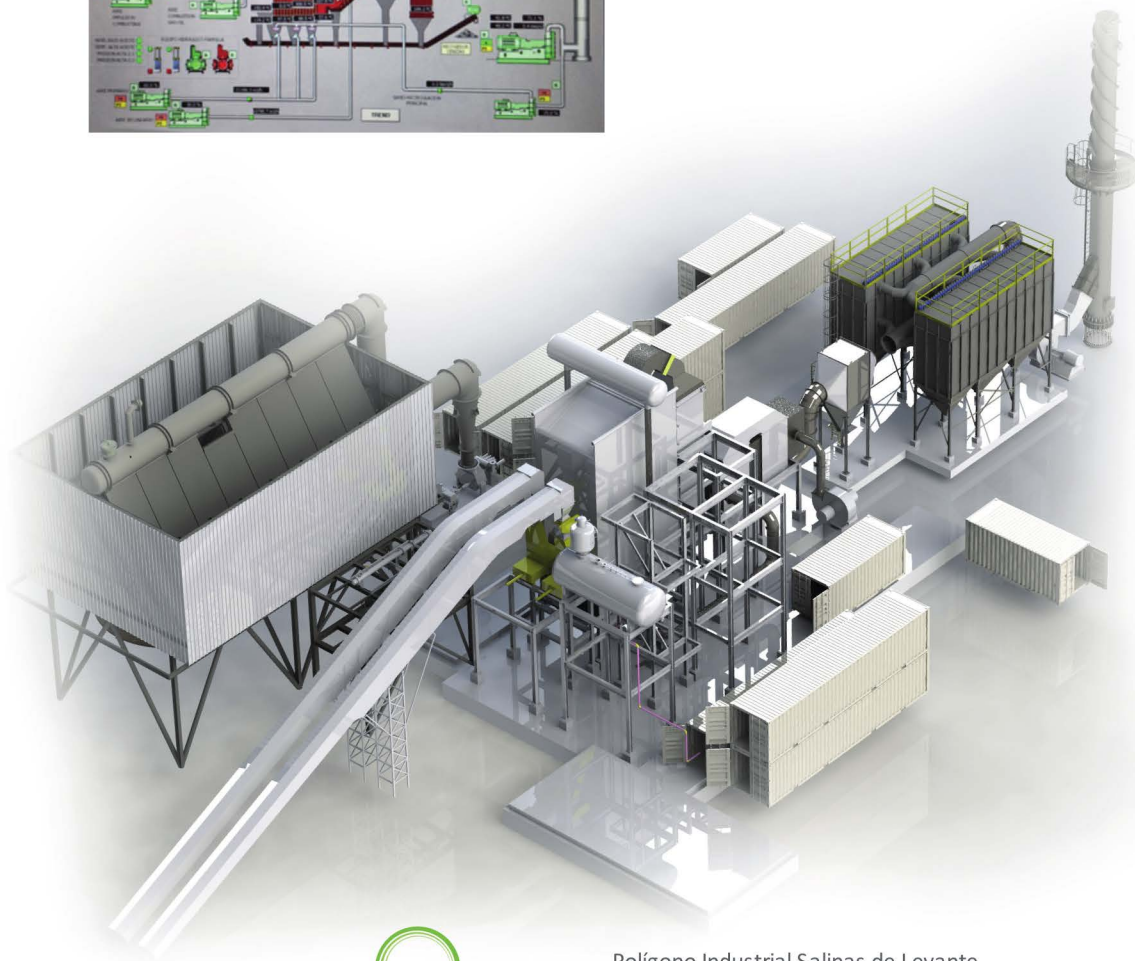
- Isolated or weak grid locations (i.e rural areas, plantations...)
- Places with logistical constraints (most of equipment container size)
- Places where assembly time needs to be minimized due to costs/ location.
- Industries with space constraints.

By amount of fuel

20,000 t /year to about 80,000 t /year depending on fuel characteristics.

By activity

- CHP for industry needs: Oil mills, breweries, pulp&paper...
- IPP (Independent Power Producer)



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