

FUELS	LHV (kJ/kg)
Municipal Waste	7000 ÷ 15000
Biomass	7000 ÷ 16000
Refused Derived Fuel (RdF)	11000 ÷ 22000
Sludges	< 1000
Bone Meals	12000 ÷ 24000

**ANSALDO CALDAIE S.p.A.**

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**ANSALDO CALDAIE S.p.A.**  
 BIOMASS & WASTE TO ENERGY BOILERS



Ansaldo Caldaie S.p.A. has a longstanding history in the manufacture and supply of Waste Heat Boilers with the first plant being built up in 1963.

In 2004, following acquisition by the Sofinter Group, Ansaldo Caldaie established the Waste to Energy Business Unit in order to integrate within one organization the outstanding skills, expertise, and experience available in the diverse companies of the Sofinter Group.

In 2005, as part of the Business and Product development strategy of Ansaldo Caldaie, these capabilities were further enhanced through the acquisition of the CCT Waste to Energy Business Unit from the Marcegaglia Group.

Today Ansaldo Caldaie offers a complete range of waste to energy products burning a wide range of fuels with guaranteed emissions.

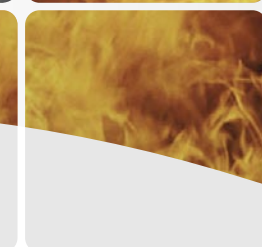
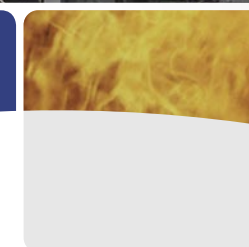
**ANSALDO CALDAIE S.p.A.**  
 BIOMASS & WASTE TO ENERGY BOILERS

DESIGN

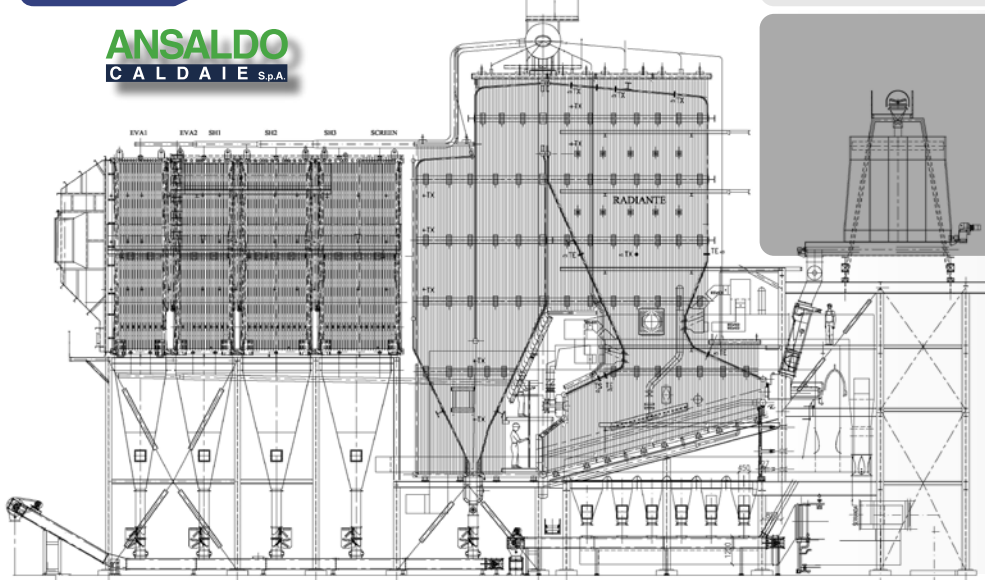
- A range of top, mid, and bottom supported units are available based upon the size of the boiler.
- The design of the units is optimized in accordance with the type of fuel/fuels being used.
- A primary focus on the design development is resolving the problems related to fouling and corrosion caused by pollutants contained in the fuel.
- Extensive experience in Combustion System design guarantees optimal boiler performance while meeting ever more stringent emission requirements.



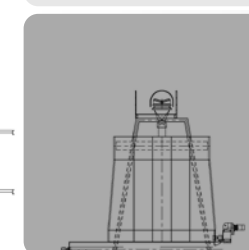
Biomass  
RdF  
Bone Meal  
DESIGN CONDITIONS  
64 T/h 75 bar 460°C



## Grate Combustion Bottom Supported Type



**FUELS**  
Municipal Waste  
RdF  
Biomass  
Bone Meal



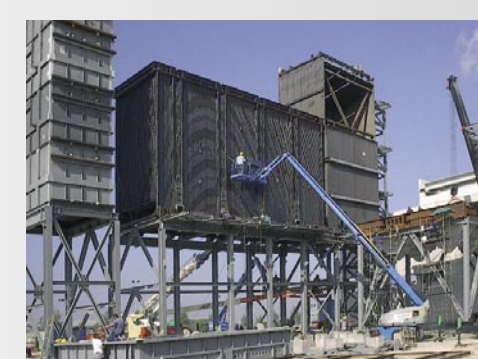
Grate detail



Grate detail



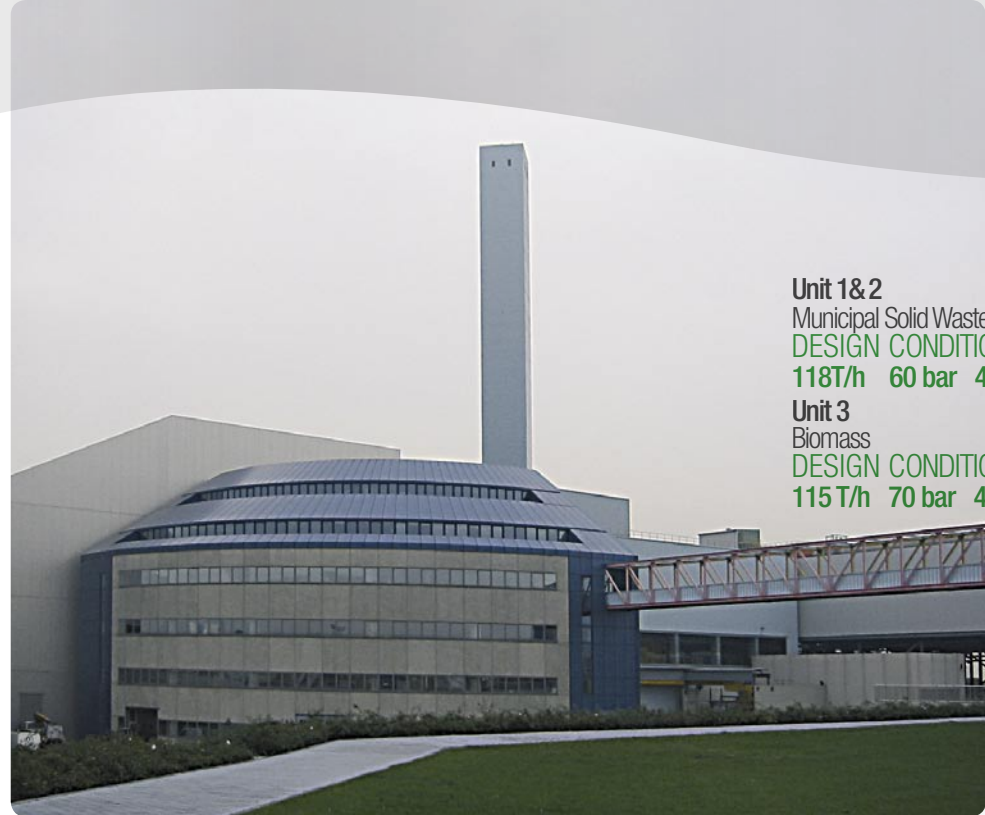
Biomass firing



Bottom supported type detail

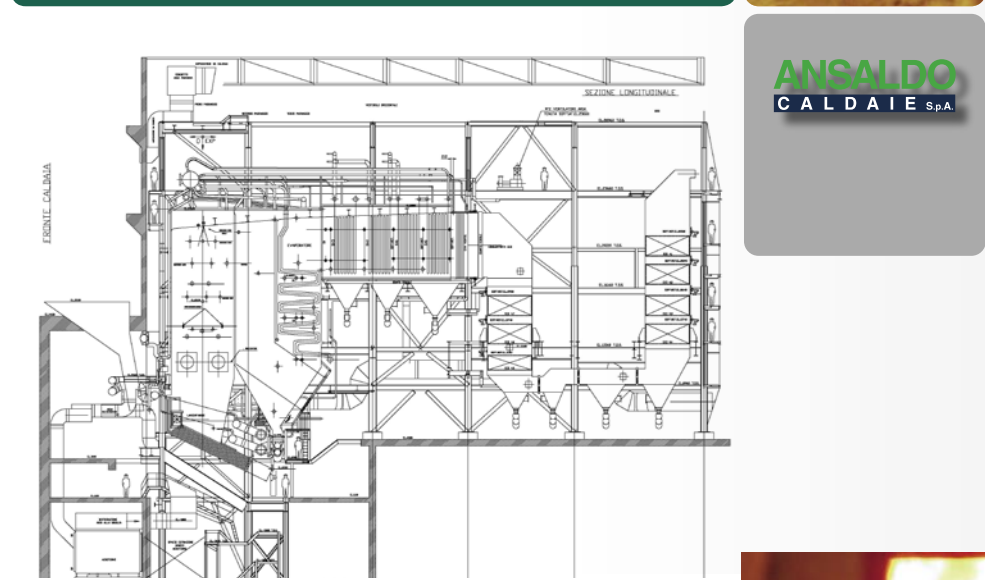


Erection - Bottom Supported Type  
Maximization of shop prefabrication to optimize erection time and quality.



Unit 1&2  
Municipal Solid Waste  
DESIGN CONDITIONS  
118T/h 60 bar 450°C  
Unit 3  
Biomass  
DESIGN CONDITIONS  
115T/h 70 bar 480°C

## Grate Combustion Top Supported Type

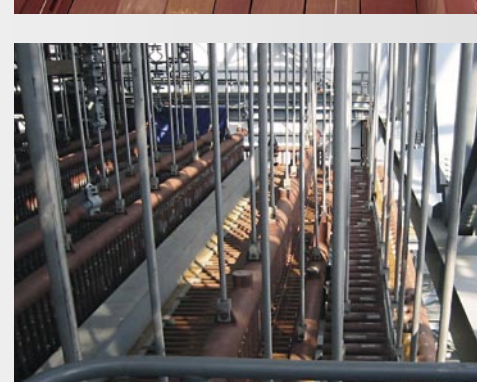


**FUELS**  
Municipal Waste  
Biomass



Grate and Biomass Combustion

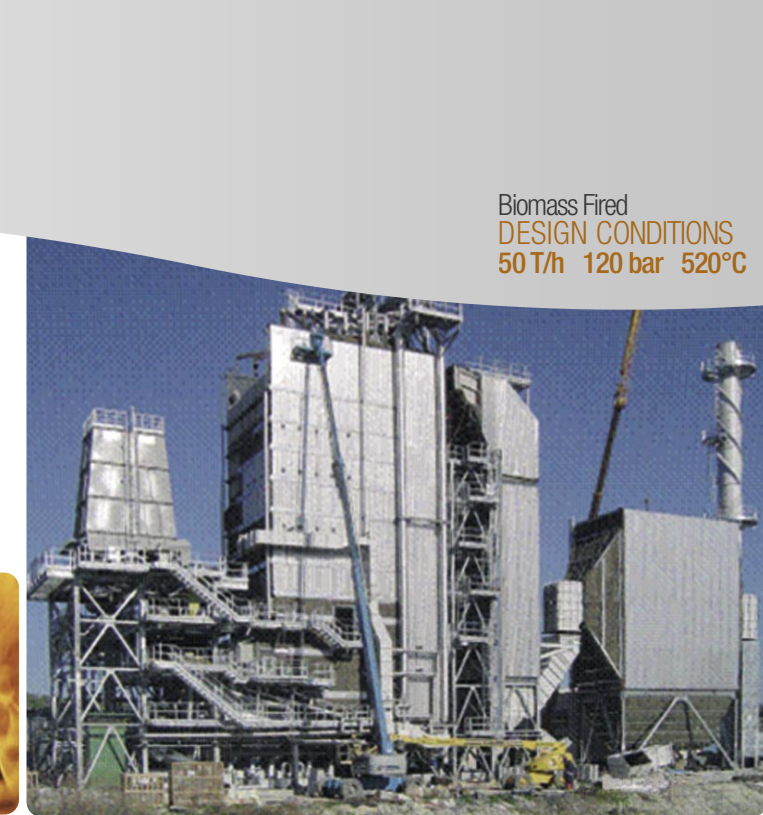
Erection - Top Supported Type  
Maximization of shop prefabrication to optimize erection time and quality.



Top supported arrangement

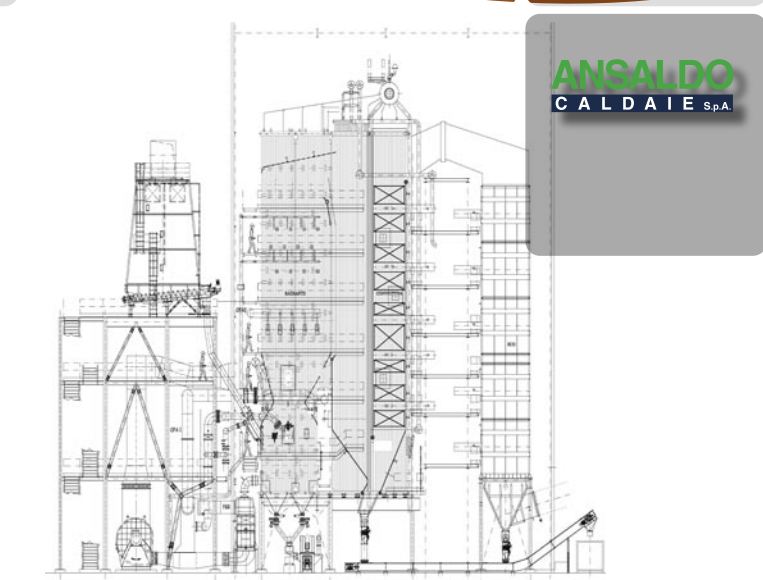
steam drum erection

boiler walls inconel 625 cladding



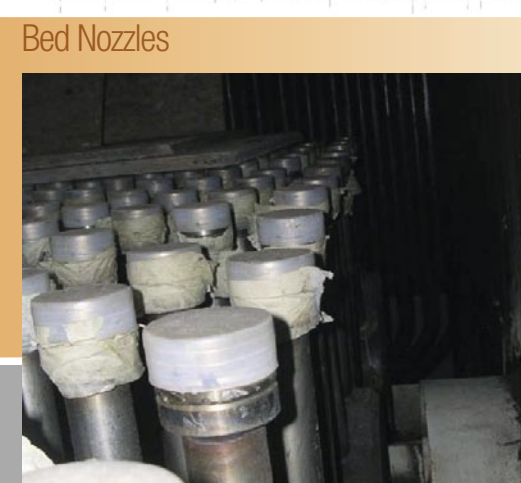
Biomass Fired  
DESIGN CONDITIONS  
50T/h 120 bar 520°C

## Fluidized Bed Combustion Type



**FUELS**  
Sludges  
RdF  
Biomass

ANSALDO  
CALDAIE SpA



Bed Nozzles

# CORROSION PROTECTION CLADDING

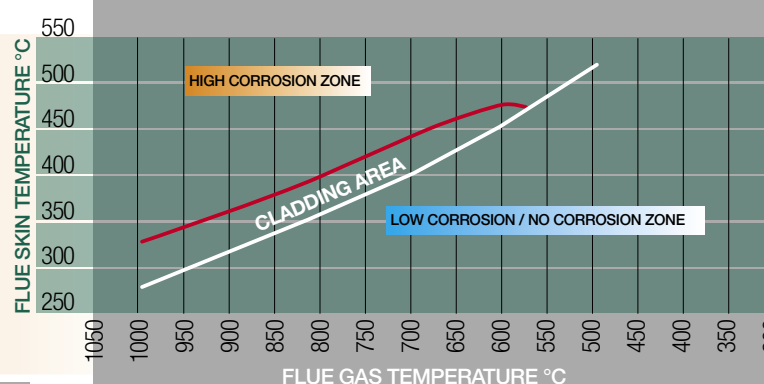
The main problem for WTE Tubes is corrosion due to the presence of pollutants in flue gas. The kinetics of corrosion depends on the following parameters:

- Chlorine Content in flue gas
- Metal Skin Temperature
- Flue Gas Temperature
- Melting salt at low temperature in flue gas



CLADED HEATING SURFACE

As Shown in the Graphic below a combination of those values defines two zones. A zone above which corrosion is possible and often considerable (High Corrosion Zone) and a zone where the kinetics of corrosion is very slow or absent (Low Corrosion / No corrosion Zone).



In the area between the red and the white line the cladding protection guarantees long life operation.