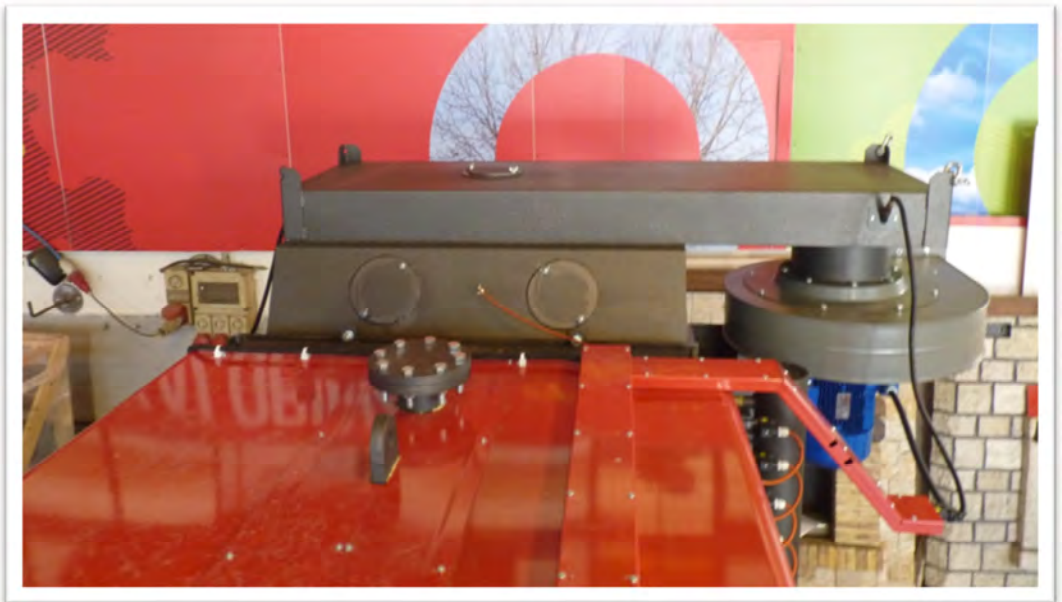


# CASE HISTORY



Product: TURBOVORTEX®  
Problem: Dust & Fumes  
Sector: BIOMASS

### The customer:

The customer company designs and produces boilers that burn solid biomass and pellets for all kinds of buildings, with powers that range from tens of kW to over 1000 kW of heat.

### The problem:

Combustion is a complex phenomenon. The output of this violent reaction is, in the first instance, heat and, at the same time, a number of by-products and waste products, which in many cases may be harmful to humans and the surrounding environment.

For these reasons, the consumer and civil segments, which for simplicity we can associate with powers of less than 1 MW, has been influenced by the thermal accounting mechanism (2013) that, in relation to biomass, encourages small interventions (powers of less than 1 MW of heat) for producing thermal energy from renewable sources and high efficiency systems (art. 4, paragraph 2 of the decree).

For biomass boilers, the calculation is based on the product of 4 factors:

- Valorisation factor
- Thermal power of the plant
- Estimated operating hours
- **Dust emission reward coefficient** (for pellet and wood burning stoves, and fireplaces, the equations is slightly more complex)

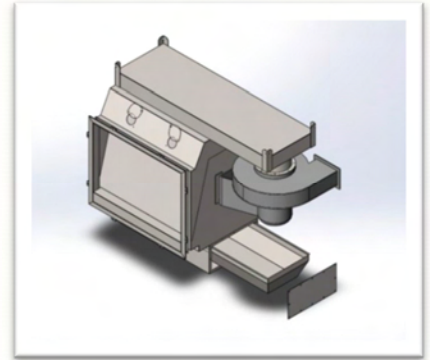
As you can see, point 4 is strongly influenced by the chosen emission treatment system and to this end there are two regimes:

- For plants with powers <500kW: the generator must be certified on the test bench according to class V limits (EN 303-5:2012).
- For plants with powers > 500kW > 1MW: the emissions must be certified according to class V limits (EN 303-5:2012), to be performed on site by an accredited body.

For this reason this customer requested Tecnosida® to develop a dust treatment and suppression system that would bring their products within the above mentioned limits in a definitive and structured way.

**The proposed solution:**

Tecnosida® accepted the request and offered to develop a project in partnership with the customer in order to design and produce a dedicated solution for the boiler that the customer intended to certify.



The main project phases were:

- Theoretical evaluation of the technical situation
- Presentation of an overview of solutions with budgetary quote
- Choice and division of the responsibilities
- Physical testing of the scrubber with the generator to be certified
- Final tuning
- Certification of the generator together with the Tecnosida® scrubber

The partnership was successful and the generator (400 kW of heat) was certified class V thanks to the use of TURBOVORTEX® technology.

As a consequence of the objective verifications carried out, the company has been able to present the documentation required for class 5 approval of their boilers.

Plant data	
<b>Model</b>	Turbovortex®_T400 on board
<b>Type of scrubber</b>	High-efficiency tangential separation
<b>Working temperature:</b>	< 220 °C
<b>Pressure drop upstream of the separator</b>	< 150 Pa
<b>Capacity</b>	2470 m <sup>3</sup> /h
<b>Installed power</b>	5.5 kW - 65% absorbed