



Two-stage drying of saw dust Västerdala Bioenergy, Vansbro, Sweden

This project

Västerdala Bioenergy initiated in 2005 the building of a district heating plant combined with pellet production, using various biomass sources as raw material. They were aiming at a flexible system enabling a energy utilisation also in periods with low district heating demand. Our indirect two-stage drying technology was therefore selected. The biofuel furnace was supplied by Järnforsen, Sweden and the condensing plant by Svensk Rökgasenergi.

YEAR OF DELIVERY:

2006

TECHNOLOGY:

Two-stage indirect tubular dryers – Bojner system.

High temp dryer: steam

Low temp dryer: hot water

TREATED MATERIAL:

Varios grinded biomass and saw dust

EVAPORATION CAPACITY:

approx. 6-7 t/h

DRYNESS IN/OUT (w%):

approx. 45 / 90

HEAT SOURCE:

16 bar steam from biofuel boiler

HEAT RECOVERY:

A condenser produces hot water to a low temperature dryer and/or district heating system

GAS / DUST CLEANING:

Cyclone, scrubber, wet electrical precipitator

SCOPE OF DELIVERY:

Material input and discharge, dryers, ventilation system incl cyclones, steam supply system, etc.

Alternative solutions

We offer tailor-made systems for drying of all types of solid biofuels – indirect systems in one or two steps being our specialty. Besides steam, exhaust gases, thermal oil, etc can be applied as heat source. We also offer direct drum drying which is a simple robust technology, however with less opportunities for heat recovery and elimination of fire hazards. Please get in touch with us and explain your situation!

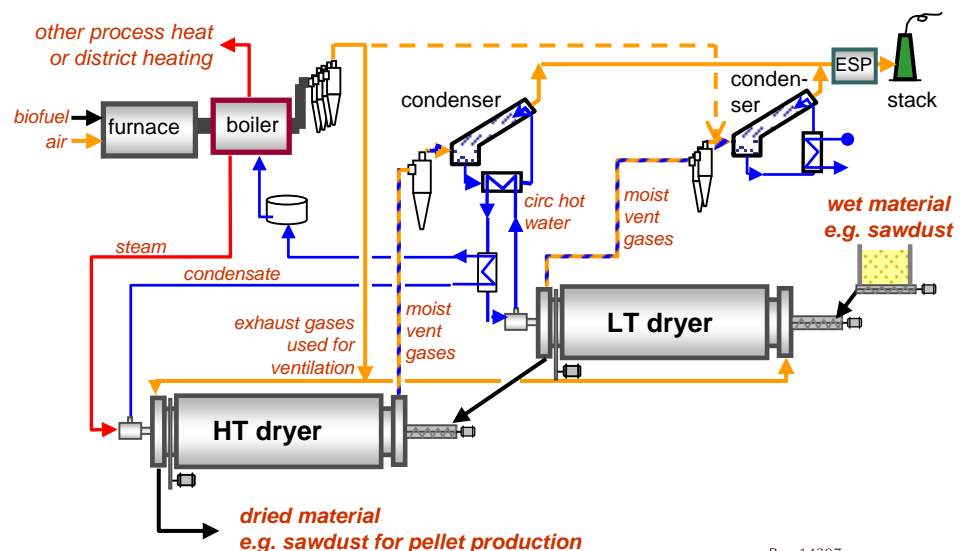


The drying takes place in two steps. The final drying is carried out in a high-temperature dryer (HT), heated with 16 bar steam. The HT dryer generates ventilation gases with a high dew point. These gases are condensed, providing hot water to the low-temperature dryer (LT), which is pre-drying the biomass. Up to 2/3 of the evaporation duty is hereby obtained "for free" – the share of heat recovered being even higher!

Environmental protection is partly also obtained for free as the condenser simultaneously provides gas cleaning.

Ventilation is done using virtually inert exhaust gases, thus eliminating fire hazards. Note that also moisture evaporated in the furnace is brought to the condenser, further enhancing heat recovery. Besides heating the LT dryer, the hot water can be utilised for e.g. heating buildings.

This system combines excellent energy efficiency, operational robustness, environmental protection and overall economy. If power generation is a priority, the steam pressure can be reduced – enhancing possibilities for back-pressure power production.



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