Energy ON

Efficiency solutions for biomass boiler plants

ABOUT

The second stage flue gas condensing economizer together with the absorption heat pump allows the recovery of additional heat from the low-temperature potential heat source. This technology differs from a compressor heat pump in that the driving force is not electricity, but heat with a high temperature potential. This equipment increases the efficiency of the existing boiler plant, allows for efficient use of fuel, emits less CO2 helps reduce the cost of thermal energy for consumers.

SYSTEM ADVANTAGES

- **HEAT RECOVERY FROM FLUE GAS, WHICH INCREASES THE EFFICIENCY OF THE BIOMASS BOILER PLANT BY 8-12%** (in terms of boiler thermal input)
- **GREEN INVESTMENT**
- **SUPPORT FROM EU FUNDS**
- **REDUCES THE COST OF ENERGY PRODUCTION**
- **SUITABLE FOR BOTH RENOVATED AND NEWLY BUILT FACILITIES**

GET IN TOUCH!

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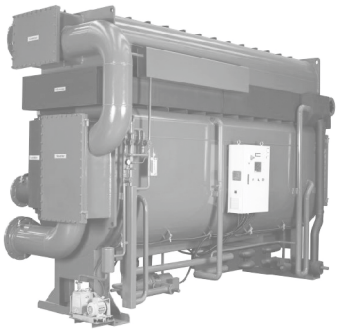
Absorption heat pump

The absorption heat pump is used for continuous cooling of liquids such as flue gas condensate.
The absorption heat pump requires:

- Hot process fluid (water or steam) at a temperature of at least 110 °C, in some cases up to 80 °C, such as hot boiler water or steam.
- Warm process water up to 50 °C, for example, return district heating water.



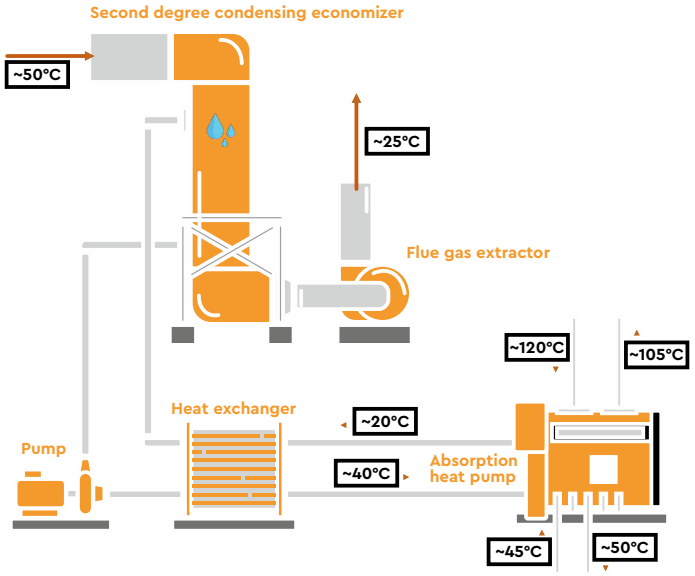
IMPORTANT: the technology must contain a medium with a low temperature energy potential, such as flue gas.

Second stage flue gas condensing economizer

The second stage condensing economizer uses condensate to cool the flue gas. The said condensate is constantly cooled in an absorption heat pump, so the heat recovered from the condensate will be transferred to the heat networks. For thermal input up to 3 MW, we can offer a GRP (glass fibre reinforced plastic) composite flue gas condensing economizer.

The flue gas condensing economizer is designed to recover additional residual heat by cooling the biomass combustion products (flue gas) to 22-35 °C.
The main exclusive feature of economizer is the solid construction, which is obtained using Glass fibre Reinforced Plastic (GRP) moulding technology. For higher capacity, we can offer a vertical flue gas condensing economizer, the maximum thermal input of which can be adjusted according to your needs and technological possibilities.

Heat recovery cycle



The absorption heat pump includes an evaporator, absorber, condenser, generator, heat exchangers, pumps, and control equipment. Its operation begins by supplying high-temperature fluid, like steam, to the generator. At the same time, thermal energy from low-temperature condensate in the evaporator is used to evaporate the working fluid. The combined energy from the generator and evaporator is transferred to heating water or another fluid in the absorber and condenser. Lithium bromide in the absorber absorbs vapors, but dilutes, so pumps move it to the generator where it's heated, restoring concentration. The vapor from the generator is condensed and returned to the evaporator to start a new cycle.