

## Boilers for combustion of wood waste

### Technical Specifications

Wood waste is generally perhaps the cheapest fuel, which is in our conditions accessible. Recently there has been higher demand of it. Like at another fuels, wood waste combustion has its own characteristics and especially observing emission limits requires meeting either general conditions of combustion so fulfilling all conditions specific for wood waste combustion. Transport and dosing of chemicals into the combustion chamber is solved with use of auger with frequency convertor. By change of auger speed, it is possible to change exactly transported amount of fuel. Maximum size of fuel particles, i.e. wood chip is 30 - 50 mm. Moisture of fuel is up to 60%.

Great emphasis is to care for solution of furnace and separation of combustion air with possibility of regulation in couple of ranges independently to each other. The fuel poured out by auger slides down into the combustion chamber. There is heating surface of the boiler in connection to the combustion chamber. The boiler is performed as combined large spatial flame-tube boiler with combustion chamber integrated in the body of the boiler or put forward. Boilers are supplied in performance middlepressure steam KUD, lowpressure steam KUD-N, hotwater KUD-H and warmwater KUD-T. Boilers are supplied with encasing and insulation and with necessary fittings. As part of supply, there is boiler switch board consisted of power part, integrated feed regulator from GESTRA and including output regulator and monitoring of combustion and water temperature. It is possible to extend the supply with equipment GESTRA for operation of boiler without constant supervision of a boiler in intervals 1x in 24 hours, and equipment GESTRA for automatic blowdown. Design, accessories and equipment, production and documents are in correspondence with requirements ČSN. Offer is not limited only for supply of a boiler, but consists of whole fuel treatment and transport technology, technology of bins, cleaning of flue gas at outlet, air ventilator.

### Technical Parameters

Type of boiler	Warmwater boilers KUD-T	Middlepressure hotwater boilers KUD-H	Middlepressure steam boilers KUD
Heating output	1 – 5 MW	1 – 5 MW	1 – 5 MW
Design pressure	0,6 (0,9; 1,4) MPa	0,6 (0,9; 1,4; 2,0) MPa	0,6 (0,9; 1,4; 2,0) MPa
Boiler efficiency at nominal output	80 - 86 %	80 - 86 %	80 - 86 %
Regulation range of boiler	50 – 100 %	50 – 100 %	50 – 100 %
Temperature inlet water - min	70 °C	70 °C	-
Temperature of outlet water - max for pressure 1,3 MPa	110 °C	180 °C	-
Temperature of feed water - min	-	-	105 °C
Temperature of superheated steam	-	-	220 - 350 °C

### Supplementary equipment:

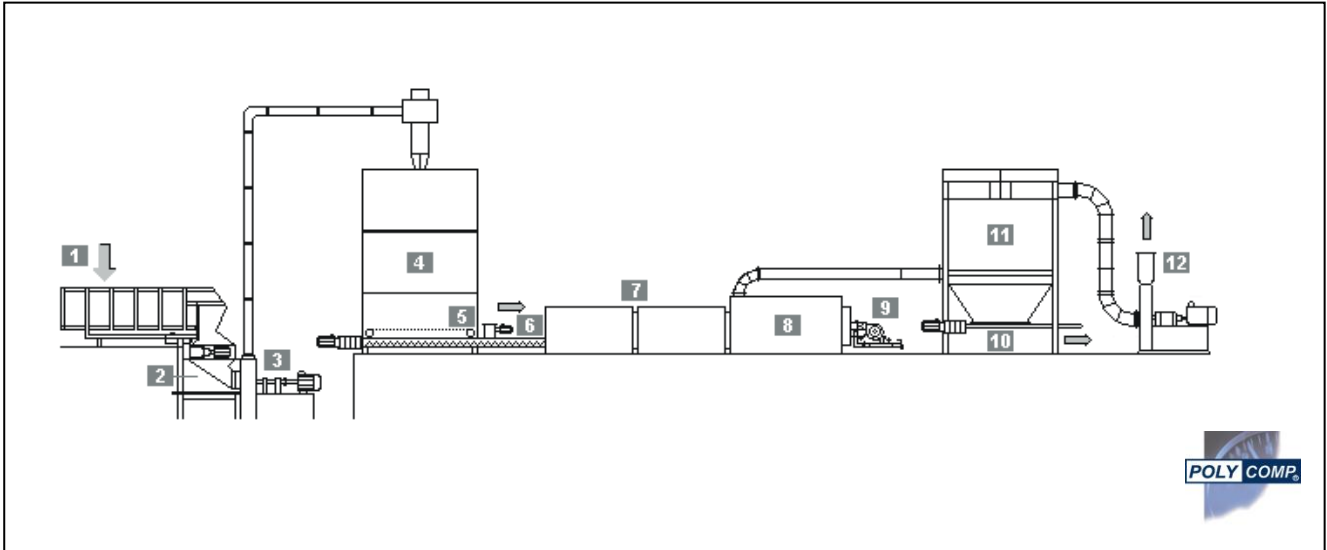
- *Transporting and dosing equipment*
- *Equipment utilizing pressure drop of produced steam for cogeneration of electric energy (steam turbine or steam engine)*
- *Homogenizator, fuel breaker and its connection to the combustion equipment*
- *Water heater*
- *for steam and hotwater boilers*
- *Steam superheater*
- *GESTRA equipment for operation of hot water and steam boilers without constant supervision in intervals 1x in 24 hours, 1x in 72 hours*
- *Complete supply of boiler house technology including water treatment and control system as a whole or supply of particular components*
- *Heat reservoirs*

### Guaranteed emission limits

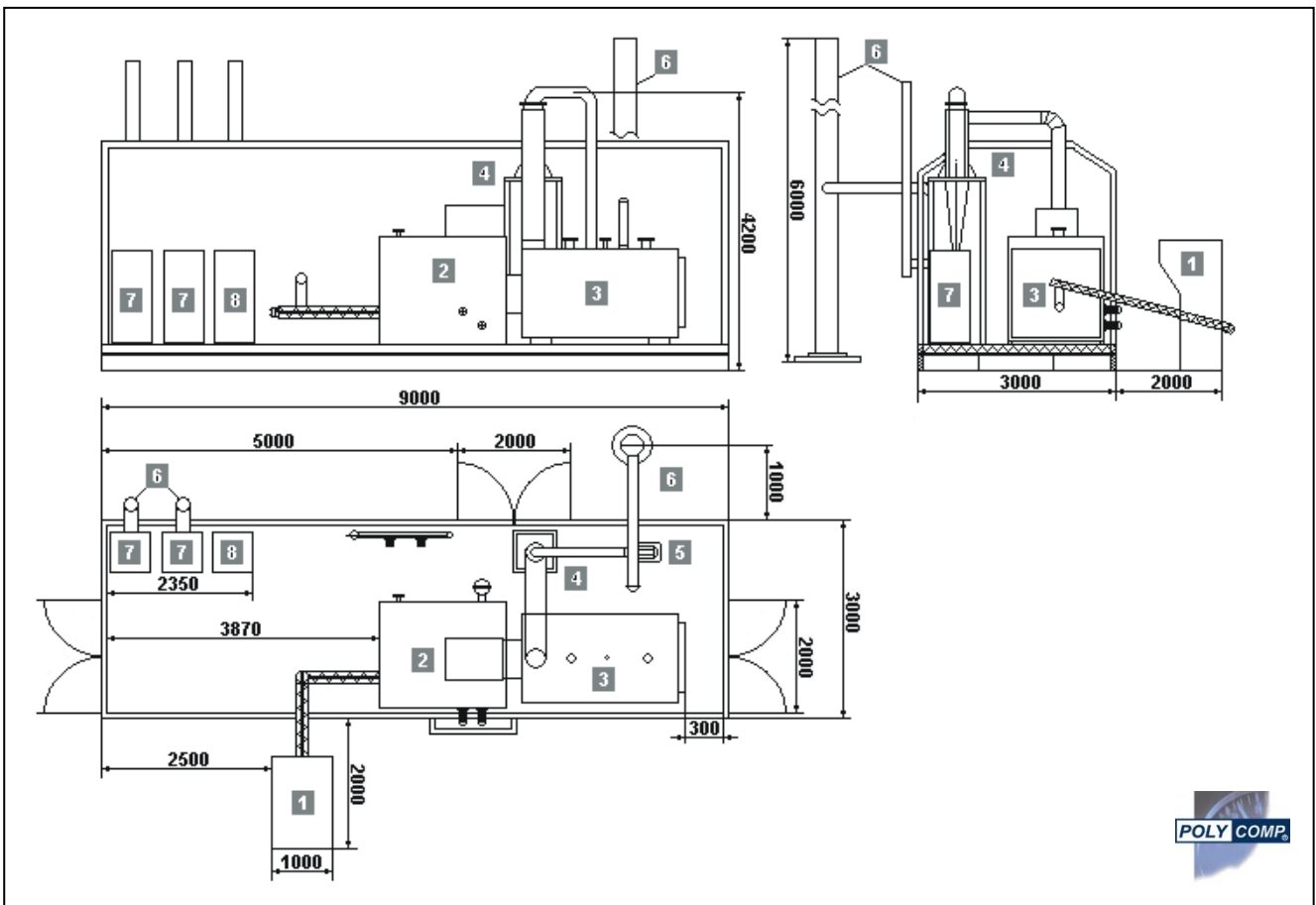
Emission limits according to provision FVŽP to the law no. 309/91.

## Arrangement of technology of a boiler for combustion of wood waste

Fuel is brought onto receiving and dosing launder (1), which is connected to breaker mill (2), the wood chips made by the breaker mill are transported by air ventilator (3) into the bin (4), the picking equipment (5) takes the chips into the feed auger (6), which feeds the combustion chamber (7), which is connected to the boiler (8). Behind the boiler there is placed equipment for separation of solid particles from flue gas (10). Dust draw-off from filter secures conveyor (9). There is combustion ventilator (12) behind the filter (11).



## Sketch of container boiler house for combustion of biomass KUD with output 600 kW



### LEGEND:

1. fuel bin | 2. burner and after-combustion chamber 600 kW | 3. boiler KUD 600 kW | 4. flue gas cleaning | 5. tensile ventilator | 6. chimney | 7. boiler 45 kW | 8. water treatment | 9. ash pit

PolyComp, a.s., Na Hrázce 22, 290 01 Poděbrady, Tel.: +420 325 604 111, Fax: +420 325 604 666

E-mail: [polycomp@polycomp.cz](mailto:polycomp@polycomp.cz), Internet: [www.polycomp.cz](http://www.polycomp.cz)

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