

# Krann Energy Systems

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## **High-Efficiency Biomass Gasification System**

We offer a biomass energy system for heating applications using our low emission waste wood gasification technology.

Rather than burning the biomass fuels directly, the gasification converts it into a mixture of combustible gases (syngas). The first stage of the combustion takes place inside the fuel pile. The resulting hot syngas filters upwards pyrolyzing and drying the fuel in the process. This way the Krann system essentially burns dry fuel allowing it to process fuels with higher moisture content than conventional wood burners. Since combustion takes place inside the fuel bed and the ashes are contained in the pile, the resulting flue gases contain much less particulate than those formed by conventional wood burning systems. Also, NO<sub>x</sub> and CO levels are well below the emission limits. The energy contained in the flue gas is then transferred to the heat-absorbing device e.g. boiler, kiln, dryer, etc.

The Krann combustion system is specifically optimized for high output rates making the system cost efficient and affordable for the end-user.

The system can be used in a variety of applications e.g. providing heat for boilers, kilns, dryers, greenhouses, etc. The system is fully automated and consists of wood storage, furnace, heat absorbing equipment and exhaust stack, typically all housed in one building (Fig. 1).

The wood storage bin has the capacity of holding several days of fuel supply creating a buffer for the weekend operation.

All controls and sequential operations reside in the PLC. The user is able to monitor all the important process parameters at all times. The operation is fully automatic and requires minimum supervision.

### **Fuels:**

- Sawmill wood waste e.g. hog fuel, shavings
- Demolition wood
- Refuse Derived Fuels (RDF)
- Agricultural waste e.g. straw, flax, rice husks
- Wood grindings, pellets etc
- Sludge
- Combination of above

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## General Benefits:

- ability to burn unprocessed biomass up to 60% moisture content
- much lower emission than conventional biomass burning system
- less ash deposit on boiler tube surfaces
- small footprint
- able to operate with fuel feed interruptions up to 30 minutes
- automatic ash discharge
- sand, dirt need not be removed from fuel
- fully automated operation with low degree of maintenance and supervision
- very fast response to heat demand changes
- robust fuel feed system
- low electrical power bill
- high turndown ratio
- lower price than comparable biomass systems



**Waste wood heating system, wood storage, boiler room.**

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**FUEL UP TO 60% MOISTURE**



**AUTOMATED OPERATION**



**EASY INSTALLATION & STARTUP**



**FURNACES FROM 1 – 25MW**

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