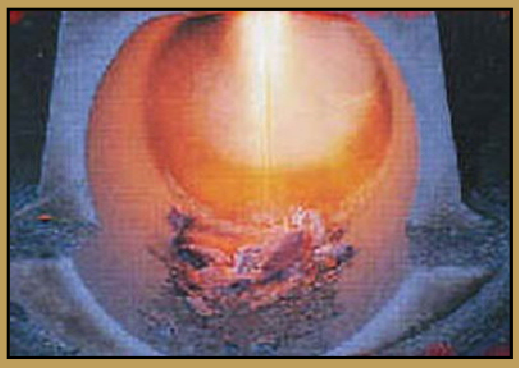
Fuel Technology

Wood gasification process

Gasification process in our central heating boiler is divided into 4 stages:

1. Drying and release of wood gases inside the loading chamber in slow glowing process.
2. Burning of gas mixture with secondary air in the lower chamber at 2200°F.
3. Flame reheating and heat exchange.
4. Combustion gases ejecting through chimney flue. The best indicator of successful wood gasification is the lack of smoke exiting the chimney.



Wood as a fuel

Wood is a renewable resource like solar, water, or wind power. They are all energy sources, which never become depleted, unless improperly managed.

Wood is also a fuel, which may be stored and preserved without energy loss. Wood storing reduces its humidity and simultaneously increases its heating value (energy volume, which may be used up during burning process).
Modern boilers utilizing wood in gasification processes use energy contained in wood with efficiency that is three times higher than traditional boilers. Smoke and other emissions are cut to a very low level, making our boilers very nature friendly.

EKO boilers are adapted for burning of any kind of wood ranging from sawdust to chunks of wood. The best way to achieve recommended wood humidity is to cut the timber during springtime.

- **Best humidity for gasification should be in 20% range.**
- **I Wood too dry (less than 15%) I or too wet (more than 25%) / will reduce boiler efficiency.**
- **Raw wood humidity ranges from 60% (wood cut in winter) to 80% (cut in summer). Most favorable wood humidity is obtained after 12-18 months of storing.**

Central Heating

- A packaged, fully manufactured, light weight tank shipped crated 19” wide and multiple zones, both open and closed loops can be operated from the same wood burning boiler and tank system at the same time.
- Conventional 24 volt, EMC controls, reliable and safe hardwired designs are available for switch-over to back up fuels to keep you warm and your home at a set temperature when you are away.
- 54” high. The length varies with capacity. You can walk it into your home, open the crate and have it ready to fill with water in less than an hour.
- Water can be circulated in a closed loop through the tank heat exchanger, or tank water can be circulated open loop. Use both methods in the same tank if required.
- Distribution can be designed with hydronic baseboard, radiant floors, radiators, or warm-air duct heat exchangers in a furnace or heat pump system where central air conditioning is installed. Combining warm-air and baseboard, for example, is another advantage with this system.

There are 6 or 7 ways to put together one of these systems. It takes time for an installer to decide which method is best. To solve that problem, we have the EMC control. This control monitors the heating balance point between the heating load and the tank temperature and automatically switches over to the oil or gas backup after every available BTU has been provided by the tank. Be sure to order this control with your boiler and heat storage tank.