



KOHLBACH

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Kohlbach Gruppe

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Experience, Innovation and Reliability



Kohlbach has become a synonym for clean energy from wood in the past 50 years. Starting in a barrack Kohlbach has now developed into a company with modern production capabilities and the latest in technology. We proudly look back onto a long and successful past and therefore we can refer to extensive experience in energy system engineering and to substantial knowledge about the energy source wood. Kohlbach has always taken much pleasure in innovation and development and has set standards for biomass heating facilities throughout Europe. Not without reason is Kohlbach a much favoured partner for research cooperation with universities and research institutes abroad and at home.

Innovation is our tradition. Kohlbach's numerous patents are a indication of our joy of finding new solutions and of aspiring for permanent further development.

USES

INDUSTRIAL HEATING:

For industrial utilization and processes Kohlbach boiler plants are capable of generating heat at various temperature levels. A few examples of such applications are kiln dryers, reconditioning chambers, presses, heating of production plants and much more. According to customer demands Kohlbach offers plants with steam boilers, thermal oil boiler or warm- or hot water boilers available for all fuel specifications.

We always aim at economical solutions for the prospective users. We provide you with everything necessary for operation ranging from material logistics, boiler plants and control systems up to the chimneys. From planning, manufacturing, installation and start-up as well as training and ongoing service on site - our offer comprises all services.

OBJECT HEATING:

Kohlbach is a preferred supplier of bioheating systems for clean and automated heat supply for all different kinds of objects. The heat from Kohlbach biomass boilers supplies schools, public swimming pools, public facilities, hotels and tourist resorts as well as horticultural and similar facilities.

Kohlbach always provides solutions for any requirements. Whether the systems are for newly constructed buildings or are to be adapted into existing structures, Kohlbach is your partner. Custom tailored solutions to your economic advantage are our highest premise.

We design the plants with all required emission treatments as well as counter-acoustic measures, so that they can be operated without limits even in the vicinity of the respective objects.



DISTRICT HEATING:

Whether 300 kW or more than 25.000 kW, in the area of district heating, customers have been relying on the experience of Kohlbach for decades. With our boiler plants you can reliably provide small cities, neighbourhoods and also sensitive vacation resorts with clean and economic heat from biomass.

District Heating with Kohlbach means:

- Kohlbach quality and solutions for all heating requirements
- Easy to operate with modern Kohlbach control systems
- Remote access and permanent online connection with Kohlbach
- Peak efficiency and environmentally friendly with Kohlbach's Condensation unit

COGENERATION:

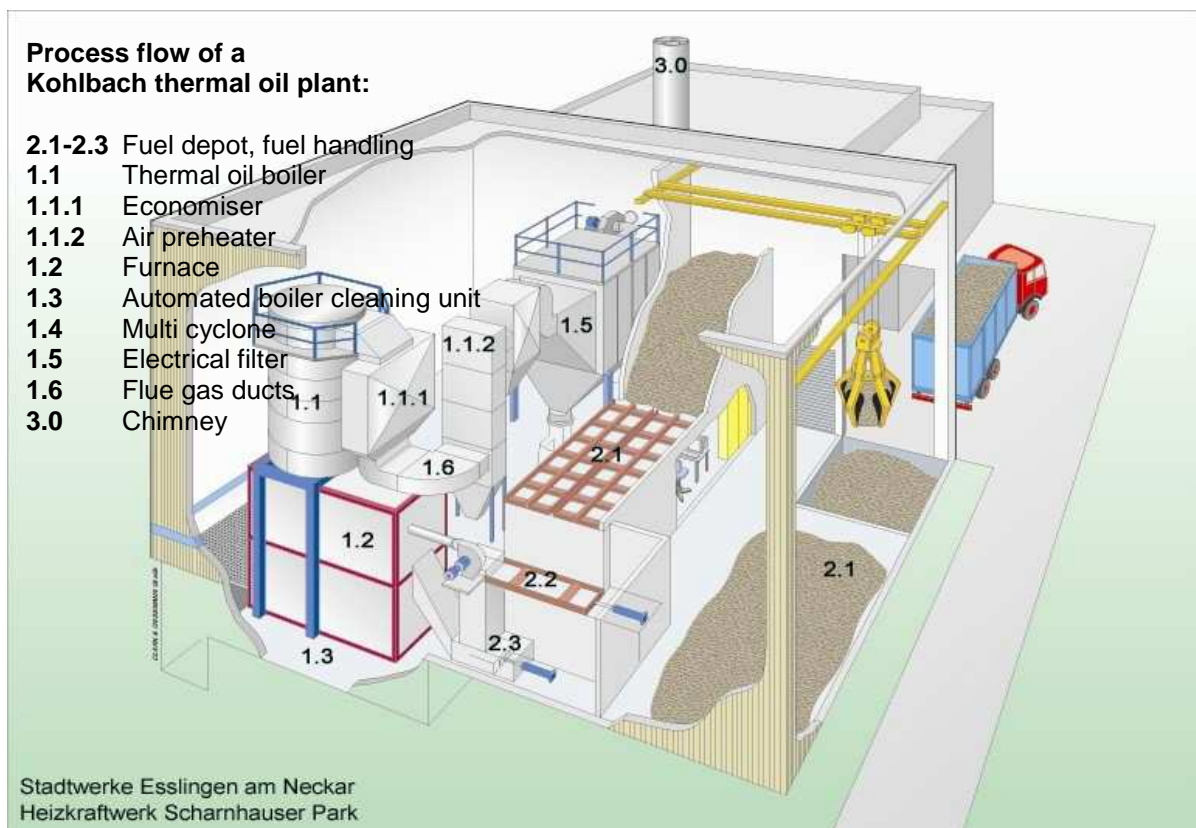


The simultaneous production of electricity and heat from wood is called cogeneration. The difference to conventional power generation lays in the utilisation of the waste heat. Cogeneration uses this lost heat for district- or process heating. The power-heat cogeneration is an efficient, practical, tested and proven energy saving technology for the protection of the environment and its resources. Through Cogeneration the deployed fuels are utilized up to 95 % and more.

According to the customers individual requirements Kohlbach's power-heat combinations are realized with conventional steam technology or with the innovative ORC-technology (Organic Rankine Cycle). This technology is best suitable for small CHP-facilities with electrical outputs of 200 kW–1.600 kW.

Kohlbach ORC Cogeneration is distinguished by:

- Attendant free and fully automatic operation
- Pressureless boiler operation
- Higher total plant efficiency
- Excellent performance also with partial load conditions
- Low operating costs and reliable power availability
- Proven and durable technology
- Simply to install in existing Kohlbach units
- Further information on the ORC-procedure are available on this website.



Kohlbach's Cogeneration Solutions with Steam-Technologies:

In a gas tube boiler saturated steam is created up to 32 bar. Depending upon the respective concept the electricity generation is conducted in a one- or multi stage turbine or in a steam engine.

KOHLBACH CONTAINER PLANT:

Kohlbach boxed energy is a containerized biomass heating station for the wood industry and for utility companies. The few pre-assembled modules, already fully equipped with all necessary instruments, are quickly delivered, installed and put into operation. The available heating capacity ranges from 300 kW up to 1.600 kW. Opposed to conventional heating stations a Kohlbach container plant is installed and ready for operation in very short time. Furthermore it can be disassembled and started up on other locations effortlessly.

Due to its modular and mobile design the Kohlbach container plant can grow with the organisation and keeps up the flexibility of our customers. The customer has only to provide a foundation plate and the connection to electricity- and water supply as well as the heat consumers.

The Kohlbach Container plant contains the following equipment:

- Boiler plant
- Biomass fuel feed system
- Heating Container
- Silo Container
- Pumps, instruments and manifolds
- Water treatment system
- Expansion facility
- Thermal insulation
- Electrical installations
- Boiler control system
- Automated boiler cleaning system
- Remote maintenance system
- Ash management
- Flue gas treatment
- Chimney



PRODUCTS

WARM WATER/HOT WATER BOILER:

All Kohlbach boilers are exclusively developed, constructed and manufactured by our company. Our water boilers generate warm water up to max. 110 degrees Celsius as well as hot water up to about 180 degrees Celsius. Kohlbach manufactures these boilers for operating pressures up to 20 bar. The output capacity per individual boiler ranges from 300 kW up to 10.000 kW.

Kohlbach water boilers are available in a horizontal design, with two or three lines of gas tube bundles, as well as in a vertical design, with three lines of gas tubes bundles. For boiler plants with triple-lined gas tubes the first gas tube is designed as a flame tube. Boilers which are vertically designed can be attached to the furnace either side- or front end mounted according to the customers demands. Horizontal boilers are sitting on top of the furnace.

Optionally an additional safety heat exchanger can be installed into the boilers. The design of all boiler facilities is conducted in correspondence to the European Pressure Equipment Directive. Due to our fully automatic boiler cleaning system Kohlbach plants achieve continuous operation times up to 4.000-8.000 h. Hence total efficiency as well as the reliability of the entire facility is significantly increased.

THERMAL OIL BOILERS:

For generating process heat at high temperature levels also thermal oil boilers are available from Kohlbach (temperatures > 150 degrees Celsius up to 300 degrees Celsius). Opposed to hot water- or steam boilers, a nearly pressureless operation is possible with these facilities. This offers particular economic advantages for industrial application. Strict and cost-intensive monitoring can be avoided and also specially trained and licensed steam boiler operators are not required.

The thermal oil boiler facilities from Kohlbach are available up to a maximum nominal output of 9.000 kW per individual boiler unit. The thermal oil boilers with three tube lines are set-up on top of the furnace. The first line is therefore designed as a radiation part. At high boiler exit temperatures (> 200 degrees Celsius), an additional Economiser is deployed after the thermal oil boiler for heat recovery.

Depending on the exit temperature either a mineral or synthetic oil is used as a heat carrier medium. The design of the boiler unit is conducted in correspondence to European Pressure Equipment Directive, the AD sheets and according to DIN 4754.

Due to our fully automatic boiler cleaning system Kohlbach plants achieve continuous operation times up to 4.000-8.000 h. Hence total efficiency as well as the reliability of the entire facility is significantly increased.



STEAM BOILERS:

Kohlbach steam boilers are particularly suitable for generating saturated steam of 0.5 bar up to max. 32 bar as well as super heated steam up to about 450 degrees Celsius.

The nominal heat output ranges from 300 kW up to 10.000 kW per individual boiler. The boilers are designed horizontally with two lines of gas tube bundles and are set-up on top of the furnace.

The Kohlbach steam boilers are equipped with all required instruments. If desired, Kohlbach also delivers any further equipment required by the customer to run his steam plant like feed-water pumps, feed-water tanks, steam tubes, etc.

The design of the boilers is conducted in accordance to the European Pressure Equipment Directive by corresponding tests and run offs by the TUEV (Technischer Ueberwachungs Verein = German Technical Inspection Authority).

Due to our fully automatic boiler cleaning system Kohlbach plants achieve continuous operation times up to 4.000-8.000 h. Hence total efficiency as well as the reliability of the entire facility is significantly increased.

FURNACES:

Kohlbach furnaces are developed, manufactured and assembled exclusively in our company. They are suitable for all natural wood residues from dry to very wet. The maximum furnace output per unit goes up to 11.500 kW.

Available furnaces range from under grate furnaces for dry, low ash content fuels over modern moving grate furnaces for ash-rich and wet fuels to special purpose furnaces for straw burning.

Emissions? No problem! A multiple-tiered air supply in the primary-combustion zones enable Kohlbach furnaces to keep within the limits of NOx emission regulations easily. Through the generous design of the secondary-combustion-zones in Kohlbach boilers, the CO-emissions can be reduced down to the limit of detection.

FUELS:



With Kohlbach's boiler plants all natural wood residues such as bark, wood chips or saw dust with a moisture content from 10 up to 60 % and saw dust, wood shavings, or grits with a moisture content of 6 – 50 % can be utilized. Both wet and/or dry wood residues from wood processing or wood milling are applicable. Likewise, it is also possible to burn green cut.

With Kohlbach's hydraulic fuel handling system, very inhomogeneous fuels such as bark and similar ones can also be brought into the furnace without troubles. Likewise, even larger pieces randomly distributed within the fuel can be fed into the furnace without any problems.

For loading the boiler with highly granulated fuels, screw feeder systems or Kohlbach's patented twin-feeder units are deployed.

In our special purpose furnaces, developed by Kohlbach, it is also possible to burn straw.

FLUE GAS TREATMENT:

Within a Kohlbach furnace, dust is already separated to a certain extent from the flue gases in its specially designed secondary-combustion-zone. According to customer requirements and legal regulations the flue gas treatment is provided by multi cyclone filters, electrical filter, fabric filter or by flue gas condensation.

The Kohlbach designed flue gas condensation is a special form of flue gas cleaning. Each unit is designed, manufactured and assembled exclusively in our company. This system reduces considerably the dust emissions and simultaneously provides an additional heat recovery as well as a complete devaporization of the flue gas in the chimney. This is of particular significance in tourist resorts and sensitive zones, where water vapor should not be visible on the chimneys.

BOILER OPTIMIZATION:

Due to our substantial experience Kohlbach is the ideal partner for operators of existing boiler plants.

Kohlbach's optimization for all biomass heating plants:

- Biomass fuel logistic with new reliable shearing technology for heterogeneous combustibles
- Reinforcement of material infeeds of grate combustions
- Upgrade of combustion chambers to the current moving grate technology for fully automated operation
- Automatic ash removal from within the combustion chamber to the disposal
- Optimization of the emission through reconfiguration and upgrade of combustion air supply
- Retrofitting with fully automated boiler cleaning systems
- Modernization of control systems for reduction of power consumption and for increased efficiency

