

INTEC Engineering GmbH

Energy systems



INTEC® Engineering GmbH is an international company successfully operating in the design, delivery, installation and commissioning of energy systems. INTEC® has established itself as a trade name in the field of industrial generation of process heat.

The INTEC team is your partner in the entire process, beginning with the first concept, continuing with the engineering and concluding with the commissioning of the plant. Thanks to the valuable suggestions made by our customers combined with the competence of our engineers, our performance level represents state-of-the-art technology.

During the past years, INTEC Engineering GmbH experienced a continuous upward development. Our sales organisation operates worldwide, export activities show high rates of increase. Customers from all over the world and from various industrial sectors rely on our expertise and high-quality products.

Our highly qualified team guarantees your success!





Thermal oil heaters



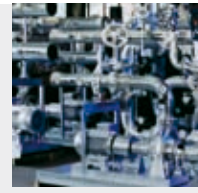
Solid fuel firing systems



Waste heat boilers



Thermal exhaust air decontamination



Secondary control circuits



Services

Product range

Our range of products covers the delivery of complete energy plants or the supply of individual components, such as gas or oil fired thermal oil heaters, waste heat boilers, heat exchangers, indirect heated steam generators, high pressure steam boilers, hot-gas generators using step grates to burn biomass and solid fuels.

Our scope of products rounded off by our service concept, which is an integral part of our mission statement.

We focus on reliability, quality and close cooperation with our customers.

INTEC energy plants supply process heat for various industries:

- **Wood Processing**
- **Sawmills**
- **Textiles**
- **Palm oil industry**
- **Chemical industry**
- **Shipbuilding and marine industry**
- **Food industry**
- **Pulp and Paper industry**
- **Consumer goods**

Due to our worldwide network your local INTEC partner will be pleased to give you prompt and competent advice.

Thermal Oil Heaters

Compared to conventional plants using hot water or steam, thermal oil as heat transfer medium offers the advantage that it can be heated nearly without any pressure until reaching a temperature of 320°C. With synthetic oils, even temperatures up to 400°C can be reached. For this reason, in most industrial heating processes, where high temperatures are used, thermal oil heating systems have achieved predominance.

In order to achieve high safety standards, INTEC thermal oil systems comply with the regulations of the German Industrial Norm DIN 4754.



Production of coils:

Precise manufacturing is a prerequisite condition for delivering our high-quality products.



INTEC delivers complete thermal oil heating systems. The main components are produced in our manufacturing plant INTEC Rohrtechnik GmbH providing the highest quality levels possible.

FUELS

The INTEC thermal oil heaters in horizontal or vertical design are offered for an output range of 100 to 20,000kW. Higher output values are achieved by combining several systems.

The fuels used are conventional fuels such as natural gas, light fuel oil and heavy fuel oil. For special applications it is possible to burn gaseous or liquid production wastes.

Natural gas fired thermal oil heater in vertical design, output 10MW with built-in combustion air preheater and subsequent stack, total height 25m, for heating of a MDF-press in Romania.



Thermal oil heater with a capacity of 10MW, Malaysia (with preheated combusted air)

The thermal oil heaters and the required burners are tailored to suit the requirements of their respective applications.

Special heaters for combustion of dust-shaped fuels are completing the heater range.

DESIGN

Building combustion chambers with large volumes, monitoring the flow of every single parallel flow line and using components cooled by heat transfer oil, means hardly any refractory material is used, – all these factors ensure that the heat transfer medium is gently heated and thus can be used for a long time.

EFFICIENCY

In order to reduce the operating costs to a minimum level, we recommend measures for energy recovery that further increase the efficiency of our thermal oil heating plants.

We are offering you the following systems:

- Use of **waste heat** stored in the flue gas for heating warm or hot water
- Generation of **saturated steam**
- **Direct utilization of flue gases** for heating of dryers
- **Preheating of combustion air**

Solid Fuel Firing Systems

Rising prices for fossil fuels and increasing demand for CO₂-neutral, regenerative fuels, require proven solutions using new technology. INTEC have developed improved systems for environmentally friendly combustion of solid fuels, such as wood, wood waste, bark, sanderdust as well as other biomasses.

The result proves that we have made a success of it.

ENERGY SYSTEMS

As a complete solution for the wood and fibreboard industries INTEC offers hot gas generators with capacities up to 90MW. Depending on the individual operation requirements, the process heat is transferred by hot gas, thermal oil, steam or hot water to the consumers.

Step grate for the
combustion of biomass



Hot gas generator with grate firing system and sanderdust combustion, output 11 MW, Thailand

Matched to different requirements and fuels diverse firing systems are offered by INTEC:

- **Underfeed stoker firing system** with low output up to approx. 3 MW for coarse wood waste with a humidity range of 10-100% odb
- **Inclined step grate firing system VRCS** with outputs up to approx. 50 MW and a humidity of approx. 200% odb
- **Travelling grate firing system** for fuel with high calorific value, as e.g. brown coal or anthracite
- **Cyclone firing systems** for dust from sieving and sanding
- **Combined burners** for sander dust and other fuels, such as natural gas or oil
- **Suspension burner** for fine grained fuels

DESIGN

Due to their robust design, our step grates ensure high operational reliability and high availability. Of course, our plants also guarantee compliance with the emission regulations concerning CO and NO_x. We achieve this through a special design of the combustion chamber taking into consideration the required dwell times and avoiding streaks of different temperature in the flue gas.

ELECTRICAL POWER GENERATION

INTEC step grates, with output capacity up to 60 MW, are employed in the food industry for the generation of electrical power, using rice husk and rice straw as fuels. Net electrical output reaches capacities up to 10 MW.

Solid fuel firing plant with sander dust combustion, output 24 MW, Thailand



Waste Heat Boilers

In order to recover the heat contained in the waste gas coming from solid fuel firing systems, combustions engines, gas turbines or other industrial processes, it is indispensable to possess detailed knowledge about the properties of the respective waste gas flows.



Thermal oil heater fired with solid fuels in three-pass design, output 12MW, Australia



Combination of a radiation heater with convection heat exchanger in meander design with a thermal oil output of 28 MW used to heat a saw-mill in Australia

INTEC offers you tailor-made solutions for a wide variety of applications:

- **One-pass boiler** for the recovery of radiant heat from waste gases originating from solid fuel firing systems covering the temperature range from 1,250°C to 800°C
- **Three-pass heater** in vertical design covering the output range from 100 to 12,000kW for the heat recovery from the combustion of natural wood
- **Convection heat exchanger** in meander design covering the output range from 500 to 20,000kW with equipment for automatic cleaning of ash deposits from the tube bundles
- **Waste heat boiler** consisting of coils in concentric design used for the recovery of waste gas heat from combustion engines and gas turbines in onshore and ship applications

Thermal Exhaust Air Decontamination Units

Thermal exhaust air decontamination plants are used to clean exhaust air flows charged with organic materials. In these plants, the harmful substances in the exhaust air oxidize to become CO_2 and H_2O .

As the oxidation process of the harmful substances takes place at a combustion chamber temperature of about 750°C , special attention must be paid to the recovery of energy.

INTEC delivers thermal exhaust air cleaning plants for the oxidation of solvents in the exhaust air flows – in the range of $100\text{--}50,000\text{Nm}^3/\text{h}$ – originating from surface coating and drying processes. The product range of INTEC also includes plants to deodorize the smell of odorous substances or oily exhaust air flows coming from production plants of the food industry, e. g. frying plants.

For heat recovery, heat exchangers are used to preheat the exhaust air, to produce saturated steam or to heat water or thermal oil.



Thermal incineration unit for decontamination of exhaust air loaded with solvent, $20,000\text{Nm}^3/\text{h}$

Secondary Control Circuits

In many industrial processes, the heating and cooling process requires exactly controlled temperatures. To ensure this, secondary control circuits are installed. With the integration of a cooler into the system, the secondary control circuits are able to carry out both heating and cooling processes.

INTEC secondary control circuits are delivered as completely preassembled systems. INTEC supplies these circuits worldwide for heating presses, impregnation plants, coating plants in the wood, textile and paper industries. Combined heating and cooling systems are particularly applied in the plastics industry.



Secondary control circuits for heating of a continuous press (CPS)

Thermal oil heated steam generator for the production of 15t/h saturated steam, 16 bar, for a MDF-line in Germany



Plant Ancillaries

For the completion of our plants we offer:

Components for solid fuel firing systems:

- Fuel conveyors
- Ash removal systems
- Flue gas cleaning systems
- Compressors for compressed air supply

Other components:

- Expansion tanks
- Collection tanks
- Stacks
- Indirect heated steam generators



Installation of a thermal oil heater with combined burner for combustion of sanderdust and natural gas, in Belgium

Services

Systems solutions from one single source. According to this principle, we are offering our customers the complete range of products and services from planning and delivery to installation monitoring and commissioning and after-sales service.

We will offer you support concerning different installations. On request, we will plan your local add-on units and we will support you with all approval procedures.

Our after-sales department will submit a tailor-made offer for spare parts and wearing parts. Spare parts that are frequently requested are kept on stock.

Our range of services also includes:

- **Project management**
- **Calculation of stresses in piping systems according to FDBR, ASME, ANSI B31.1 / B31.3 / B31.8**
- **Plant maintenance**
- **Upgrading of existing installations**

We offer you the most suitable solution for your individual requirements. Contact us!

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