Reliable process heating for industrial applications
Welcome

In the region around the district town Wiesloch has grown within the last decades a tradition in building thermal oil systems. The "Wiesloch" design of these thermal oil systems are worldwide a kind of trade name and known for its quality. The origin of this tradition is the former company "Apparatebau Wiesloch" which has been during its prime age in the 60’s and 70’s the No.1 for thermal oil systems in the world.

Out of this "germ cell" the company "AKB" (Apparate- und Kesselbau GmbH) arised, which was between 1993 and 2009 successful on the world market with thermal oil systems in the design of "Apparatebau Wiesloch".

In December 2008 two experienced engineers and experts of the thermal oil sector and former employees of AKB (Holger Dudda & Thomas Bures) founded the engineering company Ascentec GmbH.

All current employees of Ascentec GmbH come out of the former Company AKB and even most of them have already been working at "Apparatebau Wiesloch". Therefore it is not surprising that even we are a young company, we have expert knowledge of decades in the design, engineering and building of thermotechnical plants.

The choice to locate the head office of Ascentec in the industrial area of St. Leon-Rot in the neighborhood of Wiesloch is therefore no accident, because we feel obliged to tradition of building heaters in this region.

Our thermal oil heater design follows the worldwide known "Wiesloch" tradition, valued because of its liability and top quality. We inherit this tradition with modern methods of construction and newest knowledge. The optimization of our systems and the protection of our environment through an energy-efficient design is our passion.

A sales office for the northern parts of Germany is located in Brakel (Region Höxter, Nordrhein-Westfalen). Heat-transfer plants of Ascentec are in operation in offshore systems (ships) as well as in normal onshore plants all over the world, such as coating plants, driers, printing systems, automoulders, heat recovery units, just to list a few.

Ascentec serves today the complete field of heating plants (thermal oil, hot water & steam systems).

Our engineering expertise together with a tight cooperation with selected suppliers, proved manufacturing and commissioning partners guarantees a stable top quality and reliability of our products.

“We are proud about our experience of decades in building thermal oil systems.”

Holger Dudda (CEO)
What we do

Company Ascentec is generally planning, engineering and building thermotechnical plants of all kinds. Our working field is not only limited to the typical business with thermal oil systems, but also we are dealing with thermal oil steam systems, "water" steam systems and hot water applications.

Additionally we have increased in the last few months our engineering service for combined heat and power generation plants, gas turbine applications, solids combustion (biomass, coal) and customized plants.

We design and develop:
- Directly fired steam systems including safety equipment and the controls
- Quick steam generators of the Ascentec type
- Indirect steam generators, which means a steam generator heated with thermal oil so that in an existing thermal plant easily the required steam can be generated direct at the spot where it is needed
- Heating of production components with special heat transfer fluids like Diphyl steam. This heating uses the advantage of the steam for systems which cannot resist at the same time high pressure at high temperature. We build the complete system with liquid/steam cycle heater, flash tank and condensate system
- Combined heating-/cooling systems, secondary pump units... and a lot more; just send us your inquiry!

Engineering of heat systems
- Consulting and design of energy saving measures
- Replacement of system components and update of old plants to the state of the art
- Engineering of complex heating plants
- Engineering & construction of complete heating plants with the help of 3D - CAD Software

Other products and services
- Delivery of complete electrical cabinets, e.g. with PLC, visualization, remote maintenance etc.
- Engineering, construction and delivery of combined heating/cooling systems, e.g. for the plastic industry
- Engineering, construction and delivery of flue gas systems/stacks
- Engineering, construction and delivery of fuel heating & supply systems
- Engineering, construction and delivery of heat exchangers for the preheating of the combustion air ("Lüft´s")
- Engineering, construction and delivery of heat exchangers
- Delivery of flue gas ducts
- Delivery of combustion air fans and cooling air fans
- Manufacturing of expansion and drain tanks in horizontal and vertical style, also nonstandard vessels with heatings, inert gas supply and system fill and drain pump units etc.
- Commissioning of complete systems
- Start-ups
- Supervision
- Training of personnel
- Maintenance
- Spare parts
- Turn key projects

Certificates

Our manufacturing is certified according:

- China Manufacturers License pressure vessel A2
- China Manufacturers License organic fluid boilers
- ASME S Certificate of Authorization
- ASME U Certificate of Authorization
- ASME U2 Certificate of Authorization
- National Board Certificate of Authorization
- GL Germanischer Lloyd
- DNV Det Norske Veritas
- LRDS Lloyd’s Register EMEA
- RMRS Russian Maritime Register of Shipping
- BV Bureau Veritas
- CCS China Classification Society
- RR Russian River Register (SL)

All welders with welding concessions acc. DIN EN 729 – 2
Ascentec GmbH

Features

The well known long-life cycle of the thermal oil boilers in the "Wiesloch" style, which are installed all over the world, proof the good and reliable design of the Ascentec heaters. This design results in reduced operational costs and less maintenance.

Our design principles:

- Furnishing of the boiler with a cooled turning plate
- Wear less operation over decades, because no concrete is used
- No overheating of the thermal oil in case of a power outage due to latent stored heat inside the insulation inside the furnace chamber
- No problems with different heat expansion of the materials
- Grand scaled furnace chambers
- Low thermal stress on the fluid inside the pipes results in a long life cycle of the oil
- Lower NOx emissions compared to smaller furnace chambers
- Complete burnout of the flame inside the furnace chamber after each inspection is guaranteed
- The special boiler supports/saddles at the horizontal boiler style allows defined heat expansion within the system. The attachment of the boiler to e.g. the floor of a ship by welding or to dowel the boiler to a foundation is possible without endangering heat expansion problems
- Proofed sealing system for the furnace chamber
- Determined flow of the flue gases through the boiler and optimized heat transfer
- Optimized utilization of the heating surface which results in a high firing efficiency
- Possibility to clean the furnace chamber with water without destroying the gaskets
- No replacement of gasket at turning plate because of the welded design at this location

Individual design of boilers to customer needs

- Standard boiler series is the base for the individual heater design/calculation
- Optimized standard boilers harmonized with the newest burner technology achieve the highest firing efficiency

Why sourcing equipment from Ascentec?

01. Ready manufactured boiler shell prepared for installation the coils
02. Stack with waste air fan incl. filter and silencer for coating plant
03. Electrical preheating plant for Tar oil firing, output each 150 kW, location India
04. For dispatch prepared boiler with boiler door for easy cleaning of the heating surface
05. Prefabricated pump group with 3 pumps
06. Thermal oil heater with combustion air preheater for firing efficiency >93%

Usage of combustion air preheating to increase firing efficiency, up to 93% are possible
Special design software and optimized calculation methods lead to small pressure losses on the oil side as well as on the flue gas side, while the efficiency is maximized
Big experience in engineering, design and building thousands of heaters results in safety and routine
Stressfree building of the pipe system leads to safe and longlife heaters without the feared cracking of pipes.
Due to the use of cooled tuning plates the boiler is immune against vibrations and shocks, which is an advantage in marine applications. A costly repair of the cladding can be avoided.
For inspection and maintenance work the boiler front plate can be removed so that the furnace chamber and the flue gas passes are accessible and can be easily cleaned.
With boilers in horizontal version the front plate can be carried out as a door (option)
Because of the usage of high quality ceramic-wove sealings and the design of the sealing embedment in the front plate of the boiler the tight closing of furnace chamber after each inspection is guaranteed.

- The special boiler supports/saddles at the horizontal boiler style allows defined heat expansion within the system. The attachment of the boiler to e.g. the floor of a ship by welding or to dowel the boiler to a foundation is possible without endangering heat expansion problems.
- Cleaning openings in the area of the flue gas collecting chamber (option)
- Sight glass for visual inspection of the combustion/ flame through the front plate or back of the heater (option)
- Drainage possibility of the complete thermal fluid at vertical designed heaters.
- Blow down possibility of the thermal fluid by a special valve unit (option)
- Casing/diaphragm plates in the area where the supply and return pipes go through the heater shell avoid damages of the pipes by permanent load due to heat expansions.
- Big dimensioned beams underneath the heaters allow an easy transport of the vessels by means of steel rollers into the boiler house.
Applications for thermal oil systems

Thermal oil systems are used in various industrial areas and branches for heat transfer processes. The most common areas of use are:

- **Renewable energy, solar energy**
  - Waste-heat recovery units with gas engines driven by bio gas
  - Waste heat recovery units after furnaces of biomass systems
  - Solar parabolic heat plants
- **Shipping industry**
  - Waste-heat recovery units for preheating fuel (HFO)
  - Auxiliary heaters for marine ships
  - Heating shiploads e.g. chemicals
  - Oil tankers
  - Dredgers
  - Preheating of ship loading and unloading
- **Bitumen-, tar-, lubricant and oil industry**
  - Production of road and floor coverings
  - Roof covering manufacturing
  - Storage and mixing units
  - Koking plant
  - Heating autoclaves, stirred tanks, cooking vessels
- **Chemical and chemical-technical industries**
  - Extruder heatings
  - Plant and varnish industry
  - Loading and unloading plants for viscous substances
  - Synthetic presses, automatic spray devices
  - Melting and reaction vessels
  - Heating of dryers, containers, baths etc.
  - Concentration, distillation, regeneration and melting plants
  - Linoleum manufacturings
  - Cylinder and Calendar roll heatings
- **The food industry**
  - Industrial baking ovens
  - Frying units
  - Fat hardening units
  - Fat cracking units
  - Beverage industry e.g. bottle and tin cleaning and filling plants
  - Spray dryers
  - Distillation plants
  - Industrial kitchen equipment etc.

**The thermal oil heater**

The core of the heat transfer unit is the thermal oil heater. It functions according to the forced flow principle. A centrifugal pump installed in the supply or return (standard) of the heater transports the thermal oil through the heater to the heat consumer.

Ascentec supplies heaters in various ratings for all purposes, in standard from 100 - 20.000 kW (smaller or larger units available on request). We provide a horizontal or vertical design according to customer wishes.

The building materials industry:
- Production of concrete pre-fabricated components in dry tables or dry chambers
- Transportable systems for concrete processing
- Timber industry, saw mills
- Timber press systems

The textile industry:
- Drying and washing machines
- Coating systems
- Printing and effecting machines
- Dyeing and fixing frames
- Heat treatment units
- Thermo-plastic synthetic fibre manufacturing
- Cylinder and Calendar roll heatings

Machine construction and metal processing:
- Oil bath heating
- Varnish spraying drying units
- Degreasing plants
- Acid and stripping baths

Paper industry:
- Laminating roll heatings
- Drying heads, -cylinders, -chambers

The soap and detergent industry:
- Kettles
- Spraying and drying towers
- Saponification plants

The plastics industry:
- Plastics presses for the semi-processed goods industry
- PET bottle manufacturing

The electronics industry:
- Conductor board manufacturing

Heating / heat exchangers:
- Workshop heating
- Hot water generation
- Indirect steam production
- Hot air machines
- Heat exchangers in general

**Description**

- **A = 1. pass, Firing chamber and radiation chamber**
- **B = 2. pass, Heat transfer convection**
- **C = 3. pass, Heat transfer convection**

- 01. Radiation coil
- 02. Convection coil
- 03. Burner chamber
- 04. Coiled turning plate
- 05. Burner chamber stone / ceramic fibre
- 06. Heater supports
- 07. Cleaning drainage
- 08. Boiler back insulation
- 09. Insulation sheet boiler back
- 10. Flue gas outlet
- 11. Lifting lugs for horizontal transport
- 12. Heater inner shell
- 13. Heater insulation sheet
- 14. Rockwool
- 15. Outlet connection
- 16. Inlet connection
- 17. Burner chamber support, alignment device
- 18. Flange flue gas connection (optional)
- 20. Cladding (uncooled) turning plate
- 21. Lifting lugs for vertical transport (vertical boiler)
- 22. Burner chamber lid
- 23. Lifting lugs for burner chamber lid
- 24. Support for horizontal transport
- 25. Base frame vertical heater
Ascentec is planning and engineering their heaters and thermotechnical plants with the newest 3-D construction software. With this software it is possible for the customer to have a close look at their plant before it is being built. Interfering edges and collisions of components/pipes can be avoided in advance.

- 01. Thermal oil heating system for a coating plant, output 7 MW, location Germany
- 02. Thermal oil heating system for tank heating, output 4 MW, location Malaysia
- 03. Fluid tank for thermal oil steam system with thermal oil Diphyl, 375°C for oil recycling plant, location Algeria
- 04. Thermal oil heated steam boiler, output 2100 kg/h, 10 bar(g), location Germany
- 05. Inline Taroil/HFO tank preheater, output 500 kW, location India
- 06. Special electrical thermal oil heating system for pressure 28 bar(g), location Germany
- 07. Complete designed thermal oil heating system for PET-bottle plant, output 4x12 MW

Ascentec GmbH

Typical flow sheet of a thermal oil system with primary pumps in the return line and examples of the heat consumers on the secondary side of the system.
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