

**INTEC Engineering GmbH**

**Heating Solutions for the Marine Industry**



## Heating Solutions for the Marine Industry

Compared to conventional plants using hot water or steam, thermal oil as a 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 processes heat transfer oil plants have finally achieved predominance in the supply of process energy.

Container ship, thermal oil heater with rotary cap atomising burner, power output 2,500kW and exhaust gas boiler with a power output of 1,700 kW



The advantage of thermal oil as well as user friendliness of these heating systems are well known in the marine industry. Thus this kind of heating is well established and is more and more used.

Process heat on ships is supplied by a directly fired thermal oil heater combined with one or two exhaust gas boilers. The directly fired thermal oil heater is used as an auxiliary boiler in harbour operation and, with the propulsion engine at reduced power output, it supports the exhaust gas boiler. When the ship is sailing, the exhaust gases of the main machine heat the exhaust gas boiler.

## Thermal Oil Heaters

Thermal oil heaters by INTEC® are successfully used for supplying process heat to industrial plants of various industries such as ship building, wood, textile, palm oil, chemical and food industries.

Thermal oil heaters by INTEC® are characterized by the following features:

- **Optimised heat transfer and high efficiency due to generously dimensioned coil surface**
- **Tailor-made design to individual customer requirements**
- **Environmentally friendly operation due to low emission values**
- **High operational reliability**
- **Low operating costs**
- **Long service life**

Our highly qualified team together with our precise production methods ensure that your plant will meet the highest quality levels.

Ferry with INTEC®-thermal oil heater with a capacity of 1,500kW and two exhaust gas boilers each 540kW



### LAYOUT

Depending on the space requirements and the customer's wishes, the heater can be installed either in vertical or in horizontal direction.

At the end of the first pass the flue gas is turned around, still having high temperature. Usually this area is clad with refractory material to keep the bottom of the heater at low temperature. Alternatively it is possible to replace the refractory material by an oil-cooled plate.

In case of horizontal installation, we are able to insert an inspection hatch in the baseplate or to install a hinged heater cover in order to facilitate cleaning and maintenance. In case of vertical design, the burner can be mounted on the bottom of the heater.

On the customer's request, it is possible to pre-mount and to pre-wire heaters with capacity of up to 2,000kW together with other components (burner, pump, valves and fittings) on a framework. Thus, the work required for installation on board is considerably reduced.

### CAPACITY

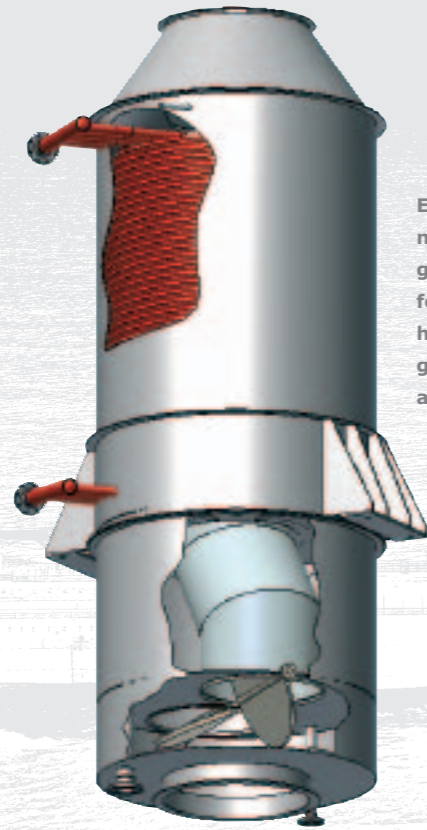
Thermal oil heaters by INTEC® using fuels such as natural gas fuel oil are operated in the capacity range of 100kW up to 20,000kW. Heater systems with higher capacity values may be offered upon request.

Waste recovery vessel with INTEC®-thermal oil heater, 700kW



### POWER OUTPUT REGULATION

A flap system is used to control power output. It offers the advantage that a cooling system for overproduction is no longer necessary.



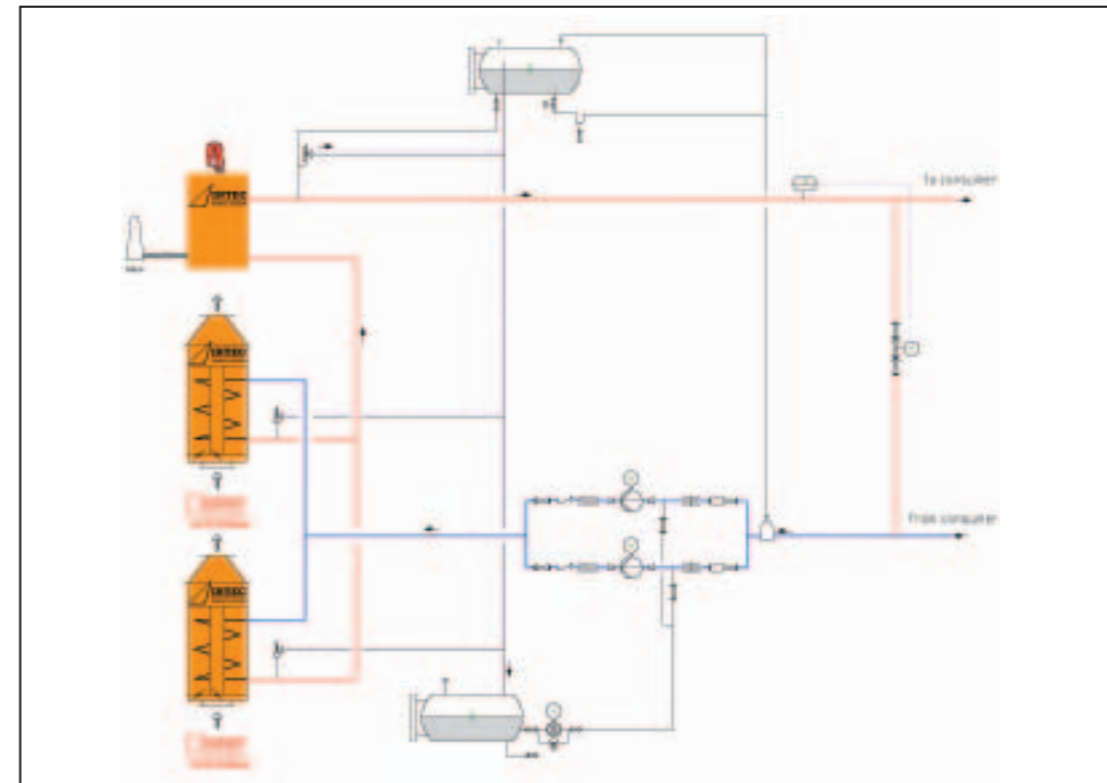
Exhaust gas boiler with internal bypass, single pass arrangement with cleaning device for heating coils. Used for the heat recovery of exhaust gases of combustion engines and gas turbines.

### SAFETY DEVICES

Emphasis is not only put on efficiency, but also on operational reliability:

- The burner will automatically switch off, should the maximum admissible thermal oil outlet temperature or the flue-gas temperature after the heater be exceeded
- In order to protect the thermal oil, the burner capacity is reduced during cold start until the minimum temperature is exceeded. Following that, capacity output of the burner is increased until reaching the setpoint value
- The burner shuts down immediately if the pump stops running
- To avoid over heating and thus damaging of the thermal oil, a minimum volume of the oil must always flow through the heater. A flow control device approved for this type of installation controls the minimum oil flow through every single pipe coil
- The filling level of the thermal oil in the expansion tank is monitored by a float switch. If the filling level is too low, the plant will switch off
- If the plant is shut down, the circulation pump is operated for a certain period of time to carry away heat that may have accumulated

Hopper dredger, thermal oil heater with a capacity of 1.000kW and exhaust gas boiler with 860kW



INTEC® plants allow the connection of different consumers

The main components of the INTEC® heater are manufactured in Germany by INTEC Rohrtechnik GmbH providing the highest possible quality level



#### FABRICATION

In order to be able to meet the quality levels required by our clients and us, the core components of the INTEC® plants are manufactured by our subsidiary INTEC Rohrtechnik GmbH. Which is certified and able to manufacture according to:

- Germanischer Lloyd
- Lloyd's Register
- Bureau Veritas
- RINA
- Det Norske Veritas
- ASME B & PV-Code, Section VIII, Division 1
- AD 2000 - HPO

At request fabrication and delivery is also possible according to other approvals.

#### SERVICE

The INTEC team is your partner in the entire process, beginning with the engineering, continuing with the delivery of complete energy plants and concluding with the commissioning and after-sales-service.

Hopper dredger with thermal oil heater, 1.000kW and two exhaust gas boilers with each 500kW



Multi Purpose Ship, thermal oil heater, with a capacity of 1.000kW and exhaust gas boiler with 860kW



Chemical tanker: Thermal oil heaters with capacities of 2 x 3.8MW and a exhaust gas boiler with a capacity of 900kW used for heating the cargo tank and the engine room consumers

In order to offer our customers best local support INTEC® is expanding the worldwide network of representations and partner companies

**INTEC Engineering GmbH**

Zeiloch 15  
D-76646 Bruchsal, Germany  
Tel. +49 (0) 72 51 / 9 32 43-0  
Fax +49 (0) 72 51 / 9 32 43-99  
E-mail: info@intec-energy.de

**INTEC Rohrtechnik GmbH**

Werner-von-Siemens-Str. 9a  
D-76694 Forst, Germany  
Tel. +49 (0) 72 51 / 3 66 29-10  
Fax +49 (0) 72 51 / 3 66 29-25  
E-mail: intecrohr@aol.com

**INTEC Office Netherlands**

Kamperweg 27  
NL-8181 CS Heerde, Netherlands  
Tel. + 31 (0) 578 691843  
E-Fax +31 (0) 84 739 1388  
Fax + 31 (0) 578 691868  
E-mail: info@intec-energy.nl  
www.intec-energy.nl

DELIVERY PROGRAM

- Thermal oil heaters
- Solid fuel firing systems
- Waste heat boilers
- Secondary control circuits
- Electrical heaters
- Plant ancillaries
- Project management
- After sales service
- Calculation of stresses in piping systems
- Plant maintenance
- Upgrading of existing installations

[www.intec-energy.com](http://www.intec-energy.com)