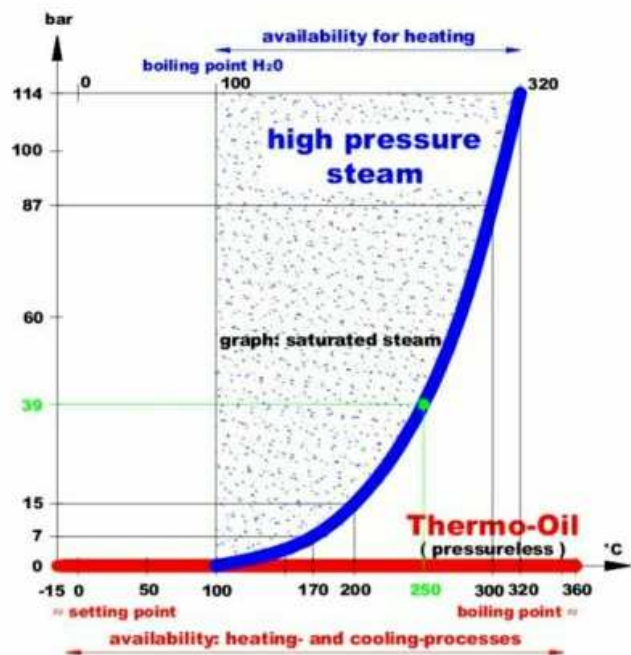


# Steam or Thermal oil?

Careful attention is to be paid to the selection of the proper type of heating for various machines in the industry. In this regard, specific knowledge concerning the two heating media, steam and thermal oil, and the function of the heated machine is of vital importance. Our objective is to warrant an optimum operating convenience, control accuracy and operational safety with lowest possible energy consumption.

The following disadvantages must be taken into account and are inevitable when using high pressure steam:

- Potential danger of high pressure steam
- Acceptance and erection obligations
- Expensive water treatment
- Inspection obligations
- Chemical consumption
- Daily maintenance works
- Condensate and energy losses
- Corrosions
- More fittings and apparatus are required in comparison with a thermal oil heating. Therefore the investment costs are 30 - 40 % higher.



If steam is only used as heat carrier, condensate is produced at high temperatures. To reduce pressure from this condensate creates big water and energy losses and simultaneously brings along troubles and installation problems. For smooth operation, a continuous maintenance of the water economy is necessary.

**The operational safety (also for unskilled personal) and a longer life time are the advantages of a modern, pressureless thermal oil heating system!**



Easy for use: Power On / Off

Due to the manifold use in the most different industrial branches it can be ascertained today that a well-planned and properly installed thermal oil plant offers specific advantages for the user.

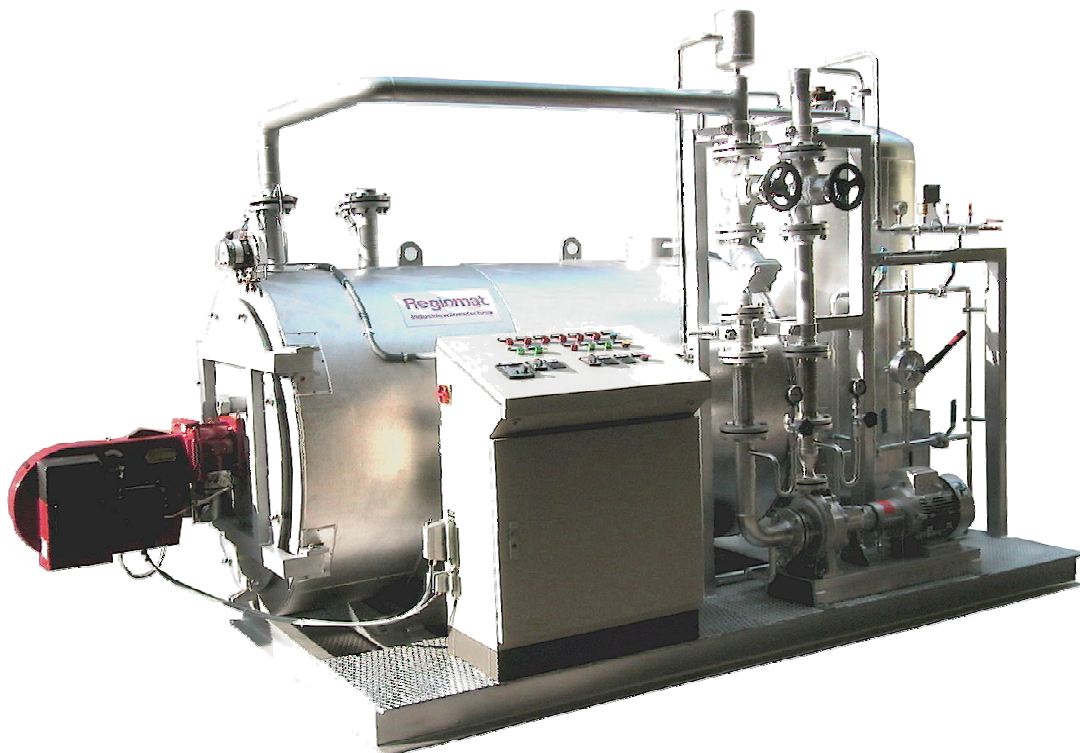
The heat consumers are directly connected to the thermal oil heating system which is suitable for freely adjustable temperatures of up to 300°C. Important units are equipped with secondary circuits, consisting of injection valve and secondary pump etc., so that the operating temperature can be optimally regulated. A centralized thermal oil heating system with closed circuit operates fully automatic, safely without supervision and can be used for general purposes.

In close co-operation with machine manufacturers, Regimat is involved in the planning and construction of entire installations, including delivery, assembly and commissioning as well as care-taking of such thermal oil heating systems.

It is important to know the difference between steam and thermal oil concerning the heating transfer. To get the most efficient heat transfer when using thermal oil there must be enough velocity in the heating surface. If it is necessary to have steam for the process it is easy to produce steam with a thermal oil / steam generator.

### **Essential advantages of thermal oil compared to steam**

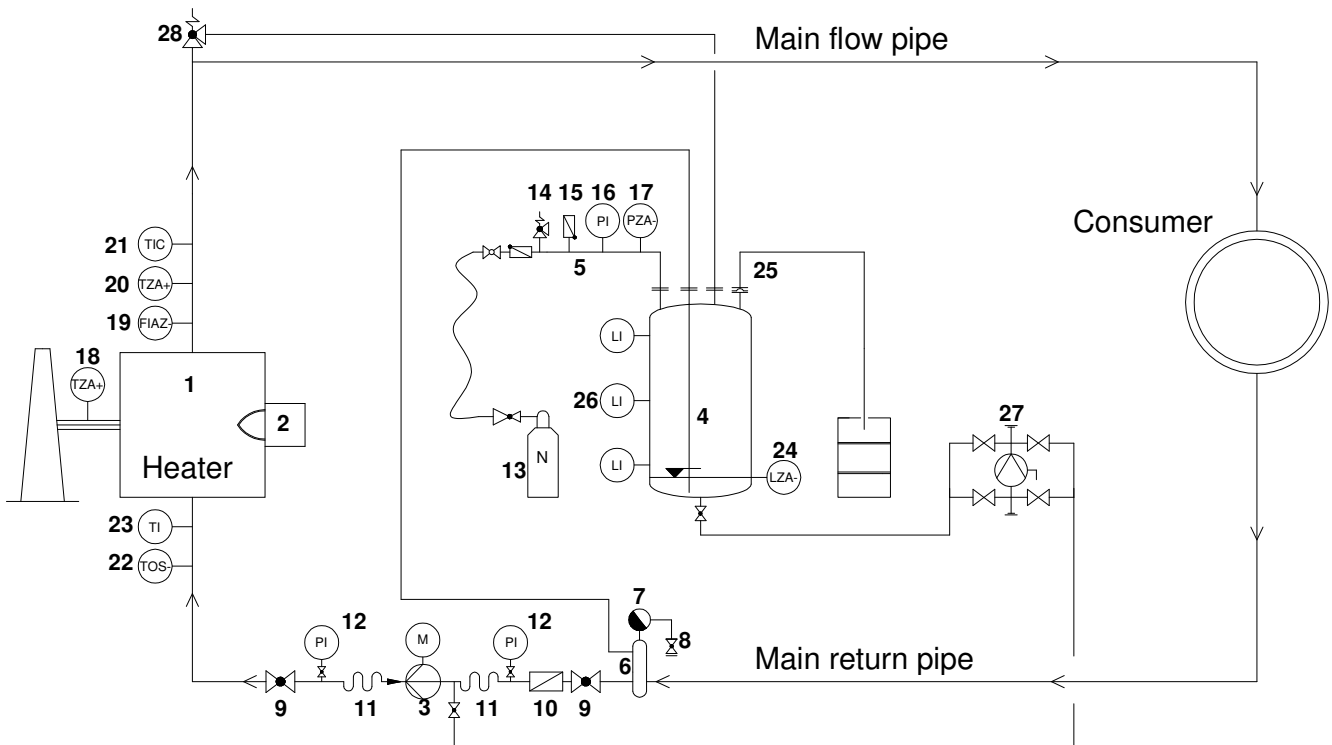
- high boiling point at atmospheric pressure, "no-pressure" units up to 350°C possible
- no tendency for corrosion and caking
- no frost damages up to far below 0°C
- Simple installations and placements
- 30 - 40% less investment costs
- No corrosions and less maintenance costs
- Higher efficiency of the heating plant
- Pressureless system
- High security and a longer life
- Installation On / Off with one button



Compact thermal oil heating plant with a capacity of 600 kW.

## Explanation of a Regimat Thermal oil heating system

Regimat guarantees a controllable flow through the heater. The thermal oil has the possibility to expand over a non-turn-off pipeline between the heater and the expansion vessel. The nitrogen in the expansion vessel guarantees the necessary pressure balance and protects the thermal oil from the oxygen in the air. This is the reason why the thermal oil doesn't oxidize even when we have high temperatures. So you have a system which works for more than 15 years without any problems.



### Legend

1	Heater	11	Vibration absorber	21	Temperature controller
2	Burner	12	Manometer	22	Thermostat
3	Circulation pump	13	Nitrogen	23	Temperature gauge
4	Expansion vessel	14	Safety valve	24	Level switch
5	Nitrogen system	15	Vacuum breaker	25	Rupture disk
6	Gas collection bottle	16	Manometer	26	Level control
7	Autom. centralized air separator	17	Pressostat	27	Filling pump
8	Cock with cap	18	Thermostat flue gas	28	Safety valve
9	Shut-off valves	19	Flow control		
10	Strainer	20	Thermostat main pipe		