

THERMAL FLUID HEATING SOLUTIONS

Babcock Wanson offer a complete solution for compact,
easy to use and high efficiency thermal fluid systems

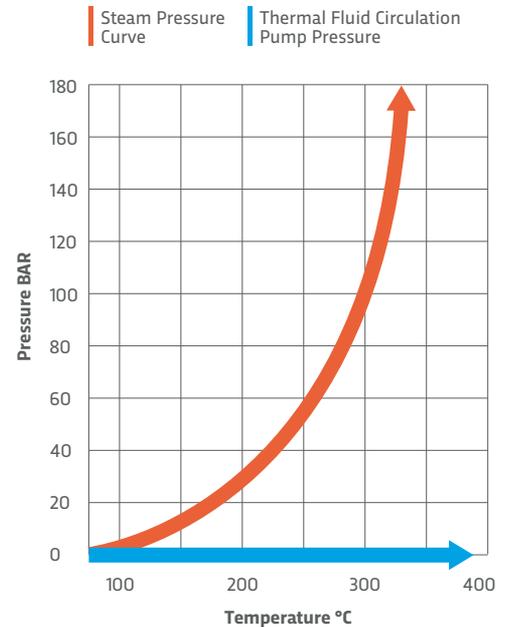


WHY CHOOSE THERMAL FLUID HEATING SYSTEMS?

Thermal fluid systems have revolutionised process heating, making large, energy hungry and heavily manned plant rooms a thing of the past for the majority of industries. Thermal Fluid Heating systems are compact, easy to use and offer an overall saving in energy that is hard to beat.

Unlike a steam system, there is no change of state of the fluid in thermal fluid systems, so no condensate and therefore no flash steam losses, no blow down losses or make up water and no effluent discharge. Thermal fluid systems operate completely corrosion and frost free without the need for expensive chemical treatment. Furthermore, users are not confronted with the well-known problems of high pressure to reach high temperatures. It all adds up to substantial savings for the operator.

Thermal fluids typically operate at up to 350°C at atmospheric pressure and can remain pumpable down to minus 20°C and lower with special fluids, which makes it a solution suitable for a wide range of applications.



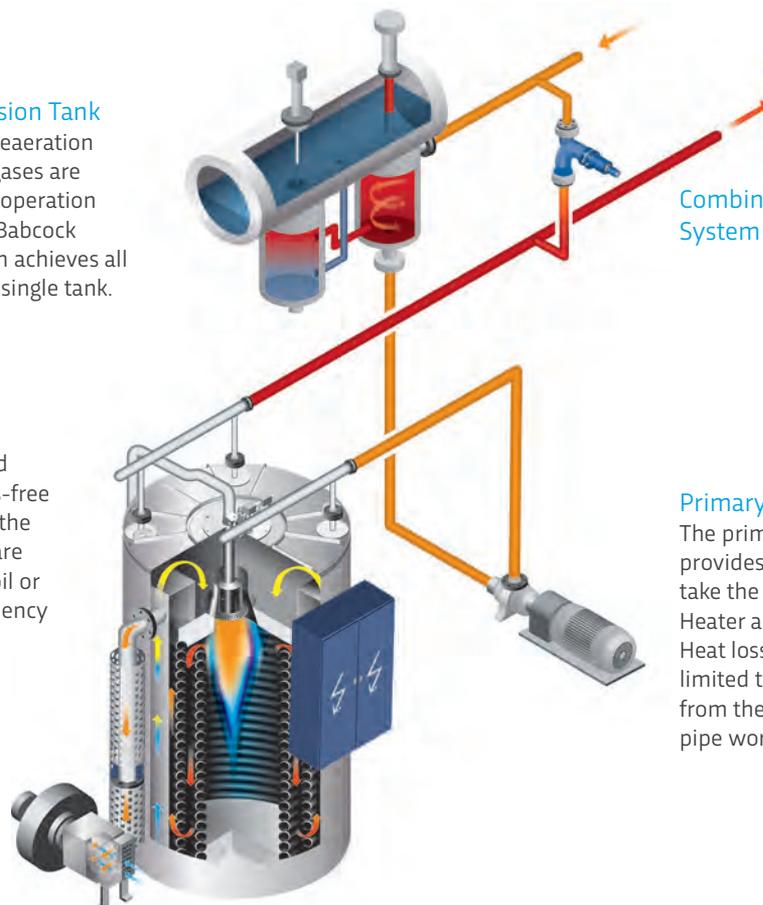
Typical Thermal Fluid Heating system configuration

Combined Deaerator Expansion Tank

Effective fluid expansion and deaeration systems to remove dissolved gases are critical for the good, long term operation of a thermal fluid system. The Babcock Wanson combined tank system achieves all requirements in a simple to fit single tank.

Thermal Fluid Heater

Babcock Wanson Thermal Fluid Heaters are designed for stress-free and unrestricted expansion of the heater coils for long life. They are available with integrated gas, oil or dual fuel burners for high efficiency operation.



Combined Flow Sustaining or System Pressure Relief Valve

Primary Circulating Pump

The primary circulating pump group provides the flow in the system to take the heat from the Thermal Fluid Heater and transfer it to the users. Heat losses are minimised and are limited to a low level of radiated heat from the well-insulated distribution pipe work.



HOW DO THERMAL FLUID HEATERS WORK?

Thermal Fluid Heating is based on a similar principle to a simple hot water system. It consists of a heater connected to carbon steel flow and return pipework which can simultaneously provide heat to one or more users or systems. Instead of water running through the closed loop pipework, a thermal fluid which remains liquid throughout the operation is used as the heat transfer medium. The heat is transferred by turbulent liquid flow at the heat transfer surface. The fluid then passes in a closed circuit back to the Thermal Fluid Heater for reheating without further loss of energy.

Different fluids – typically mineral and synthetic based fluids – can be used to meet specific process heating requirements, making it a very flexible system.



WHERE CAN THERMAL FLUID HEATERS BE USED?

Thermal Fluid Heaters have outpaced steam generation in the majority of new process heating applications and, with their energy efficient operation, ease of use and compact size, it's not difficult to see why. There are numerous applications for Thermal Fluid Heating and

whilst there are too many to list here, on the following pages we look at some common solutions.

If you have a process heating requirement, contact us for further information and we can advise on a suitable solution.

BENEFITS OF THERMAL FLUID

VERY SAFE SYSTEM

- Non pressurised system
- Easy unattended automatic operation
- Corrosion free
- No freezing hazard
- No liquid effluent produced

ENERGY EFFICIENCY

- Typically 20 - 50% less energy consumed compared to steam
- Closed circuit - no loss system
- No boiler blowdown losses
- No condensate losses
- High combustion & plant efficiency

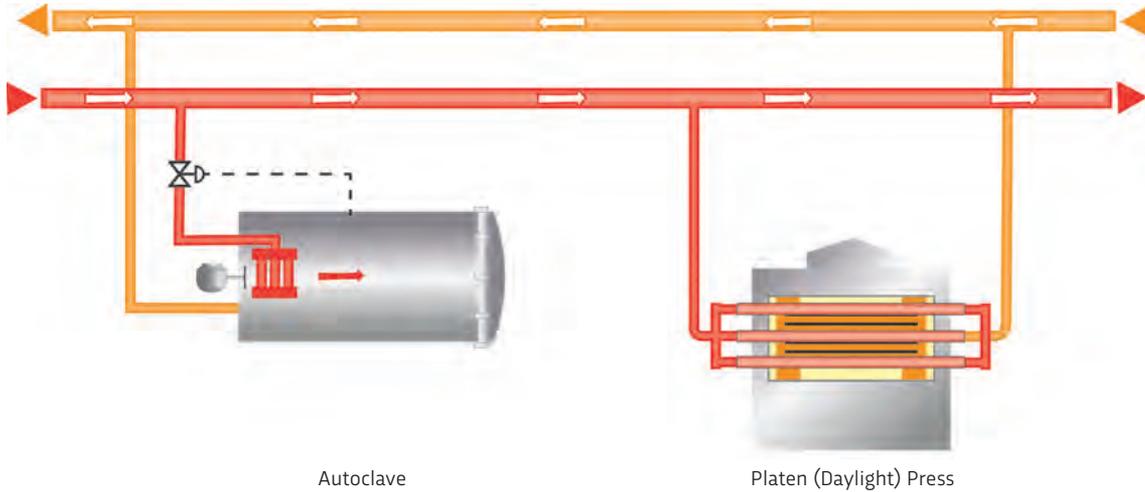
COST EFFECTIVE & HIGH DURABILITY

- Rapid start-up & shutdown
- Very low maintenance
- No water treatment or chemicals required
- Minimal space requirements
- Long equipment & fluid life

BEST AVAILABLE TECHNOLOGY

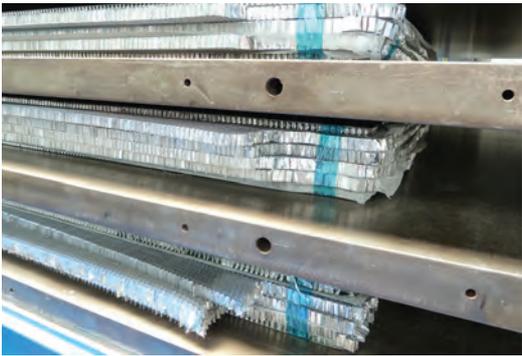
- Precise constant temperature control
- Heating & cooling possible in same system
- Mixed temperatures readily achieved in the same system
- Ability to work at high temperatures (up to 350°C)
- Lower total exhaust emissions
- Point of use location

Pressing, Curing and Moulding



Autoclave

Platen (Daylight) Press



Close temperature control from Babcock Wanson systems for pressing, curing and moulding

Many processes involve changing the shape or form of material using heat. Where steam, electricity or direct fuel firing have been traditionally used, thermal fluid systems can offer greater control, higher quality, lower cost and repeatability.

Design of the system flow characteristics to suit the process ensures even heat distribution across the face of multi daylight presses without the risk of condensate logging often associated with steam systems.

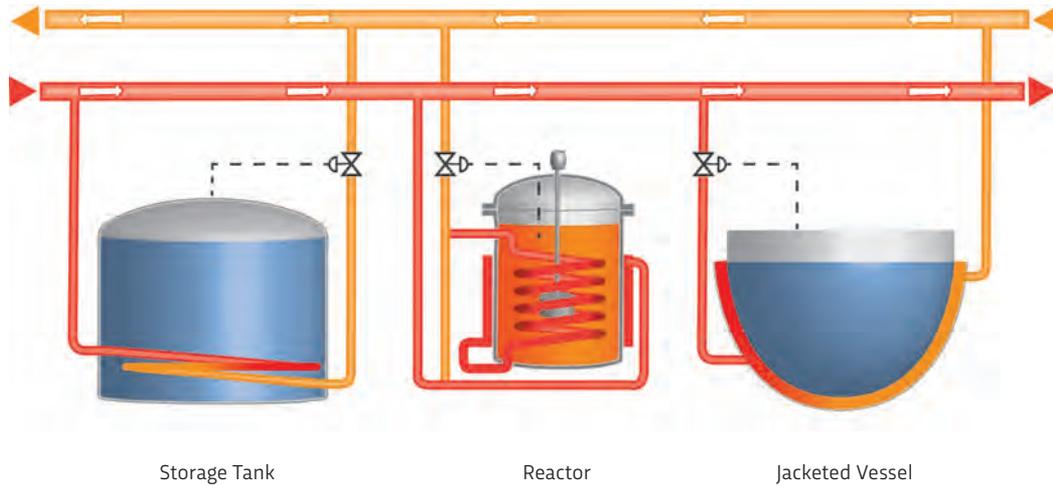
Simple and accurate temperature control is readily achieved using a variety of techniques that have been developed and proven over many years.

Steam, when required for direct contact with the process, can be easily and safely generated as part of a thermal fluid system using one of our Unfired Steam Boilers.

APPLICATIONS AND INDUSTRIES

- Press heating & cooling
- Moulding processes
- Extruder heating & cooling
- Laminating
- Autoclave heating
- Drying & forming
- Furniture manufacture
- Plastics moulding
- Automotive manufacturing
- Composite materials

Tanks, Vessels and Cookers



Thermal Fluid Heating provides simple operation and high accuracy temperature control for the process

Storage of product which must be maintained at any given temperature is achieved at the lowest practicable cost when Thermal Fluid Heating is used. Individual tanks or multi tank systems, such as can be found on continuous metal treatment plants, demonstrate the flexible nature of these systems with each tank controlled at the required temperature using the simplest automated techniques.

Reactor and blending vessels for food, chemical and pharmaceutical applications with and without differential temperature control are a key application.

Secondary circuits can be readily incorporated to provide higher fluid flow rates, different temperatures and very close control, all fed from the primary circuit. This enables several different temperature processes to be used on a single system.

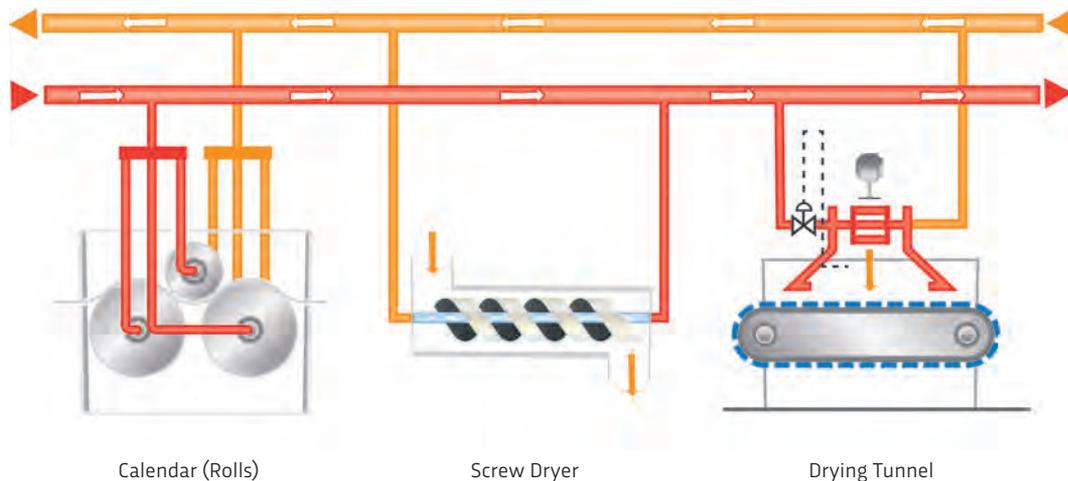
Food grade thermal fluids are available when required.



APPLICATIONS AND INDUSTRIES

- Tank heating
- Reactor heating
- Bulk liquid storage
- Food processing
- Metal finishing
- Anodising
- Pharmaceutical
- Refining & blending
- Marine applications
- Brewing industry

Printing, Coating, Laminating and Drying



Flexible heating solutions and accurate control of multi zone systems is simple with Thermal Fluid Heating

Roller heating, continuous drying and laminating is achieved with the greatest accuracy and lowest operating cost with Thermal Fluid Heating due to its advanced temperature control, simple automation and unattended start/stop design. All this means the highest quality products at the lowest production cost.

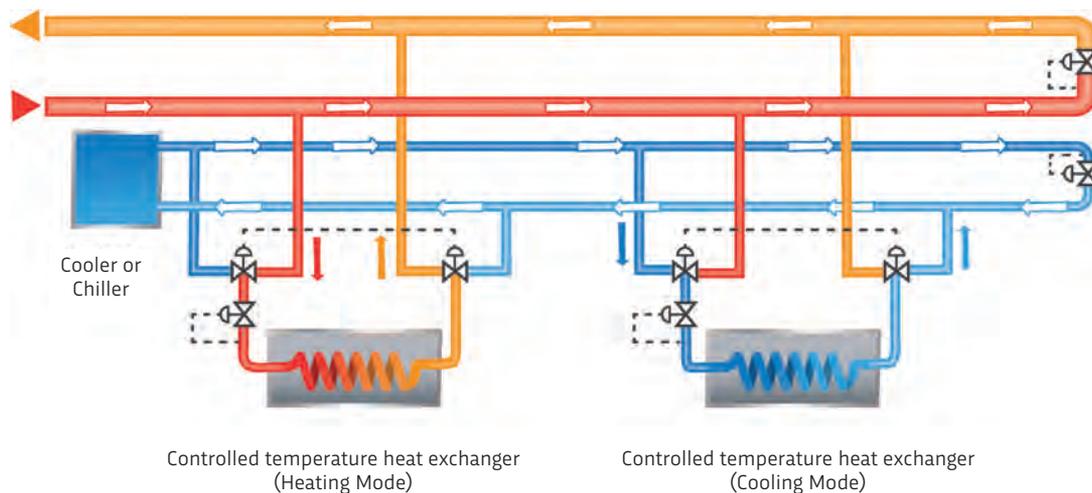
Multiple heaters can be installed on a single system and remotely controlled to match the demands of production. Automation is simple to apply with the latest controls able to provide remote monitoring of the complete process.

Where required, Thermal Fluid Heating can be integrated into VOC abatement technology from Babcock Wanson to offer a complete energy and environmental solution.

APPLICATIONS AND INDUSTRIES

- Paper & foil coating
- Stentoring
- Textile transfer printing
- Calendar setting & ironing
- Sterilising
- Printing & laminating
- Batch & continuous dryers
- Waste treatment
- Drying & curing
- Packaging

Heating and Cooling Systems



Heating and cooling can be combined in a single thermal fluid system

Combined simple, heating and cooling circuits operating independently within the main system provide for special applications which demand fast process times and very accurate control of temperature. Secondary pumps and individual coolers working together with the primary heating circuit at different temperatures can be installed to meet any particular process requirement.

Proven system design provides combined heating and cooling on a single system for exothermic reaction control or simply to maximise the use of a plant. Babcock Wanson thermal fluid systems offer fully integrated controls to ensure the process demand is met.



APPLICATIONS AND INDUSTRIES

- Controlled temperature heating & cooling
- Exothermic chemical reaction control
- Press & moulding processes
- Multiple independent variable temperature processes
- Chemical manufacture
- Pharmaceutical manufacture

Babcock Wanson Thermal Fluid Heaters with integrated gas, oil or dual fuel burners meet the needs of modern industry.

Our multi-pass fired Thermal Fluid Heaters have a long pedigree of both design and construction and are used world-wide in a diverse range of industries and with a wide variety of heat transfer fluids.

The overall design of our fired heater construction ensures stress free operation and ease of expansion of the heater coil and, where fitted, integral economiser; both key features for long equipment life. Their exceptional efficiency provides substantial environmental advantages and low overall emissions.

All Babcock Wanson Thermal Fluid Heaters are supplied complete with a fully matched burner and are factory tested for simple site installation. The complete range is available with all required ancillary equipment.

- **TPC-B series** from 116 to 6,978 kW output
- **TPC-LN series** from 291 to 5,800 kW output
- **EPC-ES series** from 1,163 to 6,978 kW output
- **EPC-H series** from 2,326 to 13,953 kW output

Contact us with your process heating needs. We offer free expert advice.

SERVICES



After Sales

Our extensive team of Service Engineers are fully qualified and trained to respond to any service needs related to your boiler house.



Boiler Refurbishment

We offer attractive refurbishment and upgrade services for all steam, hot water and thermal fluid boilers and all of your boiler house installation.



Maintenance Contracts

We offer a complete range of preventive and corrective maintenance contracts that can be tailored to your needs.



Replacement Spare Parts

We provide our customers with a stock of over 30,000 spare parts and guarantee the repair of all breakdowns with minimum delay.

Locations & Contacts

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