



FLEXITHERM™

Pasteurization

Application

FLEXITHERM™ is a process module designed for pasteurization of beer and other carbonated beverages. It offers accurate control of all pasteurization parameters to ensure a uniform and consistent product treatment.

Design

FLEXITHERM is a self-contained process module, pre-assembled and factory tested before delivery. It is designed for CIP and in compliance with food industry regulations, all components in contact with the process liquids are made of stainless steel with heat resistant seals. The system design provides sufficient pressure levels as to avoid gas breakout at all times during the pasteurization process.

The benefits of the FLEXITHERM are

- Developed in cooperation with the brewing industry
- Automatic control and “plug-and-play” concept ensures a minimum of site work
- Sanitary and compact design with low maintenance demand
- Stable and reliable operation that ensures gentle and consistent product treatment / pasteurization units (PU)
- Low hold-up volume in the PHE ensuring minimum loss of beer
- Glue free Clip-on gaskets
- Low energy consumption with up to 94-95% of heat recovery
- Ease of operation.

Working principle

FLEXITHERM is a plate heat exchanger (PHE) pasteurizer system used for eliminating or reducing the number of live micro-organisms in the product with the aim of improving microbiological stability and to increase shelf life of the product.

The required heat treatment is achieved through a combination of temperature and holding time.

This level of pasteurization is quantified as Pasteurization Units (PU) and calculated as follows:

$$PU = \frac{t}{60} * 1.393^{(T-60)}$$

t is the holding time in seconds and T is the pasteurization temperature in °C.



In the PHE, the cold, unpasteurized beer is heated to the pasteurization temperature in two steps. The first regenerative zone can account for as much as 94% of heating (and cooling) demand. Final heating is performed by the use of hot water which in turn is heated by steam through a separate brazed heat exchanger (BHE). The difference in temperature (delta T) between the hot water and product is less than 4°C.

Depending on selected configuration, the flow through the FLEXITHERM can continuously be adjusted in order to cater for variation in filling machine demand. As changes in flow will result in changes in the holding time, the pasteurization temperature must be adjusted to maintain a constant PU effect.

Recirculation of the product can largely be avoided by utilizing a Pasteurized Beer Tank (PBT). If the filling capacity decreases, the level in the tank will increase and the FLEXITHERM flow rate will be reduced accordingly. In case of increasing the filling capacity, the level in tank will decrease and FLEXITHERM will increase the flow rate accordingly.

As the holding time is a function of the flow rate, which in turn is proportional to the PU level, it is necessary to adjust the pasteurization temperature, in order to maintain a constant PU effect.

The FLEXITHERM module is fully automated with a PLC system controlling the plant operation. Selection of functions is done through easy and logical operator interaction via a colour touch panel / display.

Relevant process data displayed:

- Plant status
- Actual and set-point temperatures
- Alarm status
- Controller settings

A fail-safe system is monitoring the operation.

Specifications

Standard capacity

ranges, hl/h: 30, 75, 120, 200, 280, 500

PU range: 10-150 PU

Heat Recovery: 90-94%

Max working pressure: 1.6 MPa (16 bar)

Utility data: Depending on capacity range

Approximate dimensions and weight depending on capacity range, e.g.

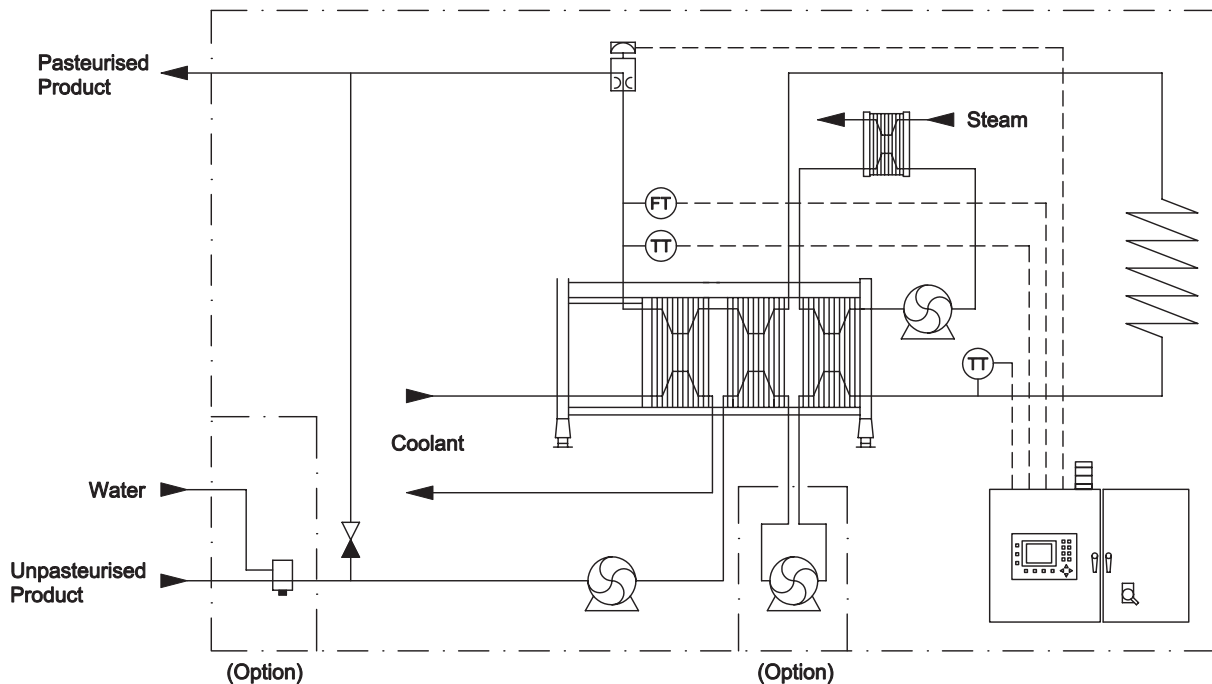
120hl/h L = 5.0m W = 3.0m H = 2.0m

500hl/h L = 8.0m W = 3.0m H = 2.0m

Extra equipment

The FLEXITHERM allows for easy adaptation to specific customer requirements such as:

- Variable flow design with PU-regulation - to adapt the pasteurizer throughput to filler capacity while maintaining constant PU
- Specific heat recovery demands
- Intermediate booster pump - to increase product safety
- Deaerated water flushing possibility
- Incorporation of pasteurized beer buffer tank system with pressure control and flow routing
- Remote control and communication with other control systems via data bus or digital I/O
- Chart recorder
- Integrated CIP.



How to contact Alfa Laval

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