

INTHERMO-LAB

“Less Trial Products”



Application

The INTHERMO-LAB is a pre-assembled skid mounted pasteurization/UHT laboratory scale unit. For heat treatment the liquid product such as milk, softdrink, juice, tea, syrup, food stuff, etc.

The ability of unit to assure a safe, finished product hinges on the reliability of the time-temperature-pressure relationships which must prevail whenever the system is in operation.

INTHERMO-LAB options can be adapted to cold filling, hot filling and aseptic filling.

The INTHERMO-LAB can include plate heat exchanger (PHE) or corrugated tube heat exchanger (THE), considered to the product type.

Working Principle

Prior to start the production, the system must be pre-sterilized by circulating pressurized hot water at high temperature for a time period. After sterilization, the system is cooled down step by step to production temperature.

The product can be filled into the product balance tank manually or transferred from the mix station automatically. The balance tank is unloaded with a positive displacement pump which provides stuffing pressure to

- *compact design, little space required*
- *simple installation, maintenance and commissioning*
- *sanitary design*
- *multi-configuration, versatile, flexible*
- *capable of operating with different products and capacity*
- *ease of operation with GUI*
- *low energy and operating costs*
- *low maintenance costs*
- *delivered as a pre-mounted plug-in unit*
- *product loss minimized*
- *functional test before delivery*
- *accurate temperature control*
- *PU control available*
- *gentle product treatment*
- *high quality components*
- *many options to suit specific process*

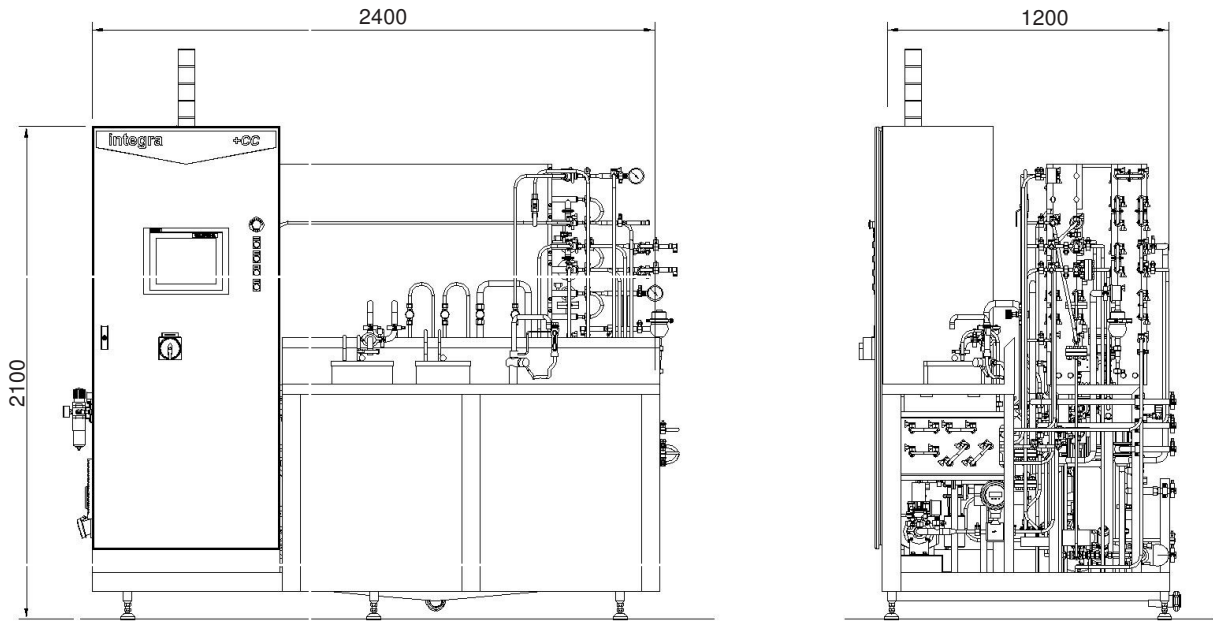
the high pressure piston timing pump (Homogenizer if included). The heat exchanger is utilized during the heating and cooling process. The product is pre-heated by hot water. Depending on selectable Pasteurization/Sterilization configuration, the product is heated to the pasteurizing/sterilizing temperatures by hot water or saturated steam and then held in the holding tube for the required time. The difference in temperature (ΔT) between the heating media and product is less than 2-5 °C. After holding, the product is cooled to the desired filling temperature using a combination of service water and chilled water as the cooling media. The product then flows to an aseptic surge tank and/or the filling station.

The unit is self cleanable in place by circulating the wash prepared in the balance tank over entire system. No any external CIP plant is required.

The unit has the following operation:

- Water recirculation
- Water Flush
- Sterilization
- Aseptic Water Circulation
- Production
- Product Recirculation
- Aseptic Intermediate Cleaning (AIC)
- Cleaning (CIP)

Depending on the INTHERMO-LAB model, the unit can be operated either by the PLC or manually.



Dimension in millimeter

System Information

Sizes and Capacity

Capacity range:
100 L/H normal, variable,
other on request

Treatment temperature:
150 °C maximum

Filling temperature:
4 - 95 °C

Regenerative effect:
0 %

Working pressure:
12 bar max

Minimum product re-
quired: 5 L

Product:
fluid and viscous product

Technical Data of Equipment in Unit (Basic Type)

- 2 balance tanks
- feed pump
- heat exchanger
- instrumentation
- set of actuated sanitary valves
- set of service valves
- hot water set
- 4 sec. holding tube
- complete internal piping ready for connection
- stainless steel frame
- built-in sink
- control module
- material in contact with product : 316L

Optional Equipment

- deaerator/deodorizer
- homogeniser (non-aseptic or aseptic)
- chart recorder
- feed back of valves
- adjustable hold time
- direct steam injection (DSI)
- infusion system
- CIP dosing unit
- extra instrument
- I/O communication to other machines
- air condition for panel
- PC operating station
- manual operate
- aseptic filling station
- chemical sanitizing
- special design for special product
- agitator for balance tank
- static mixer

Control Module

- stainless steel panel
- protection class IP65
- control voltage 24 VDC
- 15" TFT touch screen, 16K colors SIEMENS IPC with Windows OS
- CPU SIEMENS 315-2DP
- digital and analog inputs / outputs
- STEP 7 programming language
- USB printer interface
- Ethernet TCP/IP
- MPI or Profibus DP available
- dimension : 800 x 1800 x 400 mm (W x H x D)



Integrated Engineering
for Process/CIP Systems

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