



Continuous Thermal Sterilizers (CTS) for Growth Media

Process Description

In Continuous Thermal Sterilization (CTS), media is pumped through:

- Heat exchangers to rapidly heat it to process temperatures of 138-150°C
- An insulated hold tube to retain it at temperature for just a few seconds
- Cooling heat exchangers to rapidly cool it to the required finish temperature

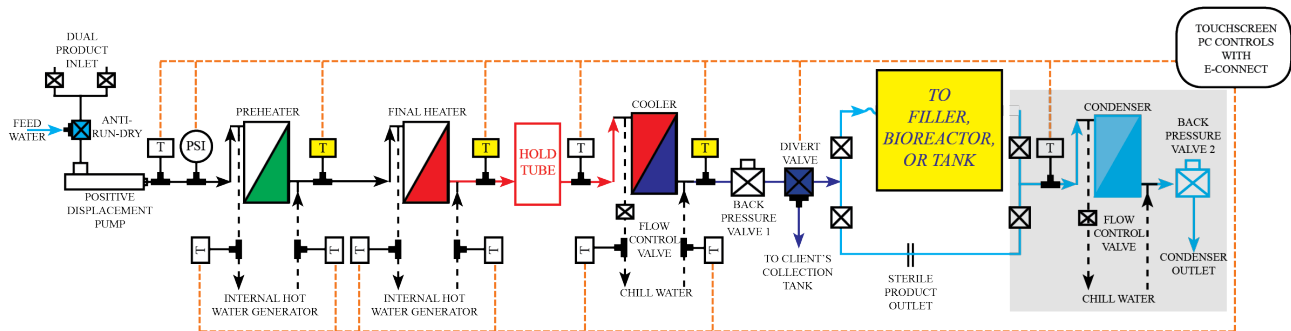
The resulting overall heat exposure of the media is a fraction of what it sees in traditional autoclave processes. Additionally, the heat exposure is completely uniform.

Benefits

- Produces High Quality/Highly functional media with no degradation due to variable or prolonged heat exposure typical of autoclave and large volume bioreactors.
 - Gentle process, can produce media failing in autoclave sterilization and scale-up.
- Produces Completely Uniform Media
 - No variation within batch or from batch to batch like from autoclaving
- More energy, time and manpower efficient than autoclaving.
- Scalable – scaling to larger or smaller batches is quick and easy
- Real-time process validation to cGMP requirements due process control and stability
- Highly flexible configuration can easily switch from one product to another. Ideal for R&D and rapid production environments.



Example Flow Diagram



Standard Features (Partial List)

These self-contained CTS processors includes all controls, pumps, heat exchangers, and valves needed to operate. Additionally, they include:

- Easy-to-use Automation, Controls, and Data Recording
- Full Sanitary Design
- Easy Clean-In-Place capabilities
- Pre-programmed Sterilize-In-Place Capabilities
- All stainless-steel construction
- Automated Divert Valve
- On-line, real-time support
- Free Training and Tech Support

Available Options (Partial List)

- Custom Flow Rates and Processes
- cGMP Package
- Chart Recorders, digital and electronic (25 CFR part 111 compliant)
- Custom Integration and Programming

Capacities/Flow Rates

Unlike batch processes, our CTS processors scale to your changing needs. They are available in a wide variety of capacities. We have standard designs with flow rates from 60 to 600 Liters/Hour. Other flow rates are available upon request.

Utilities

- Electricity
- Steam
- City Water
- Chill Water
- Drain
- Compressed Air