

# Category 3 Effluent Decontamination Systems (EDS)

Below: A batch sterilization system manufactured with a 2000 litre holding tank (pictured far right) with two 1000 litre tanks for sterilization (centre) and a separate steam generator (left).



## ***Bespoke designed Category 3 Systems for situations where Bio-Containment is imperative***

Astell manufacture a wide range of aqueous liquid Effluent Decontamination Systems (EDS) to service any Category 3 BSL facility. EDS are particularly suited for High Containment Facilities or High Risk laboratories.

As no two projects are likely to be the same, Astell Scientific offer comprehensive project management to guide you through the consultancy stages, including, but not limited to:

- Site surveys/technical advice and specifications
- Detailed proposals and technical diagrams
- Manufacturing
- Delivery and Installation
- Validation testing
- IQ/OQ Packages (Installation/Operational Qualification)

## ***Batch or Continuous Sterilization?***

Astell Scientific are able to manufacture both types of Effluent Decontamination Systems: Batch or Continuous. During the initial site survey or proposal stage, Astell Scientific will be able to advise you which system will be most suitable for your specific needs.

### ***Batch Sterilization***

This is one of the most commonly used methods. A system consisting of two or more tanks is installed, working on a run-standby system.

When the first tank has reached a preset level, sterilization will begin and the second tank will switch to collecting any further waste. Upon sterilization completion, the first tank is emptied and will sit idle until tank 2 is full and begins sterilization. In this way, collection of effluent is not delayed whilst sterilization is being performed in one of the tanks.

### ***Continuous Sterilization***

This is similar to batch, but often consists of a holding tank. Contaminated waste is stored until a preset level is reached in the tank. This then triggers the start of the process.

Once the process starts it will continue until the level of liquid in the tank is lowered to a shut down level or the flow of contaminated effluent from the facility stops.

# Category 3 Effluent Decontamination Systems (EDS)

Right: Dual screens allow individual control of each of the vessels



## Standard Features

- Colour Touch screen control with data archiving
- Faults and warnings/ analogue jacket and chamber gauges
- Double valving on effluent in
- Manual override
- Jacket heating and cooling
- Stainless Steel vessels (NB - Vessel material upgrade available)
- Pumped or non-pumped systems
- Fully programmable
- Integral or external steam supply
- Fully demountable for easy shipping and installation
- Ethernet monitoring via VNC viewer
- Radar level controlling - for accurate tank level monitoring
- Steam sterilizable retentive bacterial filter (1 per chamber)
- Inspection Man hole
- Primary Stainless Steel to first valve pipework
- Special design to eliminate the need for safety valves on the sterilizing chamber

## What do I consider when designing an EDS?

For examples of typical effluent that can be treated, please see the next section. The following issues must be considered when designing any effluent decontamination system:

- What volume of liquid requires processing per day and how will this be delivered to the plant?  
(See details of Batch and Continuous sterilization overleaf)
- Does the liquid contain any solids or chemicals?
- Is Category 3 (III) effluent being treated?
- How will the system be sited :  
Underground for gravity feed?  
Ground level and tank feed?
- Are there site drawings available?
- Is steam available or is a steam generator required?
- Are there any special requirements of the tanks and pipe work, e.g. 304/316 steel or another material?
- What temperature will the plant operate at:  
121°C or 134°C?
- What method of cooling is required?
- Who will carry out the installation?

## What waste can be treated?

Effluent types vary for each project, but typically treatable effluent sources will include:

- Tap water from sinks and wash basins
- Water from washroom facilities within a containment area
- Sanitary installations such as toilets
- Water from showers and other cleaning facilities in the containment area
- Any exhaust/water from sterilizers used within the Category 3 area

## Options and Upgrades

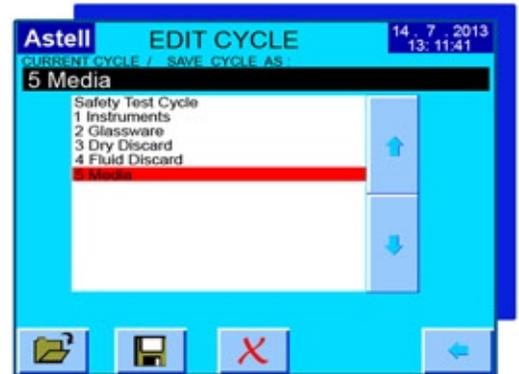
- Remote technical support unit (3G connectivity required)
- Higher grade vessel material for specialist applications
- Internal heating and cooling coil - to improve cycle times
- Double valving on all valves
- Hygienic instrumentation
- Cooling water recirculation - to reduce water consumption
- Agitation to provide better heat distribution and distribute solids
- Valve position monitoring
- Full Stainless Steel pipework

## Colour touch screens as standard

All Astell Scientific autoclaves, steam generators and effluent decontamination systems (EDS) incorporate the latest innovations in control system technology, providing colour touchscreen controllers as standard throughout the range.

The Logi control colour systems are an advance in sterilization control technology. Bringing together years of unrivalled experience, they produce a user friendly, fully automatic control system designed to meet and exceed the expectations of the most demanding laboratories and centres of sterilization.

The controller consists of a wipe clean touch screen measuring 122mm x 94mm and is based on an industrial PLC system, combined with a number of analogue and digital input/output modules. The controller software has been developed by Astell for the precision control of all our autoclaves and sterilizers.



## Standard Features

- Colour Touch Screen
- Icon Driven Menu System
- Simple Cycle Selection
- Continual Cycle Monitoring



### SECURE

- Data Archive for up to 5,000 cycles
- USB Connection for USB back up (requires additional lead)
- Multiple user access levels
- Multi-level password protection
- User log



### FLEXIBLE

- Multi programmable controller
- Programme new cycles
- Modify existing cycles
- Duplicate, modify & rename cycles
- Cycle jump facility
- Multiple languages
- Delayed start facility
- Hold warm facility (if applicable)
- Default to factory settings
- Input / output override



### INFORMATIVE

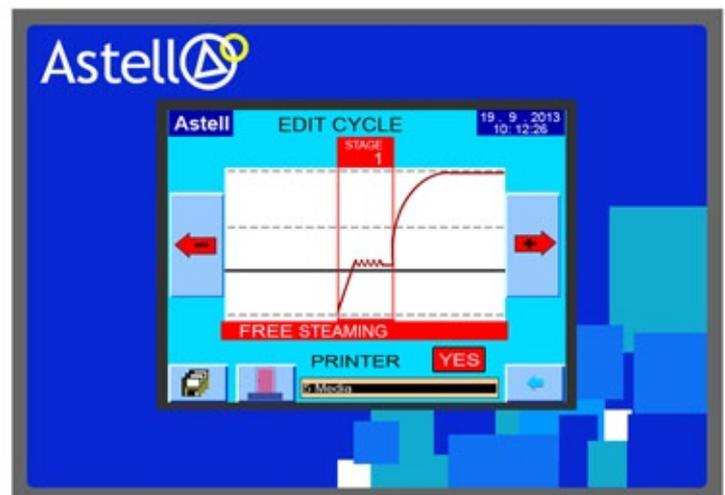
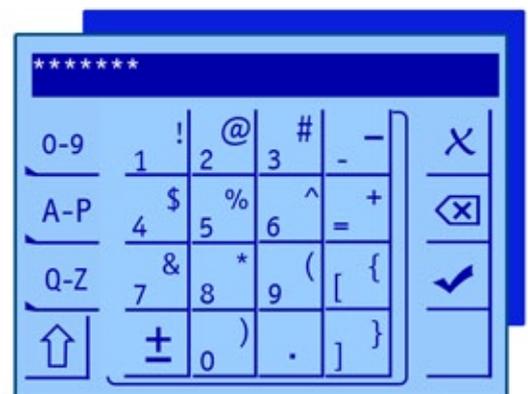
- Digital pressure / temperature display
- Cycle counter
- Stage timer
- Cycle timer
- Cycle header
- Stage display
- Pressure display
- Up to four temperatures displayed
- View input / output display
- Logs batch number
- Logs load number
- Print any cycle from the data archive logs (printer required)



### SUPPORTIVE

- Self-help tutorial
- Fault diagnosis
- Safety valve test cycle
- Machine service timer
- Fault history log

...Plus many more features can be added.



Pictured Right:

Electro polished pressure vessels come as standard on all our circular chambered autoclaves, allowing for easy cleaning.

