

Effluent Decontamination Systems

Batch sterilization for BSL3 waste

Designed to your requirements

Astell Scientific manufactures a wide range of aqueous liquid Effluent Decontamination Systems (EDS) to service any BSL3 facility. EDS are particularly suitable for high containment facilities or high risk laboratories.

As no two projects are likely the same, Astell offers 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/operation qualifications)

Batch Sterilization

Astell's effluent decontamination systems are designed to provide one of the most common methods of sterilizing high throughput effluent; batch sterilization. This is where a system consisting of two or more tanks is installed, working on a run-standby system (a single tank solution is also available).

When the first tank has reached a pre-set level, sterilization will begin and the second tank will switch to collecting any further waste. Upon completion of sterilization, the first tank is emptied and will sit idle until the second tank reaches a suitable level to begin its sterilization cycle.

In this way, collection of effluent is not delayed whilst sterilization is being performed in one of the tanks. The exact size of the tanks and the number required can be calculated based on the throughput, to ensure that the system is suited to an individual customer's exact requirements.

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 BSL3 area



Considerations when designing an EDS

The following issues must be considered when designing any effluent decontamination system:

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



Standard features

- Colour touchscreen controllers
- Analogue jacket and chamber gauges
- Double valving on effluent input
- Manual override
- Jacket heating and cooling
- Stainless steel vessels (grades available)
- Pumped or non-pumped systems
- Integral or external steam supply
- Fully demountable for easy shipping and install
- Radar level controlling – for accurate tank level monitoring
- Steam sterilizable retentive bacterial filter (1 per chamber)
- Inspection hole
- Primary stainless steel to first valve pipework
- Special design to eliminate the need for safety valves on the sterilizing chamber

Options and upgrades

- Remote technical support unit (contact us for details)
- Higher grade vessel material for special 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



Touchscreen controller



Stainless steel pipework (optional)



Pressure gauge



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