

Stilmas Multiple Effect Stills



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Stilmas multiple effect stills are designed for the production of distilled Water for Injection that meets the latest requirements of the international pharmacopeias including USP, EP and JP. The multiple effect modular design offers a wide choice of options with differing energy recovery characteristics, allowing optimum payback times.

Standard models range from 60 – 22,000 l/hr production

MS Still Main Features

Many features make the Stilmas Multiple Effect Stills amongst the best available; for example:

- *Rapid start up - distillate is produced after only a few minutes using the thin falling film evaporation principle.*
- *High performance and energy savings due to the well designed and constructed condenser/evaporators and heat recovery systems.*
- *Up to ten effects for the maximum possible energy efficiency*
- *High flexibility. Output rates can be ramped down by 30% given the option of modulated control of plant steam and condenser coolant.*
- *Simple and clean mechanical construction with a baffle free decontamination chamber – no welding, minimal maintenance required.*
- *Low velocity gravitational separation guarantees distillate purity*



Operating Principles

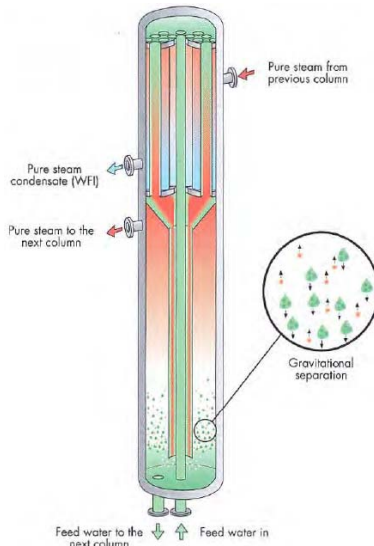
Endotoxin Reduction:

A unique and careful design of the decontamination chamber allows the highest performances in terms of endotoxin content reduction. The gravitational separation system is a simple and extremely effective process for the separation of contaminants.

A unique and careful design of the decontamination chamber allows Stilmas to guarantee the highest standards of endotoxin reduction. Feedwater spiked to artificially high endotoxins levels was used to demonstrate its capability of reducing endotoxins from 2500 Eu/ml to 0.25 (Log 4)

Multiple Effect Design:

Each effect consists of a tube heat exchanger on top and a decontamination chamber below joined by a flanged connection which also has the function of support allowing the column to expand without restraint.



Construction Characteristics

The multiple effect still is made completely of AISI 316L stainless steel. Supporting frame is epoxy-coated carbon steel as standard (AISI 304 option)

The standard finishing of the active surface is pickled and passivated. Mirror polishing to 0.6µRa is optionally available, as is electropolishing.

Heat exchangers and condensers are shell and tube type, double tube sheet is used where contamination of the distillate is possible

The Stilmas range also includes electrically heated units. In these the first stage is fitted with electrical heaters made in a resistant alloy.



SteriTech

Stilmas Equipment

- Pre-treatment
- Purified Water
- Multi Effect Stills
- Vapour Compression Stills
- Pure Steam Generators
- PS & WFI Combinations
- Storage & Distribution Systems

Fedegari Equipment

- Saturated Steam Sterilisers
- Counterpressure Sterilisers
- UltraWashers
- Dry Heat Sterilisation
- Pathogen Sterilisers
- Combined Units

Fedegari Autoklaven

- Laboratory Sterilisers

Fedegari-Bio Com Equipment

- Low Temperature Surface Decontamination Stations
- Laminar Flow Carts
- Isolators and Cleanroom Contamination Controls

Bano Equipment

- Stainless Steel Cleanroom Furniture
- Specialist Cleanroom Equipment

SteriTech Limited

- Complete Turn-Key Projects

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1 Oxted Chambers
185 Station Road East
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Stilmas Multiple Effect Stills



MS Still - COMBI

SteriTech Services

SteriTech, like our suppliers are solely dedicated to the regulated pharmaceutical sector. This enables us to fully understand not only the quality of performance required, but the documented evidence of all activities.

Project Management

A dedicated Project Manager follows each sale through to OQ handover. Liaising with customers, suppliers and field operations team to ensure effective project delivery.

Project Sitework

From our local highly trained team offering

- Installation Assistance
- Start-up & Commissioning
- SAT, IQ/OQ
- Calibration
- Thermal Mapping
- Cycle & Process Development

After-Sales

Full life-time local support for equipment including

- Full Training Packages
- Technical & Process support
- Spare parts supply
- Preventative Maintenance
- Calibration
- Routine Validation
- Upgrades and revampings

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The innovative MS Still– COMBI integrates a Multiple Effect Still and Pure Steam Generator into one system allowing for the possibility of simultaneous production of WFI and Pure Steam in different capacities and ratios.

The first column of the COMBI unit is a Stilmas thermo-syphoning PSG generating pure steam at a constant pressure. The following columns are those of a standard Stilmas still, with thin falling film evaporators. The PSG is sized to always meet the steady demand of the multiple WFI effects, plus the additional fluctuating demand for pure steam. Pure steam consumption does not detract from WFI output

The size of the PSG and the number of effects required for WFI production are customized to the requirements of the end user. This is an extremely flexible system.

Options/Advantages of MS Still - COMBI

All conventional multi-effect stills can be built to supply around a third of their rated output as pure steam from the first stage, with no WFI produced at this time. Where more steam is needed, the first column can be simply a larger version of the rest of the columns. This is adequate for steady state steam demands; however the instant boiler technology used runs properly only in the range 75% - 100% of its max rated capacity; even within this range pure steam output pressure cannot be guaranteed.

The advantages of the Stilmas COMBI unit stem from the use of a responsive thermo-syphon boiler as the first (steam-generating) stage. This offers a far wider range of pure steam output levels at the required pressure.

Additionally, combined units using instant boiler first stages must use a full feed water feeding unit to achieve inner pipe wetting. This is sufficient when WFI is being produced but not sufficient during the production of pure steam.

The Stilmas COMBI steam generator/multiple effect still applies the optimum technology for each service need and is the most flexible unit available.



SteriTech/Stilmas Customer Support

SteriTech and Stilmas have been partners for over 20years. SteriTech can offer customers full support:

Feasibility studies

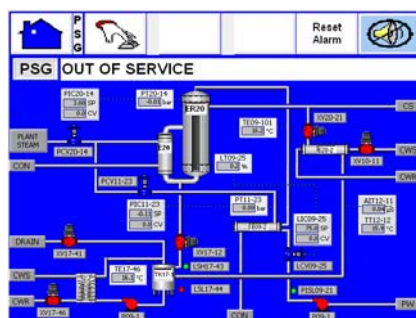
Advice and guidance to machine specifications

Full project management

DQ/HAZOP expertise

Sitework/Preventative maintenance from full qualified, experienced, FAS trained local engineers

Support for the lifetime of the equipment



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