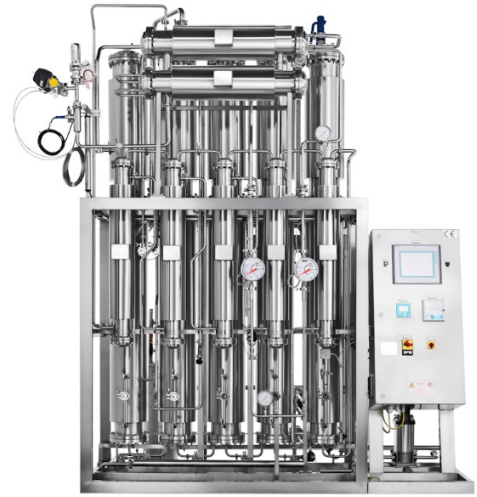


# Multi-effect Pharmastills



Stilmas industrial company has engineered the Multi effect pharmastills that produces distilled Water for Injection that meets the latest requirements of the international Pharmacopeias including USP, EP and JP. The pharmastill modular construction offers a wide choice of configurations allowing optimum payback times. Standard models range is from 60 to 20.000 lts/h output.

## Main features

The principle features of the stilmas Multi-effect pharmastills are:

- The WFI is produced after only few minutes from switch on.
- Condenser/evaporator and heat recovery system is the best performance in terms of energy saving .
- Without any plant modification can we produce with a variation of capacity to 80%.
- The unique purification system is the principle for guarantee of distillate purity.
- Extremely limited maintenance and log live due the simple and clean mechanical construction.
- Low wastage as blowdown and Degassing taken from the last column is the most efficient method.

## Operating principle

The MS-HPS is based on the “Thin Falling Film” and Multi stage principles ingeniously combined.

### Endotoxin reduction

A special design of the decontamination chamber allows STILMAS to grant the highest performances in terms of endotoxins content reduction. The gravitational separation system has proven to be extremely simple and effective.

Increasing endotoxin levels in the feed water has proven the capability to reduce endotoxin level by log 6. ( 1,000,000 times)

### Pharmastill effect design

Each effect consists of a demountable tube heat exchanger on top, feeding pressurized, evaporated feed water to a separation chamber below. Pure dry steam rises to the outlet at the top of this chamber; entrained impurities fall back to the bottom, feed water for the next column and ultimately, reject blowdown. A flanged connection allows the column sections to expand without restraint.

## Construction

The plant is completely made in AISI 316L stainless steel, the finishing of the active surfaces are pickled and passivated and mirror or electro polishing (to 0,6µR) can be made on request.

Product (WFI) contact parts are mechanically polished and piping is orbitally welded.

For the best possible inspection, the decontamination chamber is totally empty.

The absence in this area of welding dramatically reduce the risk of corrosion, for a very long expected life.

Pre-heaters and exchanger are of the shell and tube type.

The general construction design, coupled with the described decontamination process, ensure a very high flexibility in equipment layout.



## Contact

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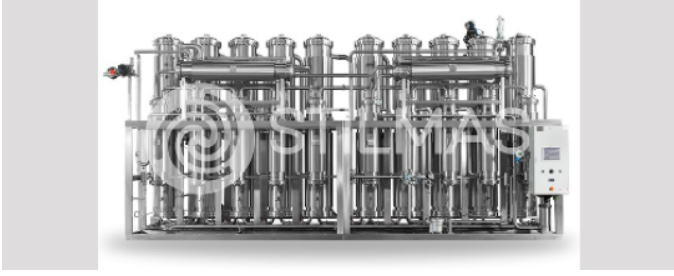
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## Pharmastills Multi-effect Technology



### MS-HPS

The Pharmastill modular construction offers a wide range of configurations allowing optimum payback times. Standard models range from 60 to 22.000 lts/h output.



### MS-HPS

The Pharmastill MS-E has been designed by Stilmas for applications in case industrial steam is not available.



### MS COMBI

The innovative Pharmastill MS – Combi integrates into one system the possibility of simultaneous and independent production of WFI and pure steam in different capacities and ratios.

Pharmastill MS COMBI is able to simultaneously generate Pure Steam and Water for injection at different rates and capacity.

