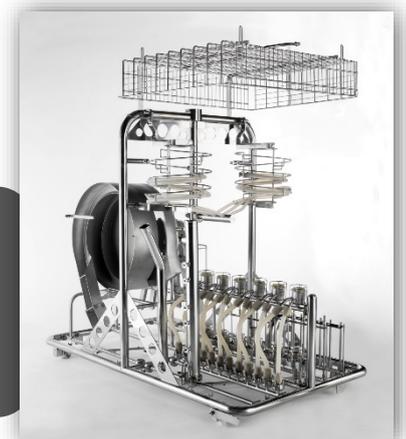


FSW ECO-STEAM WASHERS

*Powered by Thema4
process controller*



WITH FULLY
MODULAR &
CUSTOM-MADE
LOADING RACK





ECO-STEAM WASHERS FSW

Fedegari high-performance GMP Steam Washers capitalize on the experience acquired with the FOWS-series of washer-sterilizers in the pharmaceutical market. These machines represent a cost-effective solution for the highest performances. Fedegari steam washers, in fact, use a steam generator to optimize performances reducing operating costs. The FSW state-of-the-art modular customizable rack can be easily adapted to every specific load configurations.

Extreme washing performances

A close loop piping recirculates wash water without the need of a buffer tank and steam injection during pre-washing softens most of the soil thus reducing the detergents typically needed as well as utilities and energy in general. As every other process equipment manufactured by Fedegar, the FSW-Washers run on Thema4 process controller. A conductivity meter controls the process to terminate the washing/rinsing Phase when the desired setpoint is reached. A 0,22 µm Hydrophobic sterile filter cartridge allows for sterile air injection for improved drying. All these unique and original eco-friendly solutions make the FSW-Washers the most cost-effective machines in this category.

Water vs. steam

In comparative tests carried out by Fedegari R&D laboratory, steam has proven to be more effective in reducing microbial contamination. Disinfection through steam is the recommended treatment for achieving higher bio-burden log reductions.

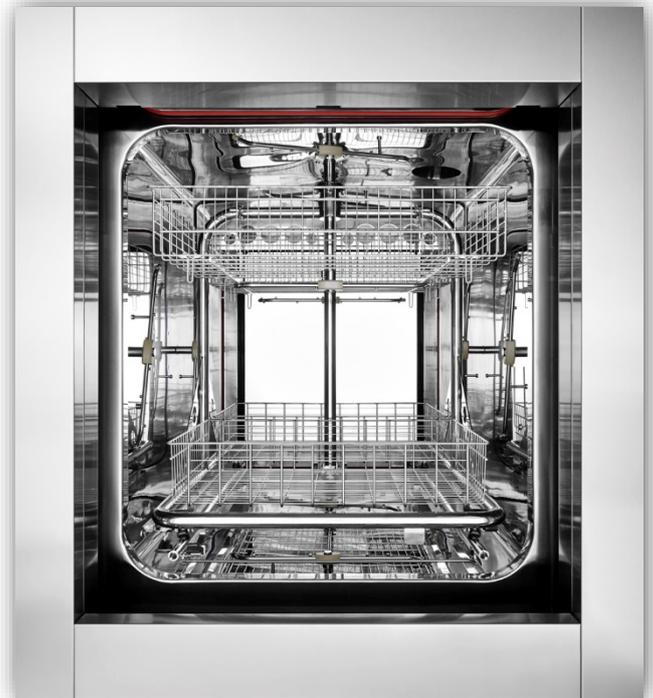
Washing system flexibility

A fully modular loading rack is designed for every standard load configuration and the spray pattern is optimized thus improving process validation. Operation is single and reliable, cycle after cycle. The FSW-Washers are designed to prevent any water stagnation by means of dedicated draining points.

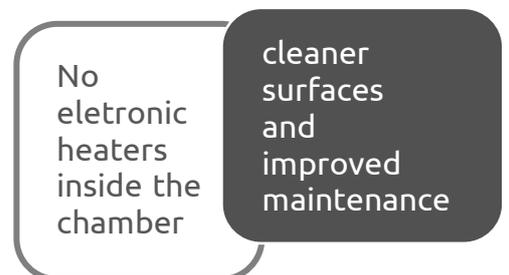
An array of options

To meet even the most demanding requirements every FSW-Washer can be configured with various options like:

- Conductivity sensor installed on external water circulation circuit
- The additive is initially dosed up to a specific quantity (ml) selectable by a programmable parameter
- During the washing, a refilling of additive can be performed up to a specific conductivity value checked by the conductivity sensor
- A pressure transducer detects possible failures or malfunctions of the circulation pump or the spray nozzles.



Steam injection



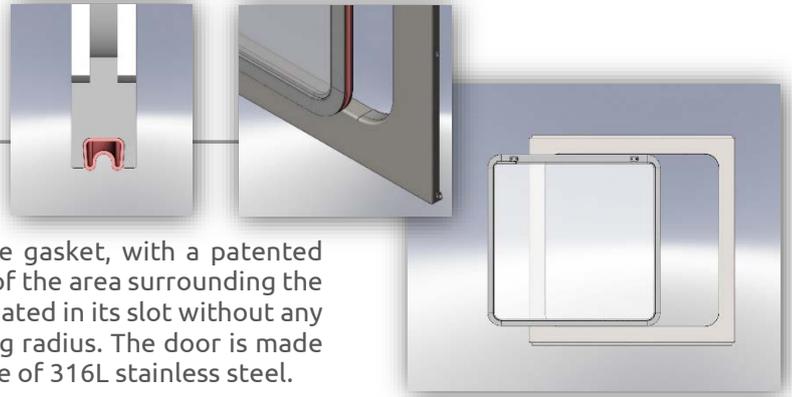


ECO-STEAM WASHERS FSW

Technical features

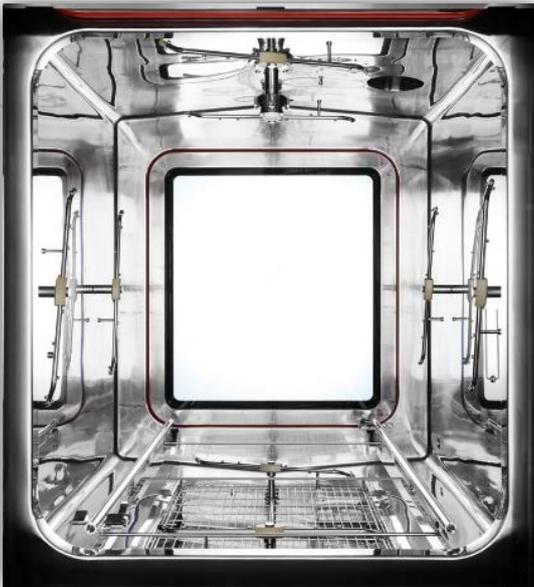
The door

The door is equipped with a silicone inflatable gasket, with a patented design to ensure a perfect washing and drying of the area surrounding the profile. Note the tubular shape of the gasket seated in its slot without any locking device; the corners have a wide bending radius. The door is made of glass with the perimeter reinforcement made of 316L stainless steel.



The chamber

316L stainless steel rotating arms located on the chamber ceiling, bottom and lateral walls.



Alarms

LED lamp inside the chamber changes the color for signaling alarms during operations.

Automatic connection to the internal trolley support: hook-up



Built-in steam generator

The machine can be equipped with a built-in steam generator.

Real-time conductivity monitoring and 4000 **TOC SENSOR** METTLER TOLEDO available



Fedegari is available to develop turn-key integrated solutions for every application requirement.

Read more at fedegari.com

What makes FSW-Washers unique?

- Piping with circulation pump for close loop washing **without any buffer tank**
- No heating elements in the chamber, **only clean steam**
- Fully modular, custom-made and **validated cleaning equipment**

► CLEANING PROCESS OPTIMIZATION
Full customer support



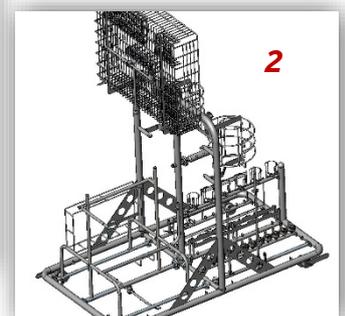
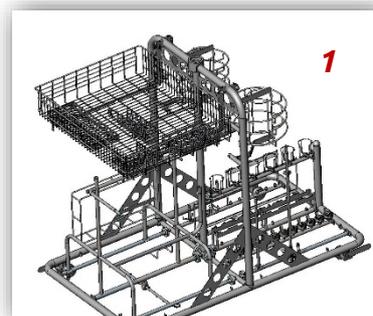
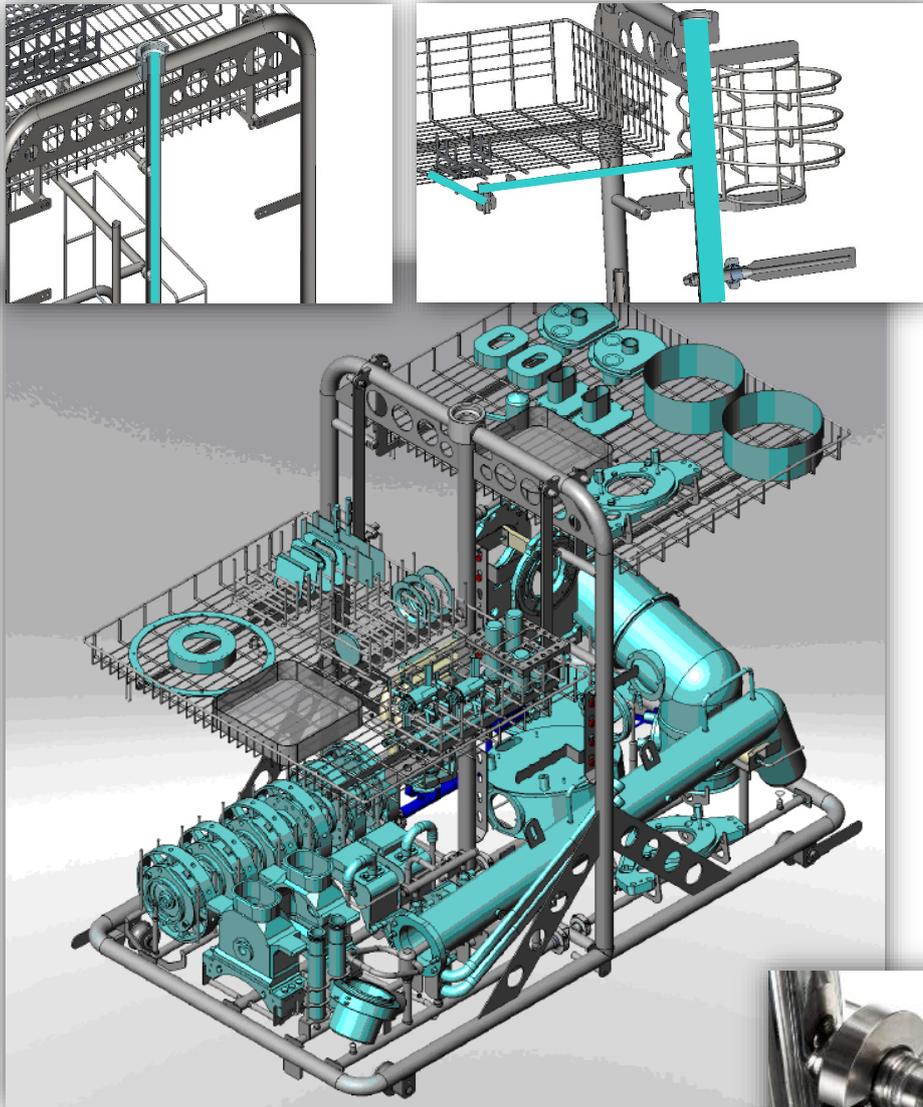
ECO-STEAM WASHERS FSW

Washing Technology

The piping allows, for the selection by dedicated valves, either to drive the water flow to spray bars, internal trolley or to all washing systems, to maximize the washing action even in the case of reduced availability of water flow rate.

The washing devices can include:

- nozzles
- spray arms
- rotating spray balls
- water blades
- orifices
- others



DESIGN FEATURES	FSW
Pressure Vessel	NA
Material of the door	SS + Glass
Piping	316L Sanitary
Drying	Blower, heater and HEPA filters
Filter Integrity Check	DOP
Conductivity Meter	YES
Process Controller	Thema4
Integration with other machines/equipments	Laminar Air Flow, robotic systems, FCIS Isolators and others