

Ludovica Model

Spray Processing Equipment

www.spm-semiconductor.it

Ludovica Model is a spray processing equipment. It can be configured in different version tanks to its modular development.

This equipment is composed by a PTFE chamber for double 8" inch carriers processing.

A *servomotor* rules the rotation of the internal rotor and that permits a perfect uniformity of wafer attach.

Surrounding the process chamber are located *PFA nozzles* that spread out chemicals for the process phase; H2ODI for the cleaning phase and HOT N2 for the drying phase.

Dedicated *chemical buffer tanks* (up to 4) are located on the bottom part of the equipment. Each buffer tank has a dedicated hydraulic circuit that includes:

- **Metal free valves**
- **Magnetically levitated centrifugal pump**
- **10" filter housing**
- **Ultrasound flowmeter**

DELIVERY TIME: 2 working months.



The equipment is ruled by an OMRON PLC completed with high performance YASKAWA servo-driver to control the chamber rotation servo-motor.

There is a 15" *industrial PCs with touch screen* to control the equipment. HMI software is developed by SPM engineers using *Progea Movicon*. Optionally it can be installed a *secondary PC on rear section for maintenance operations*.

| Features | Performance (MIN) |
|------------------|-------------------|
| Up-time | 99.98% |
| MTBA | 3 hrs |
| MTBF | 168 hrs |
| First Pass yield | 99.99 % |

Front-end | Processing

10 February 2016



Special Plastic Module for
semiconductor industry

Ludovica Model

PROCESS CHAMBER

Ludovica Model has the capability to process two 8" carriers.

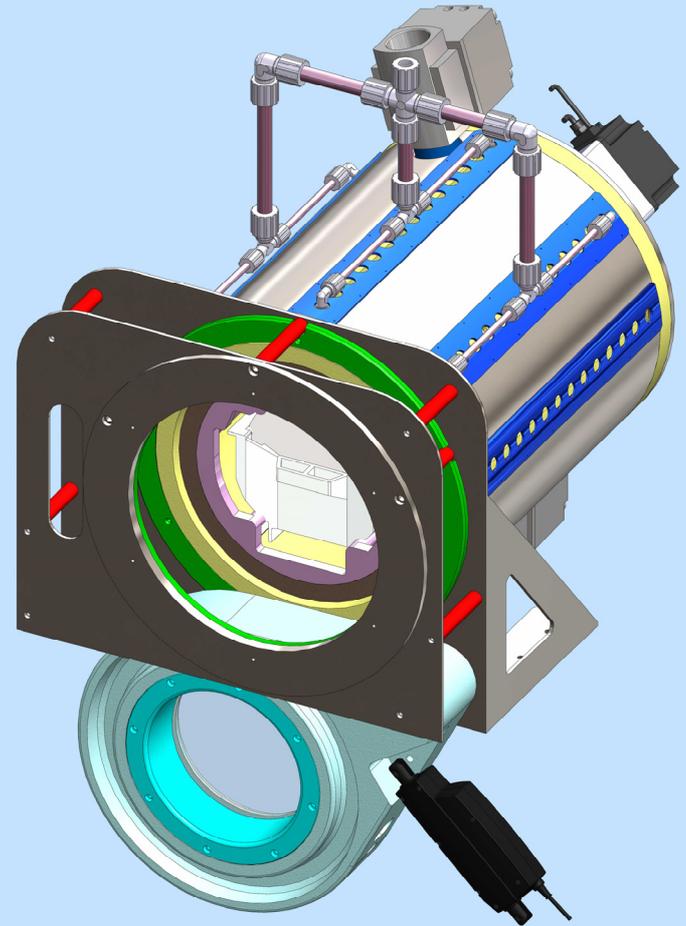
The main chamber is realized in PTFE. Fully fluorinated fluoropolymers, such as PFA and PTFE are electrochemically, biochemically, enzymatically, and **chemically virtually inert.**

An *automatic rotary cover* is installed on the front part of the chamber. This cover moves electrically with a linear electric actuator. A *special pneumatic sealing* ensure the perfect tightness of the process chamber.

Inside the main chamber is located the rotor that is made in *SUS316L material*, covered by an innovative *PFA coating* to warrant **absolute absence of corrosion and contamination.** Custom designed PTFE insert allow to fit perfectly the PFA process carriers.

The rotor system maximum speed is 3000 rpm. This speed ensure a perfect and fast wafers and carriers drying. From *recipe settings it's possible so setup different processing steps with different chemicals and speeds.* The servomotor is installed directly to the rotor eliminating the needs of belt and pulleys.

The design of the chamber is innovative and permits to process wafers also in static mode.



On the automatic cover is installed a **fiber optic spectrometer** with an halogen illuminator to detect the process end point reading the first wafer light response.

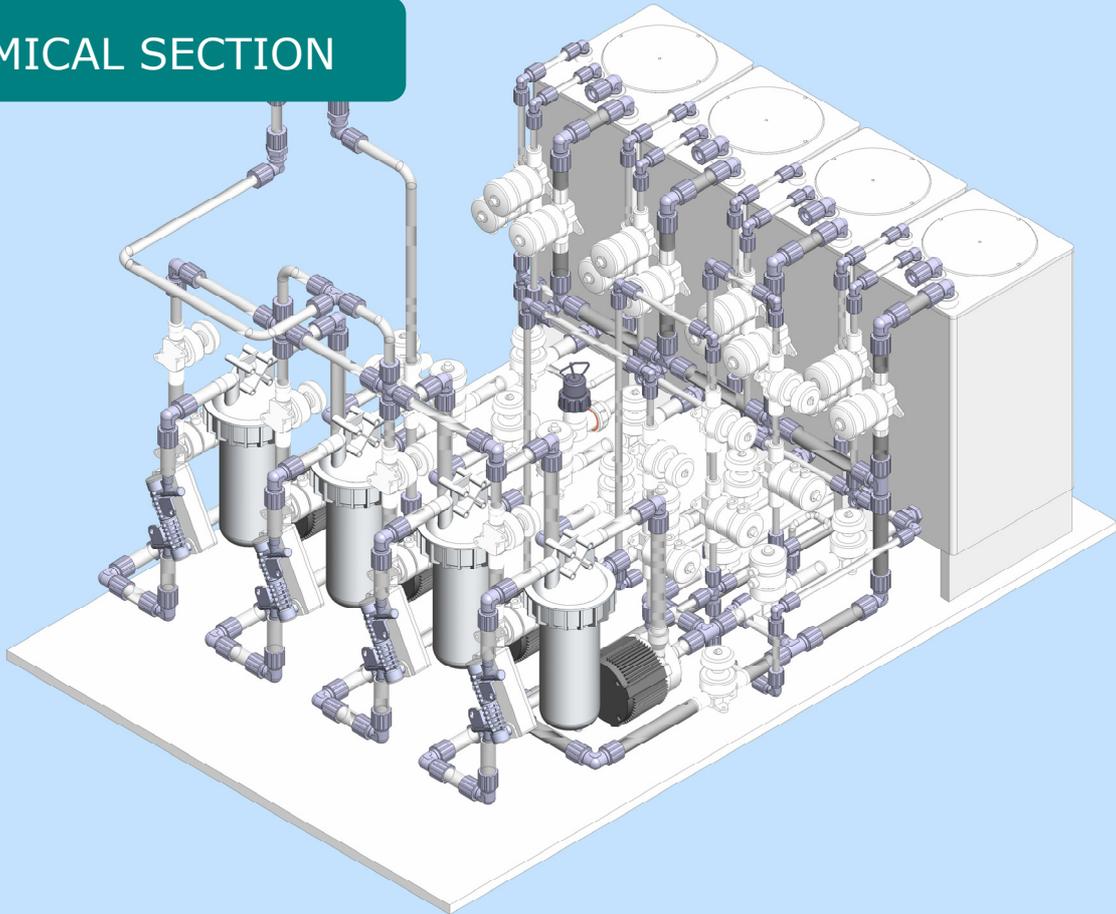
High purity PFA nozzles are installed into the process chamber. The design of the nozzle housing has been studied to permit nozzles cleaning/changing from the outside of the chamber with an extreme easy access.

The process chamber is surrounded by a SUS316L cage that has the task to maintain the extremely rigid the PTFE structure that otherwise will be easily deformed.



Special Plastic Module for
semiconductor industry

CHEMICAL SECTION



Several configurations can be applied to Ludovica Model. Materials, recirculation, filtration and thermoregulation are some of option that can be installed.

Our standard configuration foresee 4 buffer tanks. Each buffer tank is equipped with:

- Analogue Level sensor (**constant monitoring of solution level** from the touch screen)
- **Heating and Cooling elements** to maintain the solution working temperature
- **Magnetically Levitated Centrifugal Pump**

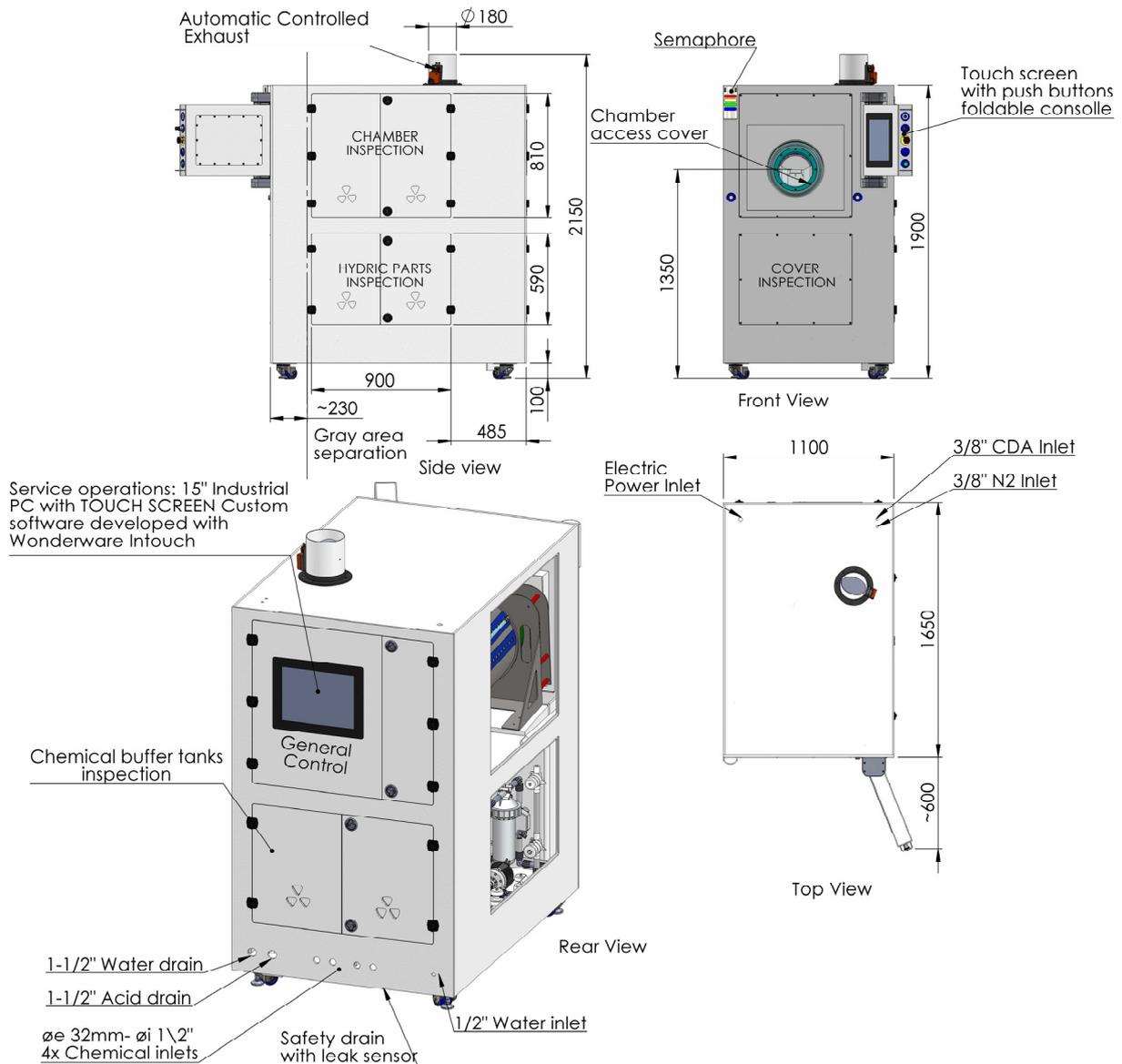
- **Metal free valves**
- *10" PFA filter housing*
- *Ultrasonic flowmeter* to check constantly the recirculation flow.
- High Accuracy **Temperature sensor**
- *PFA FLARETEK fittings and pipings*

OPTIONAL: Chemicals dosing system.

A general safety tank has the scope to contain accidental leakage. A specific *leak detector capacitive PTFE sensor* is installed on the catch basin.



Ludovica Model



Special Plastic Module for
semiconductor industry

S.P.M. s.r.l.

Address: Via G.Galilei 8, 20876 Ornago (MB) - ITALY

Phone: +39 0396010152

Fax: +39 0396011434

Mail: amsala@spm-semiconductor.it - *Ambrogio Sala*, President

Web: www.spm-semiconductor.it