

# Single Wafer Lift Off

## Process Module

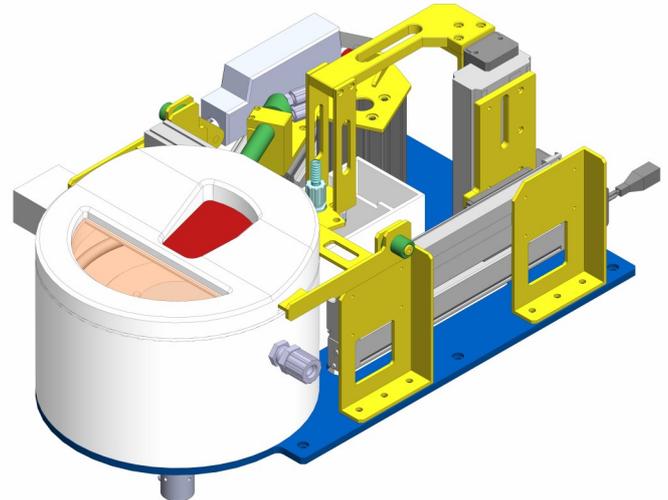
[www.spm-semiconductor.it](http://www.spm-semiconductor.it)

The lift off tank we projected is entirely realised in PTFE.

Dimensions: diam.360mm x 200mmH + cover diam. 360mm x 50mmH.

The tanks includes:

- Steel plate with epoxidic shield, for components assembly. Dimensions: 500x800mm.
- Rotational plateau with **brushless servomotor** (adjustable speediness till 5000 rpm max), with vacuum for wafer hold—750 kPa
- **Automatic cover** with electric actuator; integrating automatic door opening and Megasonic transducer passage
- **Megasonic transducer** at 1 MHz frequency, model Megpie 100-150mm V3 PROSYS – Sapphire Peek vert FTG;
- **Two axis programmable, electric manipulator** for Megasonic transducer movement from home position; H2ODI recirculation inside the tank with continuous overflow
- H2ODI **nozzles** automatic movement; programmable electric axis
- **DMSO solution inlet at controller temperature**; solution comes from the buffer tank, by PNE pump



- **Buffer tank for DMSO**: heating element, PT100, level control, overflow, valve, PNE centrifugal pump from 2 lt. Till 10 lt. min
- Automatic DMSO refilling from bottle, by PNE pump

This system is controlled by PLC Omron. Electric and pneumatic components by SMC.

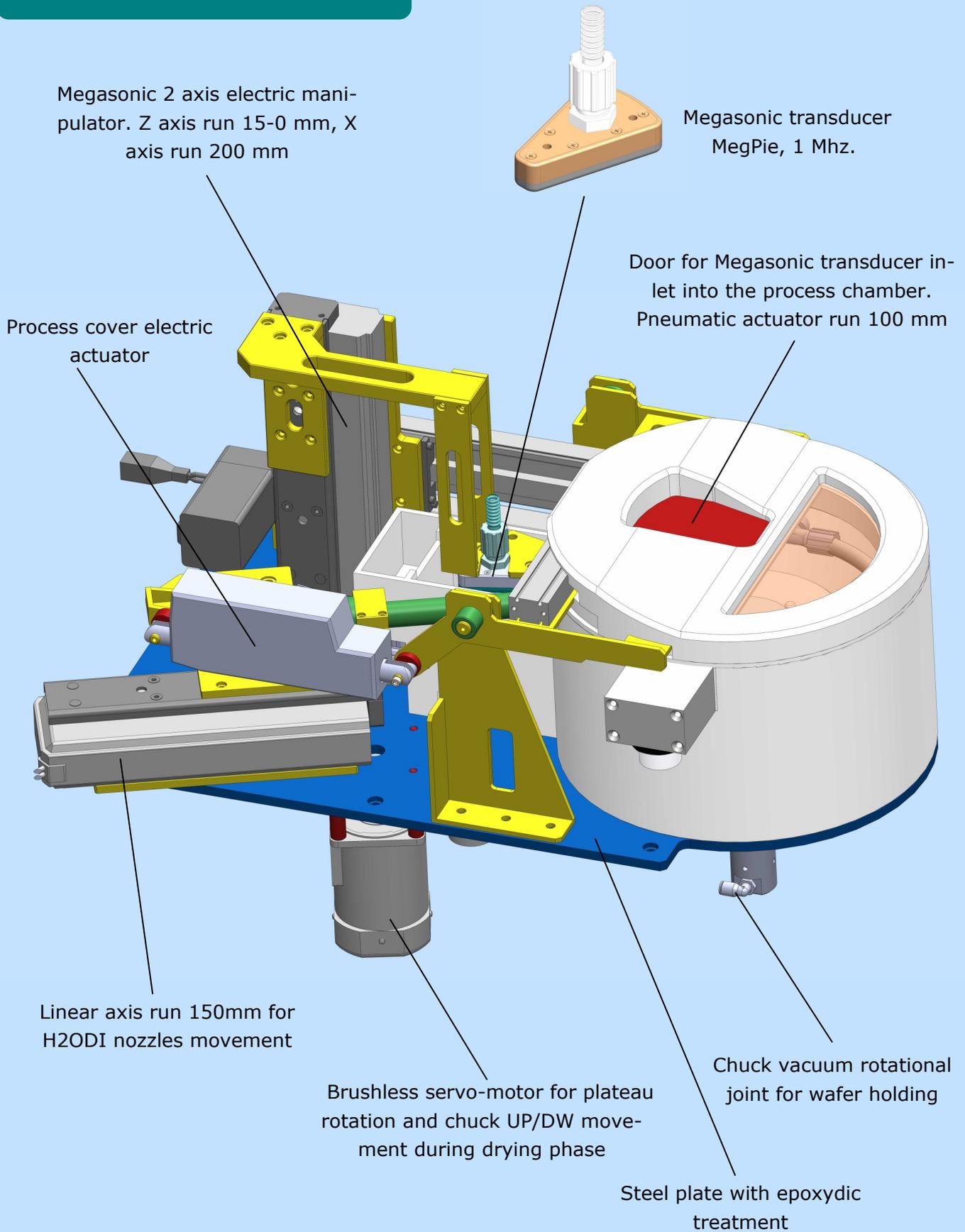
Valves and hydraulic parts are **metal free**, realised in PFA by Gemu.

OPTIONAL: HMI realised by **industrial pc with 15" touch screen**.



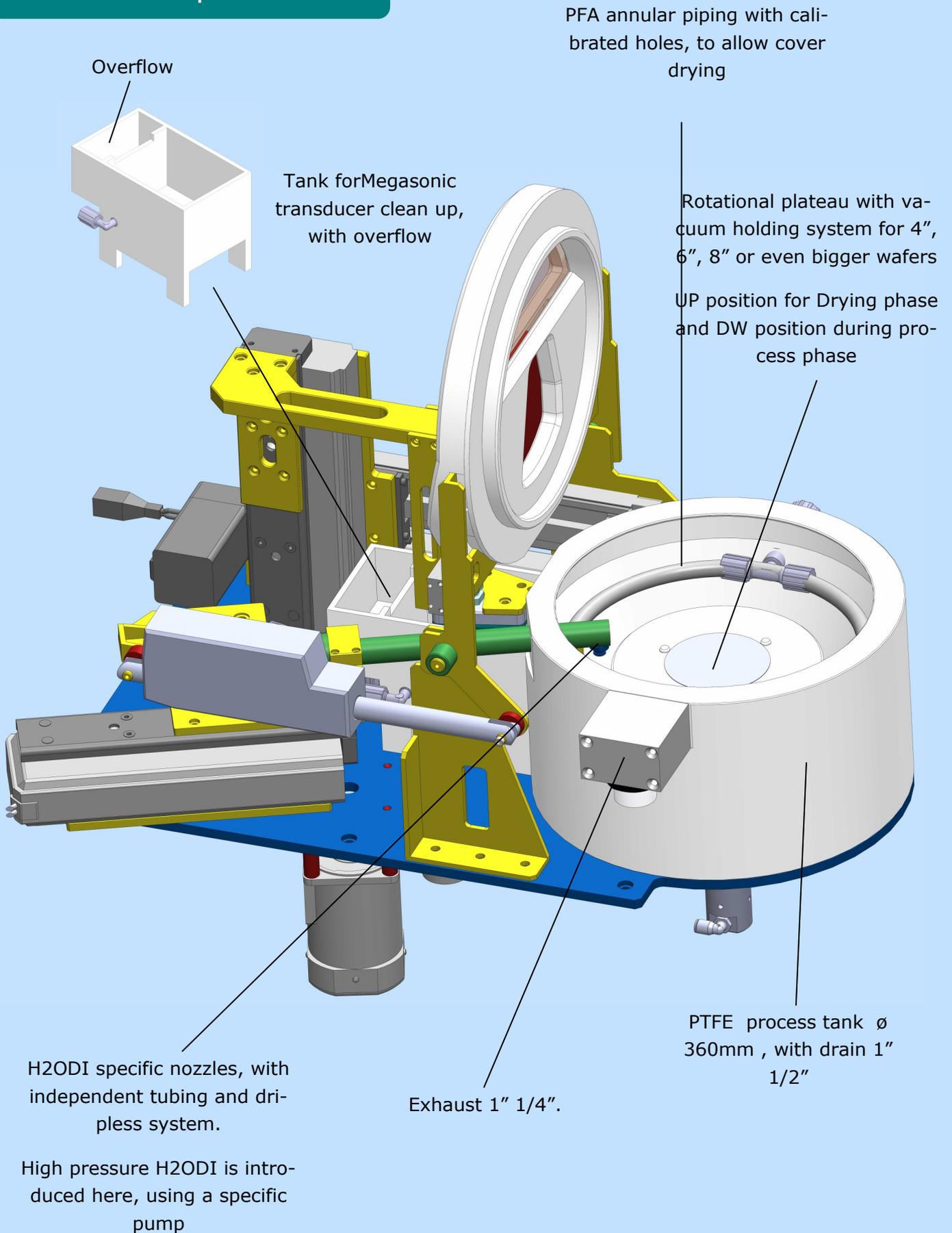
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## Automation Details



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## Process Components



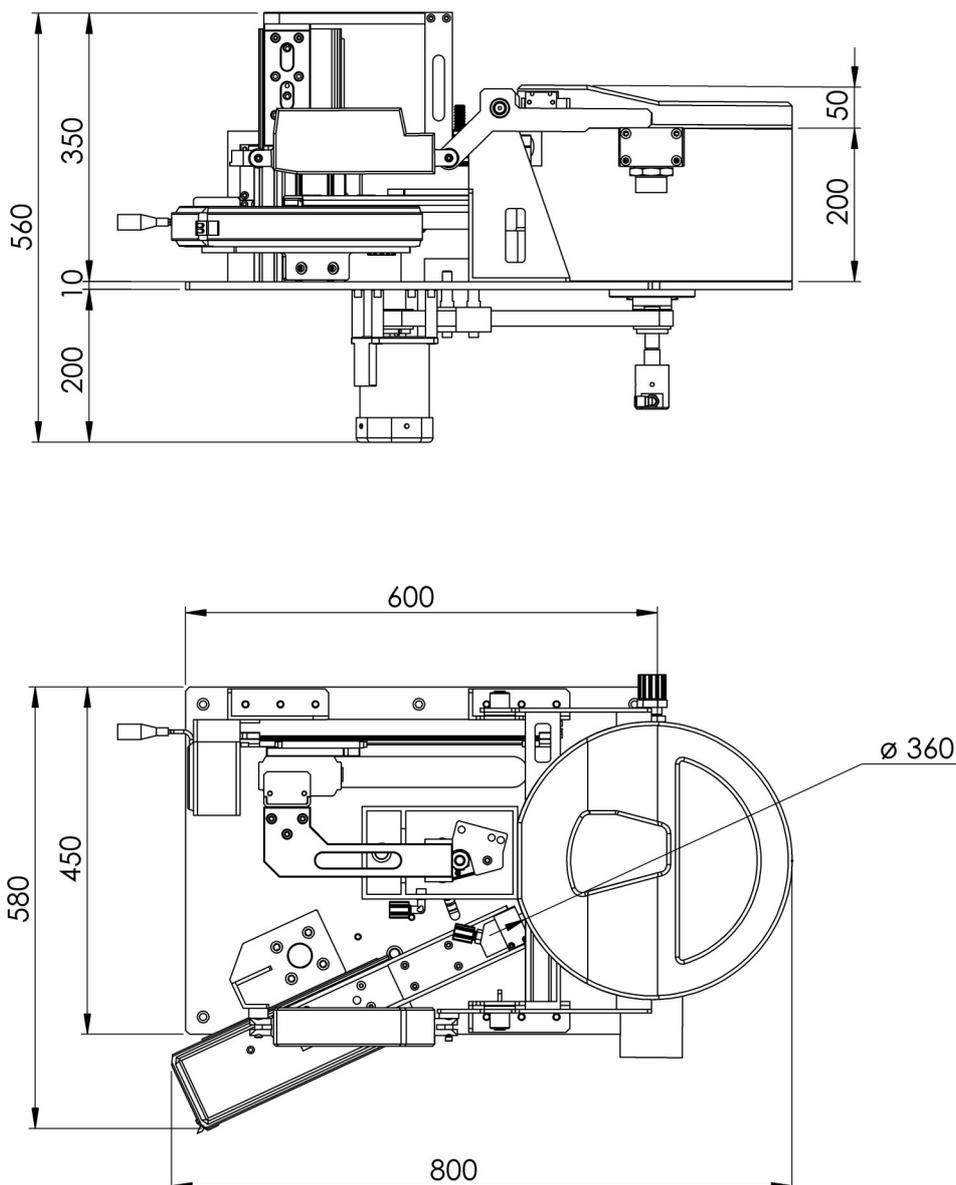
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## Typical flow chart

1. Cover opens (manual, semi-automatic, or automatic versions)
2. Wafers are deposited on the specific chuck, equipped with vacuum system (in manual version or in automatic version, using the robot arm)
3. Cover closes
4. DMSO solution inlet, by means of specific pump, for the set time. Megasonic plate is almost in contact with the wafer
5. Process stop with shut down of DMSO solution arrival
6. Megasonic stop
7. Highly pressurised H<sub>2</sub>O<sub>2</sub> starts. Separate drain with specific drawer for metallic parts separation
8. Process repeat: 2 process steps, related rinse up, with different times and frequencies
9. Final drying with H<sub>2</sub>O<sub>2</sub> and chuck rotation in centrifugal version
10. Wafer holding chuck in UP position



# Single Wafer Lift Off Process Module



Special Plastic Module for  
semiconductor industry

EXEMPLE: Module for 4-5-6"-  
8" wafer

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