Single Wafer Lift Off

Process Module

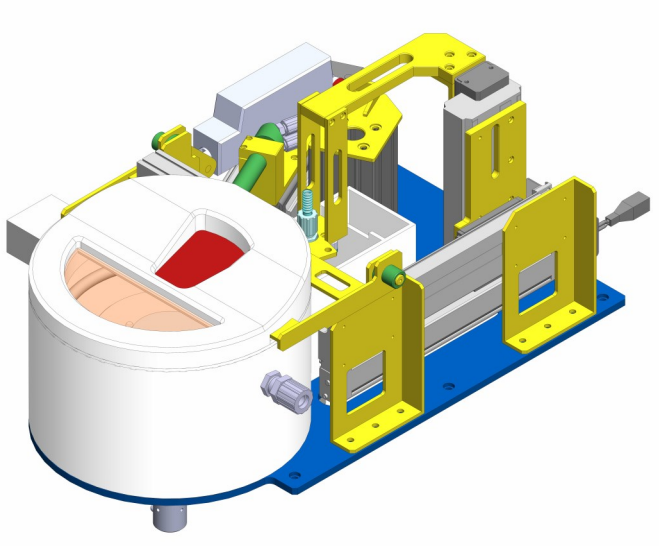
www.spm-semiconductor.it

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.**

Front-end PROCESSING

10 February 2016

Special Plastic Module for semiconductor industry

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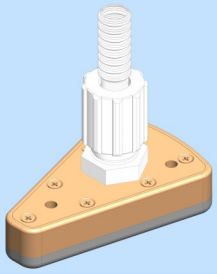
Automation Details



Megasonic transducer MegPie, 1 Mhz.

Megasonic 2 axis electric manipulator. Z axis run 15-0 mm, X axis run 200 mm

Door for Megasonic transducer inlet into the process chamber. Pneumatic actuator run 100 mm

Process cover electric actuator

Linear axis run 150mm for H2ODI nozzles movement

Brushless servo-motor for plateau rotation and chuck UP/DW movement during drying phase

Chuck vacuum rotational joint for wafer holding

Steel plate with epoxydic treatment

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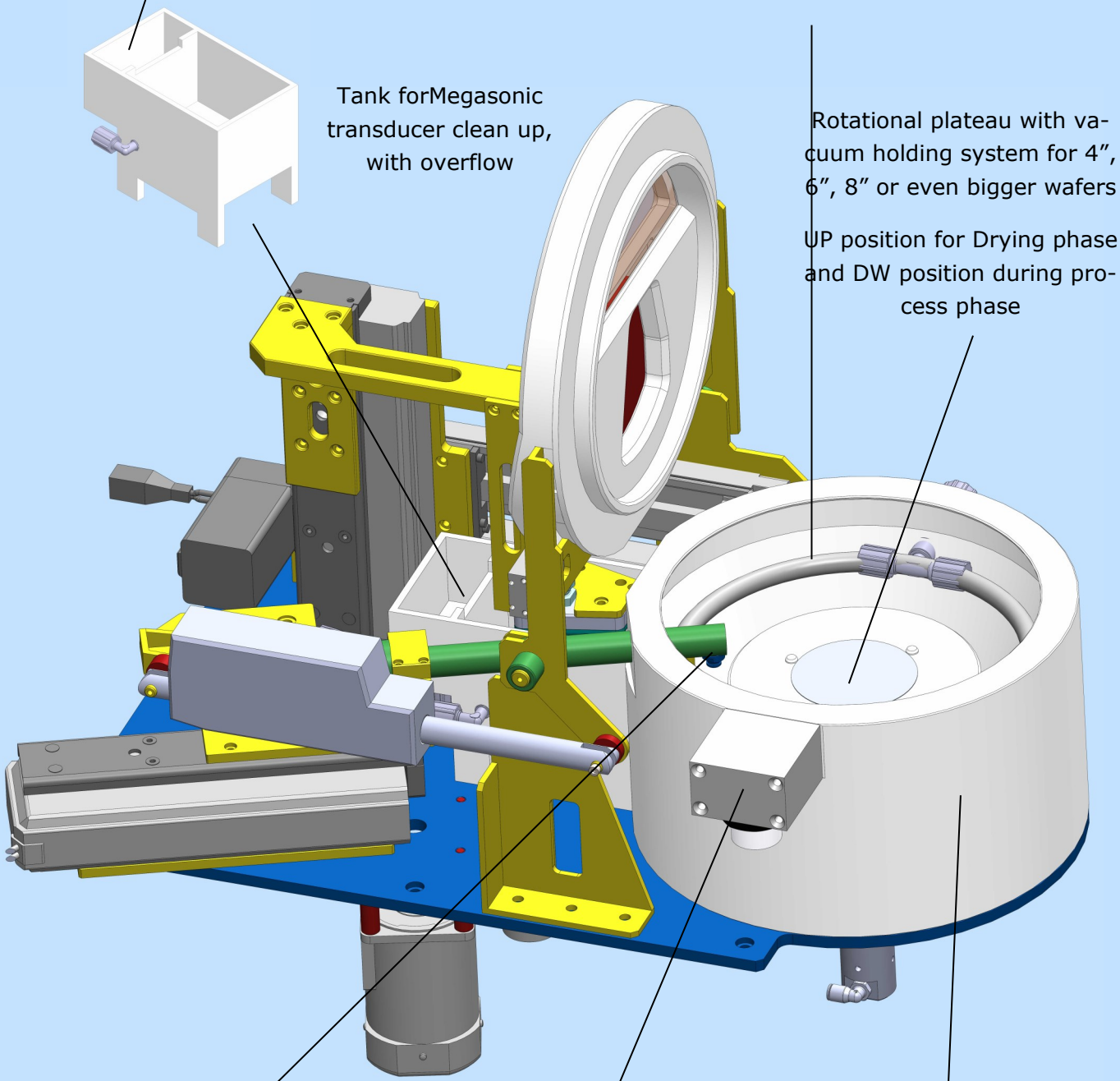
Process Components



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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 H2ODI 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 H2ODI and chuck rotation in centrifugal version
10. Wafer holding chuck in UP position

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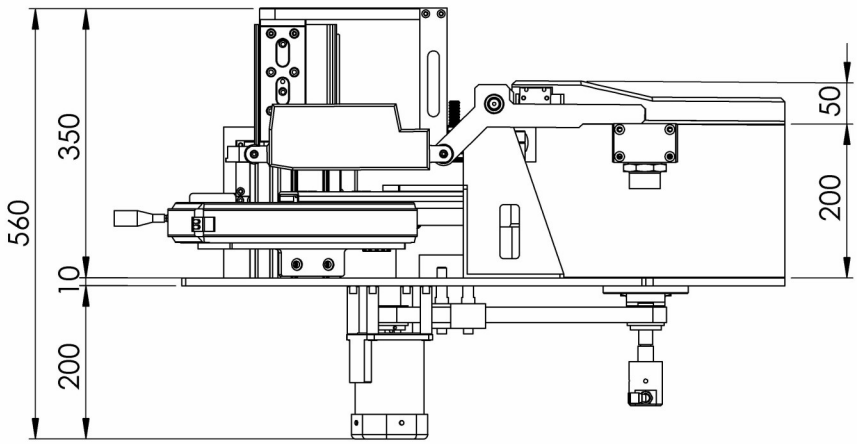

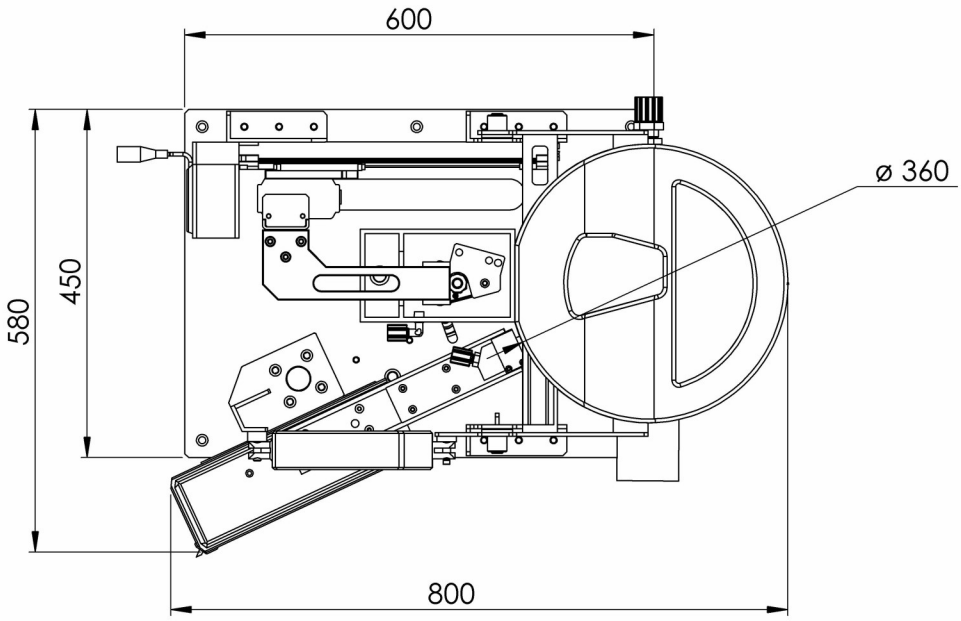

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EXEMPLE: Module for 4-5-6”-8” wafer

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