

SUSTAINABLE WET PROCESSES

With our single-wafer solutions for lift-off, etching and cleaning of wafers and masks you decide on purchasing high-precision wet-processes with high uniformity and best repeatability. You can choose from a great variety of processes, media and processible substrate types. We place highest emphasis on user safety, sustainability, process- and cost efficiency as well as adjustment to your requirements.

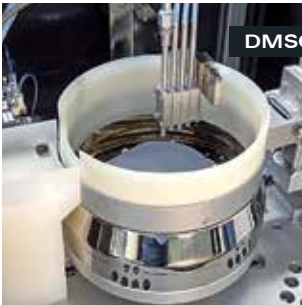
Our **ams PILOT** control software guarantees absolutely precise control for all processes. All recipes can be easily written and selected, all functions and features can be simply adjusted or set. Moreover, the user will be supported with manifold, special service functions.



Wet processes in **amcoss amc** and **amr** equipment:

amc	amc	amc	amc	amc	amr	amr
500	1000	2000	2500	3000	200	300
•	•	•	•	•	•	•

Technical highlights – Lift-off



DMSO megasonic

- The use of DMSO megasonic results in:
- significantly lower media temperature (40 °C) and thus, energy savings
 - shorter processing time
 - higher throughput

Lift-off processes

- // Standard metal lift-off with solvents like DMSO
- // Protecting metal lift-off with DMSO megasonic
- // Solvent strip



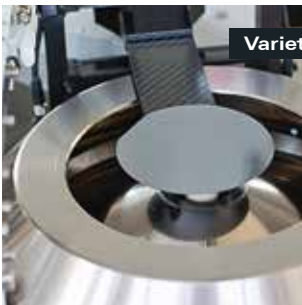
Increased security

- Traditional lift-off media have to be applied at temperatures close to their flashpoint, which constitutes an enormous safety risk. With megasonic lift-off media are being used at relatively low temperatures, so:
- the danger of inflammation does not exist
 - the whole process is safe for both user and machine



Protecting structures by not using high pressure

- Megasonic lift-off works without high pressure during media dispense. So, this is a very gentle process, thus:
- sensitive substrates and structures can be worked on without risking damage or breaking
 - rejects and costs are being reduced



Variety of substrates without conversion

Our megasonic system is able to process any size and form of substrate as well as any substrate material by only choosing the correct chuck, but without any conversion.



Health protection

- With megasonic lift-off there is NO atomized spray:
- no possible negative affect on the operators' health at opening the machine
 - cleaning filtration and assembly of the equipment in general, are being facilitated

Additional important features

- // High- or medium-pressure cleaning with DIW or solvents
- // Special reclaim solution for very low media consumption
- // Easy recycling of the lifted metals
- // Programmable wafer backside, topside and bowl rinse

Technical highlights – Cleaning



Select between wet-in/dry-out or dry-in/dry-out

Dry-in/dry-out, as well as, wet-in/dry-out cleaning by spraying the substrate within the carrier are offered as standard, which enables optimized processes.



Great variety of cleaning media and processes

We offer all established cleaning processes. You will need less machines and therefore save cleanroom space because:

- different cleaning media that are compatible with each other may be used within the same bowl
- different cleaning methods may be combined flexibly in various process modules within one equipment



Cleaning processes

- // Post CMP cleaning
- // RCA cleaning
- // Frontside, backside and edge level cleaning
- // TSV cleaning



Various processes on a very compact platform

Even on our semi-automatic **amr** equipment and on our smallest **amc 500** equipment frontside and backside cleaning may be integrated within the same module, so as to save additional machine space. A great variety of wafers, substrates and masks can be processed.

Additional important features

- // Cleaning with brush, high pressure, megasonic, binary spray, mixing nozzles
- // Spray nozzles with N2 support
- // All established cleaning media are possible

Technical highlights – Etching



Etching of wafers & masks

Various etching processes of a multitude of round and square wafers and masks are available as standard solutions.

Etching processes

- // FEOL etching
- // BEOL etching
- // Metal etching



Precise chemicals temperature control

Our new, unique solution for precise media temperature control eliminates the need for pre-dispense before etching. Inadvertent mixing of chemicals almost becomes impossible.



Novel chrome etchant recycling

amcoss GmbH and FIMA Chem GmbH have jointly developed a turnkey solution for chrome etching. While FIMA Chem supplies the spiking chemicals, **amcoss** has engineered and integrated the appropriate hardware into our tools. This cooperation supports our sustainability concept and environment protection.

Using a novel technique, we can recycle the etchant on the tool which can then directly be re-used to process another substrate. Highly concentrated additives are employed to replenish the used up etchant thus preparing it for another run. So, the etching chemical is used at maximum efficiency, saving a significant amount of etchant costs.

Benefits: Significant decrease of processing costs and vastly reduced impact on the environment due to reduced use of chemicals and less waste.