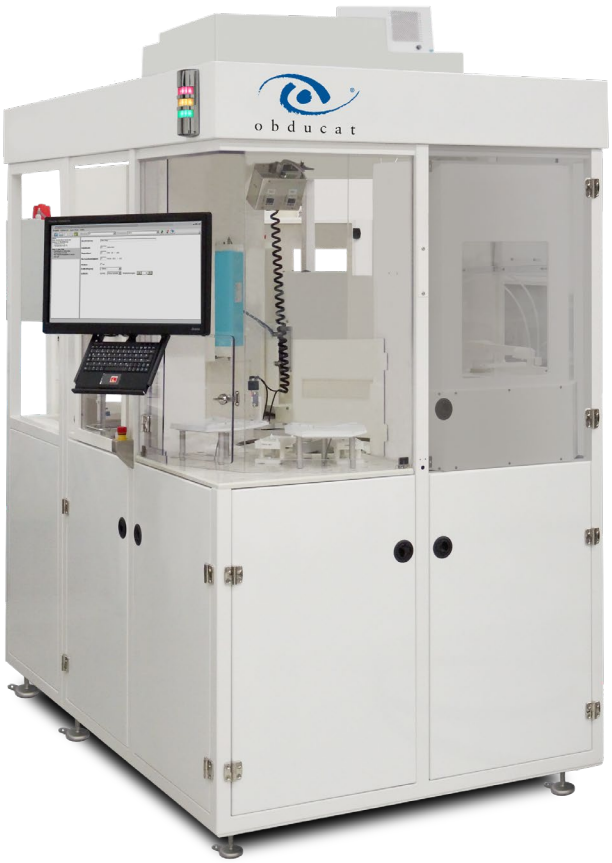
MC 204 WET

FULLY AUTOMATIC MICRO-CLUSTER TOOL FOR WET ETCHING, LIFT-OFF & CLEANING



HIGHLIGHTS

- Suitable for R&D and Low Volume Manufacturing (LVM)
- High reliability, yield and uptime
- Highly configurable tool
- Customization possible for specific customer process and throughput requirements

MC 204 WET

GENERAL INFORMATION & TECHNICAL DATA

Key Features

Obducat's high performance MC 204 WET modular tool provides cutting-edge solutions for current and future R&D and low volume manufacturing (LVM) requirements. The configuration flexibility of the MC 204 WET makes it adaptable to processing requirements in wide variety of applications such as LEDs, SiC components, 5G components, Si IC's, MEMS, Opto-electronic, Photonic components and Advanced Packaging.

The system can handle substrate sizes from 2" to 8" Ø or 2" x 2" to 6" x 6".

Tool Configurations

The standard MC 204 WET configuration is equipped with an I/O station and three modules that can be dedicated individually for Etching, Lift-off, Cleaning or Thermal processing.

The Thermal processing units can be equipped with up to 8 temperature plates in a stacker – hot plates, cool plates & HMDS vapor prime hot plate. The hot plates have a programmable temperature range up to 300°C and are equipped with programmable proximity pins.

- Easy to operate windows-based PC with 22" color touch screen
- Unlimited process recipe / flow storage capacity plus USB port
- Batch & process parameter tracking
- Ethernet port

Tool Options

Piranha Clean

- Application is delivered by an atomizer nozzle
- Chemicals will be mixed in atomizer nozzle right at the point of use
- Reaction temperature on wafer > 100°C
- Chemicals are delivered from pressurized canisters
- Recipe programmable sweep movement of dispense arm
- Hot DI water rinse as an option

SC1 Clean

- Application is delivered by an atomizer nozzle
- Chemicals will be mixed in atomizer nozzle right at the point of use
- Chemical flows for NH_4OH, H_2O_2 and H_2O are independently adjustable
- Heated H_2O line to obtain a working temperature of 60° to 70°C
- Chemicals are delivered from pressurized canisters
- Recipe programmable sweep movement of dispense arm

SC2 Clean

- Application is delivered by an atomizer nozzle
- Chemicals will be mixed in atomizer nozzle right at the point of use
- Chemical flows for HCl, H_2O_2 and H_2O are independently adjustable
- Heated H_2O line to obtain a working temperature of 60° to 70°C
- Chemicals are delivered from pressurized canisters
- Recipe programmable sweep movement of dispense arm

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Solvent Clean

- Application is delivered by a puddle or spray nozzle
- Chemicals are delivered from pressurized canisters
- Chemical flow adjustable via flowmeter
- Recipe programmable sweep movement of dispense arm
- Compatible to most solvents
- Some solvents can be applied with high pressure (e.g. NMP, DMSO)

Mechanical cleaning

- Brush scrubber – This uses rotating brushes and a pressing force. A special chuck design is used for front and backside scrubbing. A supplementary DI water line is used for rinsing. Smaller brushes are available for treating small pieces.
- High pressure – For DI water or solvents. The recipe uses a programmable sweep movement of dispense arm. The pressure is adjustable from 10-180 bar. DI water can be re-ionized with CO2.
- Megasonic nozzle – Energy transportation is done by DI water. The recipe uses a programmable sweep movement of dispense arm. The Megasonic can supply from 1 to 5MHz.

HF Clean / Etch

- Application is delivered by a puddle nozzle
- Chemicals are delivered from a pump (no pressurized canisters)
- Chemical flow adjustable via flowmeter
- Recipe programmable sweep movement of dispense arm

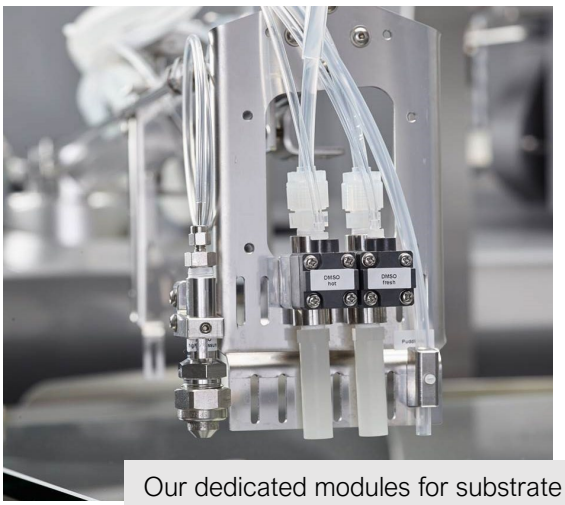
Metal / Si Etch

- Application is delivered by a puddle or spray nozzle
- Chemicals mixing via atomizer nozzles or static mixer
- Chemical supply either via pressurized canisters or via pumps
- Chemical flow adjustable via flowmeter
- Recipe programmable sweep movement of dispense arm
- Compatible with most acids and caustic mixtures

Extended Hot Plate temperature – up to 450°C

The extended high temperature hot plates are implemented to meet the requirements needed in processes such as:

- Reflow
- Pyrolysis
- Final hard bake of protection layers



Our dedicated modules for substrate cleaning and drying offers state-of-the-art surface preparation capability which enables damage free cleaning and particle removal on patterned as well as unpatterned substrate surfaces.

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Multiple Chuck solutions – Low contact, Bernoulli

Chuck solutions for etching & cleaning:

- Standard wafers that are wet treated use low contact chucks, where the wafer is held in place by supporting pins. and centripetal force fixing it during the high-speed drying.
- Squared substrates are held at the corners by alignment pins using low contact chucks. The advantage of this chuck is the entire backside can be rinsed.
- If the backside must be protected against aggressive (etching) medias, a Bernoulli chuck can be used. This chuck blows nitrogen which protects the entire backside against chemicals. Alignment pins hold the wafer in place and enables high spin acceleration.
- If alignment pins are not allowed, a venturi chuck can be used instead. Nitrogen is injected into the chuck, creating a vacuum in the chuck center by mean of an integrated Venturi nozzle. The nitrogen blows out close to the wafer backside edges. This also protects the wafer backside against chemicals.

Temperature controlled chemical lines

When chemicals are supplied from the wafer fab or stored outside the cleanroom the temperatures are different to the cleanroom environment causing chemicals to react and perform differently with changes in temperature. This can result in processing variations. This option can ensure a repeatable temperature level of the chemical's substrate-to-substrate at point of dispense.

Connection to wafer fab Manufacturing Execution Systems

The tool can be configured to enable connection to various Manufacturing Execution System (MES) interfaces such as:

- SECS / GEM
- OPC/UA
- Customer specific interfaces

MC 204 WET
TECHNICAL DATA

FACILITY REQUIREMENTS

Clean-room compability	Class 10, ISO 4
Room Temperature	20-24°C
Relatively Humidity	40 - 55 %
Power	3 x 400 VAC / N / PE, 50 - 60 Hz, 16-32 A
Compressed Air (CDA)	8 bar
Vacuum	-0,8 bar
Nitrogen (optional)	4,0 bar
DI-Water (optional)	4,0 bar

SYSTEM DIMENSIONS

Dimensions W x D x H)	1200 mm x 1200 mm x 2010 mm*
Weight	Approx. 800 kg

*not including auxiliary equipment

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