

MCT Wet Large Substrates

FULLY AUTOMATIC MICRO-CLUSTER
TRACK (MCT) TOOL FOR WET ETCHING,
DEVELOPING, LIFT-OFF & CLEANING



HIGHLIGHTS

- Suitable for High Volume Manufacturing (HVM)
- High reliability, yield and uptime
- Highly configurable tool
- Customization possible for specific customer process and throughput requirements

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GENERAL INFORMATION & TECHNICAL DATA

Key Features

Obducat's MCT Wet Large Substrates modular tool provides excellent performance as a result of the embedded cutting-edge solutions derived from many years close cooperation with our customers. This ensures that the system is prepared for current and future HVM requirements. The configuration flexibility of the MCT Wet Large Substrates makes it adaptable for a wide variety of applications such as Optics, Displays and Advanced Packaging.

The system can handle substrate sizes from:

System	Substrate Ø	Square substrate
MCTW 600	600 mm	450 mm x 450 mm
MCTW 775	760 mm	540 mm x 540 mm
MCTW 1200	1000 mm	850 mm x 850 mm
MCTW 1500	1400 mm	1000 mm x 1000 mm

Tool Configurations

The standard MCT Wet Large Substrates configuration is equipped with an I/O station and an multi axis robot system on a linear track. It can incorporate up to 10 modules configured for Etching, Lift-off, Cleaning, Developing and/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 interface
- 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
- Media 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. Upon special request 80°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
- Media 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. Upon special request 80°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
- Media 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 substrate 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)
- Media 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
- Media supply either via pressurized canisters or via pumps
- Media flow adjustable via flowmeter
- Recipe programmable sweep movement of dispense arm
- Compatible with most acids and caustic mixtures



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

Chuck solutions for Etching & Cleaning:

- For round substrates that are wet treated the low contact chucks are used, where the substrate 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.

Temperature controlled chemical lines

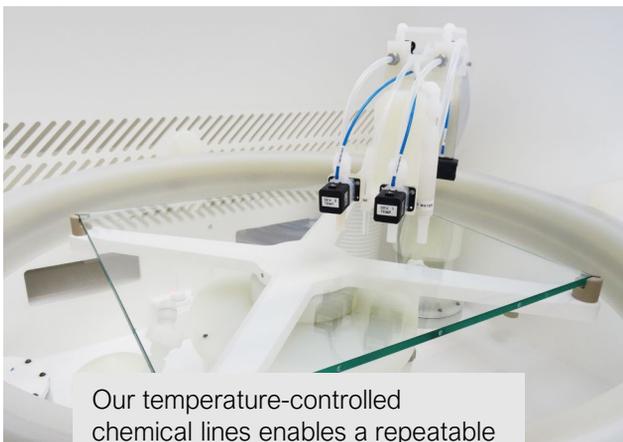
When chemicals are supplied from the wafer fab or stored outside the cleanroom the temperatures are different to the cleanroom environment causing chemicals to react and perform differently with changes in temperature. This can result in processing variations.

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 interface



Our temperature-controlled chemical lines enables a repeatable temperature level of the chemical or the developer substrate-to-substrate at point of dispense.

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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, Amperes dependent on substrate weight
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)	Dependent on number of modules
Weight	Dependent on number of modules

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