

QS WET Large Substrates

SEMI-AUTOMATIC QUICKSTEP (QSW)
TOOL FOR WET ETCHING, DEVELOPING,
LIFT-OFF & CLEANING



HIGHLIGHTS

- Suitable for R&D and pilot Manufacturing
- High reliability and low Cost-of-Ownership
- Highly configurable with options available
- Process modules are the same as in HVM tools – enables easy migration to volume production
- Customization possible for specific customer needs

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GENERAL INFORMATION & TECHNICAL DATA

Key Features

Obducat's highly successful QS WET Large Substrates platform provides the perfect solution for current and future R&D as well as pilot manufacturing requirements.

The platform flexibility enables the QS WET Large Substrate to cover a variety of applications such as Displays, Optics and Advanced Packaging.

The systems can handle substrate sizes from:

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

Tool Configurations

The QS WET Large Substrates platform is highly configurable enabling a fit to almost any customer requirements while offering a superior cost efficiency. The tools are built in the materials compatible with the respective customer processes. There are dedicated standard configurations for Photomask Cleaning, Etching, Lift-off and general substrate Cleaning.

The tools are available as stand-alone tools which can be placed next to each other to create a line of processing units.

Manual loading / unloading of the substrates are very easy due to the unrestricted access into the process chamber and there are optional substrate transport and handling solutions available.

For safety purposes an integrated and interlocked automatic process chamber door containing a safety interrupt sensor is standard. A fully automated dry-in, dry-out robot loading can be optionally added.

- Operation control unit with 22" color touch display and windows like screen
- Unlimited process recipe / flow storage capacity plus USB port
- 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



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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, H₂O₂ and H₂O are independently adjustable
- Heated H₂O 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

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

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)

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

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.

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Multiple Chuck solutions – Low contact

Chuck solutions for Etching & Cleaning:

- Round substrates that are wet treated use low contact chucks, where the wafer is held in place by supporting pins.
- Square 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 interfaces

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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 208 - 230 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

SYSTEM DIMENSIONS

Dimensions (W x D x H)	Dependent on required substrate size
Weight	Dependent on required substrate size

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