

# QS 200/QS 300

SEMI-AUTOMATIC QUICKSTEP (QS)  
TOOL FOR COATING & DEVELOPING

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## HIGHLIGHTS

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

# QS 200/QS 300

## GENERAL INFORMATION & TECHNICAL DATA

### Key Features

Obducat's highly successful QS 200/QS 300 platform provides the perfect semi-automatic solution for current and future R&D as well as pilot manufacturing requirements.

The platform flexibility enables the QS200/300 to cover processing requirements in a variety of applications such as LEDs, SiC components, 5G components, Si IC's, MEMS, Opto-electronic, Photonic components and Advanced Packaging.

The systems can handle substrate sizes from:

- QS 200 - 2" to 8" Ø or 2"x 2" to 6"x 6"
- QS 300 - 2" to 12" Ø or 2"x 2" to 9"x 9"

### Tool Configurations

The QS 200/QS 300 platform is highly configurable enabling a fit to almost any customer requirements while offering a superior cost efficiency. The various modules for Coating, Developing and Thermal processing can be combined as needed and each module have a wide variety of options to enable a perfect fit to your processing needs.

The tools are available as bench-mounted modules or as stand-alone tools which can be placed next to each other to create a mini-line of processing units. The stand-alone spinner unit can be combined with the thermal unit in one and the same stand-alone cabinet.

Coating is performed using the standard open bowl and standard vacuum chuck. This ensures a uniform and repeatable coating process. As an option the open bowl module can be replaced with our Rotating Covered Chuck Technology (RCCT™) module (See tool options).



RCCT™ enable industry leading uniformity across the entire substrate

The developer can perform both puddle and spray-based processes.

The Thermal processing units can be equipped with hot plate, cool plate or HMDS vapor prime hot plate. The hot plate has a programmable temperature range up to 300°C and is equipped with programmable lift pins. The HMDS vapor prime hot plate has a programmable temperature range up to 200°C. The process is fully automated and adheres to all recognized safety standards.

- Spin speed up to 10000rpm ±1rpm open bowl depending on substrate and chuck
- Operation control unit with 7" color touch display and windows user interface
- Unlimited process recipe / flow storage capacity plus USB port
- Process parameter tracking
- Ethernet port

### Tool Options

#### Coater Module - Rotating Covered Chuck Technology (RCCT™)

Obducat's revolutionary Rotating Covered Chuck Technology (RCCT™) process environment design provides for:

- Completely sealed solvent saturated atmosphere
- Minimal turbulence around the substrate eliminating rotational corner effects on squared substrates, enabling industry leading resist uniformity across the entire substrate at lower spin speeds.
- Superior coating uniformity on submicron layers as well as for thick resist layers compared to open bowl.
- Reduced process cost and improved environmental profile by lowering material consumption.
- Eliminating the need for Backside Rinse (BSR).

# QS 200/QS 300

## GENERAL INFORMATION & TECHNICAL DATA

### 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

### Edge Bead Removal (EBR)

Obducat's high performing EBR technology is used to remove the build-up of material at the substrate edges after spin coating. Removal of the edge bead prevents Stepper focusing problems and any photoresist on the backside of the wafer. It also prevents 'chipping' of the photoresist that could cause contamination issues.

Obducat offers solvent based EBR processes for the Quickstep tools.

- The standard solvent based EBR process uses a programmable nozzle directing the solvent fluid towards the substrate edge thereby removing the edge bead during spinning.
- For SmartEBR solvent based process the exact shape of a substrate - wafer piece or square substrate - is first determined by a sensor. Knowing the geometry of the substrate, the system can remove the edge bead by moving the substrate while applying solvent from a programmable nozzle.

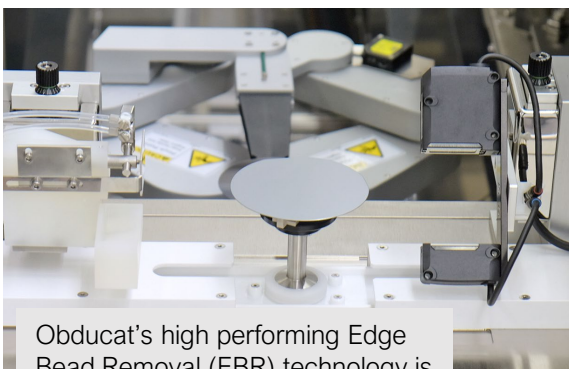
### Multiple Chuck solutions – Vacuum, Low contact

#### Chuck solutions for coating:

- Standard vacuum chuck with centering pins.
- Glass substrates are very sensitive to temperature gradients. Since vacuum substrate handling may cause such temperature gradients, Obducat offers glass substrate handling by corner suction cups with alignment pins.

#### Chuck solutions for developing:

- 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 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.



Obducat's high performing Edge Bead Removal (EBR) technology is used to remove the build-up of material at the substrate edges after spin coating.

# QS 200/QS 300

## GENERAL INFORMATION & TECHNICAL DATA

### Temperature controlled resist and chemical lines

#### Photoresist

A key process parameter for coating uniformity is temperature control. To enable a high level of coating uniformity, the tool can be equipped with temperature-controlled photoresist lines that will enable a repeatable temperature level of the photoresist substrate-to-substrate at point of dispense.

#### Developer

When developer 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 developer or chemicals substrate-to-substrate at point of dispense.

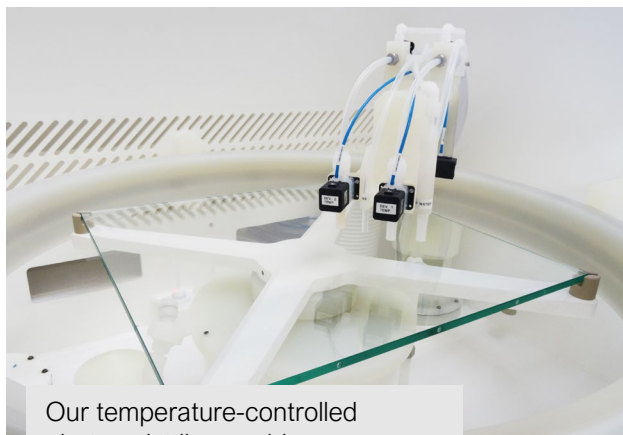
### Motorized Syringe Dispense System

The motorized syringe dispense system is designed for rapid change-over of photoresists. It is recipe programmable for dispense & suck-back and is suitable for photoresists up to 60,000 cps. Syringes come in various sizes up to 250ml.

### Connection to wafer fab Management 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



Our temperature-controlled photoresist line enables a repeatable temperature level of the photoresist, the developer or chemicals substrate-to-substrate at point of dispense.

# QS 200/QS 300

## 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, 16-32 A
Compressed Air (CDA)	8 bar
Vacuum	-0,8 bar
Nitrogen (optional)	4,0 bar

### SYSTEM DIMENSIONS

#### Dimensions (W x D x H)

##### Bench Mounted systems:

Bench Mounted 200mm Open Bowl	470x435x534mm (Cover opened)
Bench Mounted 200mm Cover Chuck	475x435x520mm (Lid opened)
Bench Mounted 300mm Open Bowl	575x545x665mm (Cover opened)
Bench Mounted 300mm Cover Chuck	575x550x502mm (Lid opened)
The Bench Mounted 200mm & 300mm has stand-alone electronics cabinet	400x325x400mm

##### Stand-alone systems:

Stand-alone Module Small 200mm	735x1197x1150mm (excl. electronics cabinet)
Stand-alone Module + Hotplate 200mm	1200x620x1300mm
Stand-alone Module Small 300mm	600x620x1600mm (excl. electronics cabinet)
Stand-alone Module + Hotplate 300mm	1200x620x1600mm

# CONTACT US

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