

# OMNI 300 QUARTZWARE CLEANER

The OMNI 300 series Quartzware Cleaners are Poly-Flow's most universal "all spray" Quartzware cleaners. These versatile systems allow you to handle complete sets of Quartzware from either vertical or horizontal furnaces. The right chamber is engineered for all types of tubes and liners (Inner and outer tubes). Flanged tubes, open liners, closed end, single wall, and double wall tubes can all be cleaned in the OMNI 300. Fixtures are available for all popular 200/300 mm vertical furnaces and all horizontal furnaces. The patented Turbo-Nozzle is vertically actuated making loading simple, while the drain cone includes an array of engineered nozzles for up-blast cleaning. The left chamber features the exclusive parts carousel for pedestals, cantilevers, sheaths, quartz doors, and quartz boats. The engineered fixturing will also provide a safe etch and rinse for all SiC parts.

Process choices are unrestricted as you can specify as many as three storage tanks for recirculating acids. In any recipe you can program the appropriate acid mixture to remove stubborn contamination and then follow it with a quick polish etch and dedicated rinse. Strong industry data proves that an all spray Poly-Flow process will reduce etch times, chemical usage, water usage, effluent costs, and floor space vs. an immersion process. Your FAB can also expect a much cleaner final rinse for tubes and accessories when using Poly-Flow's final rinse spray technology. You'll appreciate the paperless operation and maintenance as all of the documentation is available on the touch screen VLC. Plus, your operation is continuously monitored and logged by our latest generation of VLC software. The latest in technology delivers 180° opening process chamber doors, direct drive carousel motors and fully perforated chamber bottoms to enhance rinsing. World-class safety is standard. Specify a OMNI 300, and you'll enjoy hassle free SEMI, regulatory, and FM-4910 compliance. Please review our Product Safety Guide for details.



Model S-450

## Process Information

The all spray process provides not only big cost saving with its reduced chemical consumption but also significant process improvement with its enhanced rinse capability. As the wafer size increases and geometry shrinks, rinsing plays a larger role to eliminate residual particles after the chemical cleaning step. Spray processing provides significantly better rinsing performance than conventional immersion process.

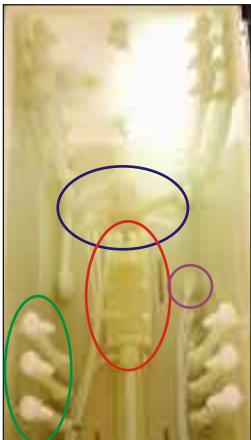
For comparison and throughput estimations, please use the example chemical compositions and corresponding etch rates as listed below.

Film	Chemical Composition	Etch Rate
Nitride	HF 49%	0.1 $\mu\text{m}/\text{min}$ .
Poly	HF:HNO <sub>3</sub> = 3:1	0.5 $\mu\text{m}/\text{min}$ .
Oxide	HF:DIW = 1:1	1 $\mu\text{m}/\text{min}$ .

The etch rates are empirical values; the rates will vary depending on the deposition and process parameters such as temperature and doping. Higher temperature and heavier doping normally results in lower etch rates. The etch rates on SiC are typically lower than on quartz. DIW may be added for lower concentration of the chemicals; however, lowering the chemical strength may significantly reduce performance.

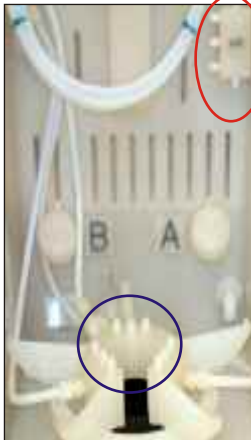
## Fixturing

200/300mm upper tube chamber



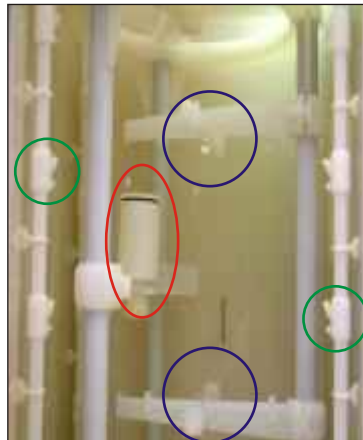
Patented Turbo-Nozzle for liners  
Vertically actuated auto halo  
Multiple radius tube nozzles  
Gas port injectors

200/300mm lower tube chamber



Upblast nozzles for closed end tubes  
Multiple injector block

200/300mm accessories carousel



Universal boat fixture  
Universal thermocouple fixture  
Multiple radius accessories nozzles

200/300mm accessories carousel



Quartz/SiC baffle holder  
Pedestal rack (not shown)

## Features and Benefits

- Automatic bulk chemical filling/blending
- Hercules 75 acid pumps
- Single point facilities connections
- Top flanged exhaust connection
- External alarm connection point
- Touch screen HMI
- Clear hinged access panels
- Plumbing compartment exhaust with baffles
- Integral facilities installation package
- FM-4910 fire safe materials (with Option X-158)
- SEMI safety compliance (3rd party inspections optional)



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Specifications subject to change without notice. 012907

## CONTROL PANEL - OMNI 300 QUARTZWARE CLEANER



High-performance Visual Logic Controller (VLC) system to control and monitor all of the process and safety functions through this intuitive graphical user interface. Users can easily monitor system status and change operational functions by selecting icons/graphics on the large color touch screen display.

The system runs on a Pentium IV based PC with the latest Windows Operating System, and is protected by 3 levels of password security. Operation and maintenance manuals, function charts, and system drawings are stored on the system hard drive and displayed on the touch screen for easy FAB access. The entire system history is archived and logged with date and time stamp for all of the events including cycle start/complete, errors, utility status, and program changes. The system manages soft failure conditions and takes the proper action in accordance with industry safety standards, and enables safe shut down when power to the tool is lost.

Operational data can be exported in ASCII format for process analysis. Virtually unlimited numbers of recipes and programs can be easily developed and stored in the system by simple commands on the touch screen display. The system hardware includes a 15" corrosion-protected color TFT XGA touch screen display, 256 MB RAM, 40GB hard drive, 3 1/2" floppy disk drive, CD-ROM drive, mini-keyboard, USB port, a VGA port for remote monitor, and Ethernet port for networking and GEM/SECII capability.



Main screen



Real-time flow schematic



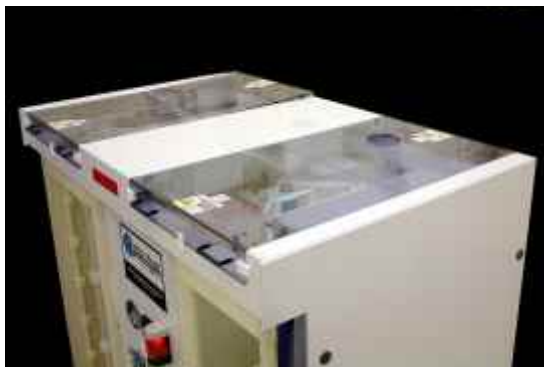
Recipe programming



Analog facilities gauges

### FACILITIES REQUIREMENTS

Footprint	84" L-R X 48" F-B X 109" tall (113" at exhaust flange)
1. DI Water	14-16 GPM @ 25 PSI dynamic
2. DI Water Return	Variable
3. Nitrogen	25 CFM @ 30 PSI dynamic
4. Clean Dry Air	80 PSI @ 8 CFM
5. Bulk Chemical 1	30 PSI max
6. Bulk Chemical 2	30 PSI max
7. Exhaust	650 CFM (10.75" connection)
8. HF Drain	20 GPM gravity
9. Acid Waste Drain	20 GPM gravity
10. Power	120 volts, single phase, 25 amps full load



Wrap over access panels make top service simple



Pressurized facilities connections are single point and grouped together for installation convenience. Drain connections are also grouped together as shown above. Power is connected directly to the main line lockable disconnect switch. Exhaust connection can be at the rear of the tool (as shown) or from the top.

For a listing of standard safety features please refer to the Poly-Flow Engineering Product Safety Guide.