

TYPHOON SC QUARTZWARE CLEANER

Designed to give your advanced FAB a faster/cleaner process with cutting edge COO when compared to traditional immersion systems.

Settle for nothing less than the "ultimate quartzware cleaner", and enjoy outstanding performance while dramatically reducing your costs. The process chamber features the industry proven "Poly-Flow Cycle" providing a recirculated strong cleaning solution followed by a single pass polish solution and four powerful rinses. With the Typhoon SC you can process tubes, liners, boats, thermocouples, baffles and pedestals in an ultra clean all-spray process.



Model S-490

Enjoy the flexibility to clean 200 or 300mm vertical furnace quartzware and SiC with an engineered carousel and fixturing. 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 Typhoon, and you'll enjoy hassle free SEMI, regulatory, and FM-4910 compliance. *Please review our Product Safety Guide for details.*

Benefits

- Cleaner process (reduced particulate)
- Up to three boats per cycle
- 30% faster cycle time for nitride removal vs. immersion
- Automatic nitride flake removable
- Easy loading with Poly-Flow's X-121 Tube Taxi
- USER friendly touch screen interface with informative graphics
- Lower purchase cost
- Reduce acid volume by 90%
- Reduce DIW usage by 40%
- Lower HF/nitric effluent cost
- Low cost of ownership (fewer consumables)
- Typhoon install base greater than 80% of 300 mm FABS world wide
- 30 years of spray technology experience
- SEMI safety compliance and FM-4910 Fire Safe Materials available

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 ₃ = 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.

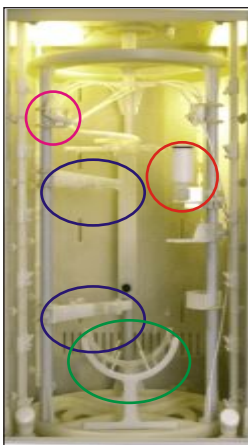
Fixturing

300mm accessories



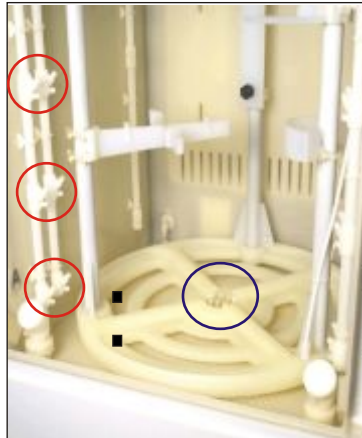
Universal boat fixture
Universal thermocouple fixture
Quartz baffle holder
Injector

200mm accessories



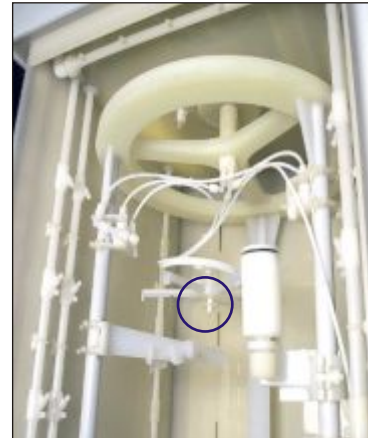
Universal boat fixture
Universal thermocouple fixture
Pedestal rack
Injector

200/300mm tubes



Upblast nozzles for tube inside
Multiple radius tube/accessory nozzles

200/300mm liners



Turbo nozzle for liner inside

CONTROL PANEL - TYPHOON SC 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



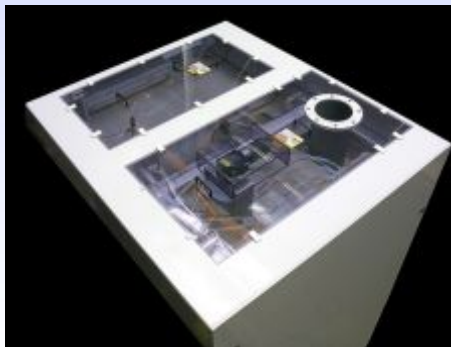
Recipe programming



Analog facilities gauges

FACILITIES REQUIREMENTS

Footprint	65" L-R X 60" F-B X 112" tall
1. DI Water	12 GPM @ 60 PSI dynamic
2. DI Water Return	Variable
3. Nitrogen	14 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	700 CFM
8. HF Drain	12 GPM gravity
9. Acid Waste Drain	12 GPM gravity
10. Power	208 volts, 3 phase



12" top flanged exhaust connections



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.

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