

Autocatalytic Processes

UNDER BUMP
METALMETALIZATION

MEMS PROCESSING

ADVANCED PACKAGING

CMOS

RoHS

- > **Nickel**
- > **Cobalt**
- > **Gold**
- > **Palladium**
- > **Tin**
- > **Copper**

STAPLETON
TECHNOLOGIES INC.

1350 W 12th Street
Long Beach, California 90813
USA

Phone: 562-437-0541
Fax: 562-437-8632
E-mail: info@stapletontech.com

M120-136 WAFER PROCESSING TOOL

Stapleton Technologies provides several aqueous metalization tools for wafer processing. The M120 Tool is a manual tool requiring the operator to move the wafers between stations manually. All other functions are controlled by several computers. The tool can be configured for a wide range of applications. The modular design permits one platform to be used for many different applications.

The tool incorporates several features. These are:

- Rack Sensing—A 4 bit code is used to identify the rack number being introduced into the process cell. This permits the tracking of the specific lot through the stations and maintenance of the records to track the progress of the wafers.
- Rotating Fixture—The wafers are rotated while in process to insure the process chemistry is uniform. Each station has independent control of the rack speed.
- GALILEO SQL Database—All tools incorporate a MS Server and Database that manage the information being generated.



STAPLETON TECHNOLOGIES INC.

Autocatalytic Processes

UNDER BUMP
METAL METALIZATION

MEMS PROCESSING

ADVANCED PACKAGING

CMOS

RoHS

- > Nickel
- > Cobalt
- > Gold
- > Palladium
- > Tin
- > Copper

STAPLETON
TECHNOLOGIES INC.

1350 W 12th Street
Long Beach, California 90813
USA

Phone: 562-437-0541
Fax: 562-437-8632
E-mail: info@stapletontech.com

- Super Heated Water—The tool uses super heated water to heat the solutions. With this type of heating a 120C super heated pressured water is circulated through heat exchangers on each process. Heating is controlled with a PID algorithm and heats the processes to near boiling from ambient in 40 minutes.
- Automatic Passivation—Nickel processes incorporate an alternate material transfer system that drains and working solution and passivates the station with nitric acid cleaning it and removing nickel chips and then drains and rinses the station,
- Automatic Reverse Circulation—During Standby the flow in the process cell is reversed periodically to remove particles collecting in the bottom of the overflow section.
- Materials of Construction—Tool is built on a stainless steel frame and covered with poly-pro. All wetted parts are PFA, PVDF and PTFE.
- Segregated Rinse Drains—Tool incorporates independent drains to permit isolation of waste streams and recovery of waste water for recycle. An integrated vacuum drain is also incorporated to remove waste from spray rinses.
- Coded Drums—All materials are provided with coded bungs that match transfer pump heads to prevent accidental mixing of chemicals. Operators are protected from exposure to chemicals and processes are delivered ready to use.
- Standard Features— Automatic Dump Rinses with conductivity controllers, Automatic Fill, leak detection, pneumatic controls, high flow rate on metalization processes,



Autocatalytic Processes

UNDER BUMP
METALMETALIZATION

MEMS PROCESSING

ADVANCED PACKAGING

CMOS

RoHS

- > Nickel
- > Cobalt
- > Gold
- > Palladium
- > Tin
- > Copper

STAPLETON
TECHNOLOGIES INC.

1350 W 12th Street
Long Beach, California 90813
USA

Phone: 562-437-0541
Fax: 562-437-8632
E-mail: info@stapletontech.com

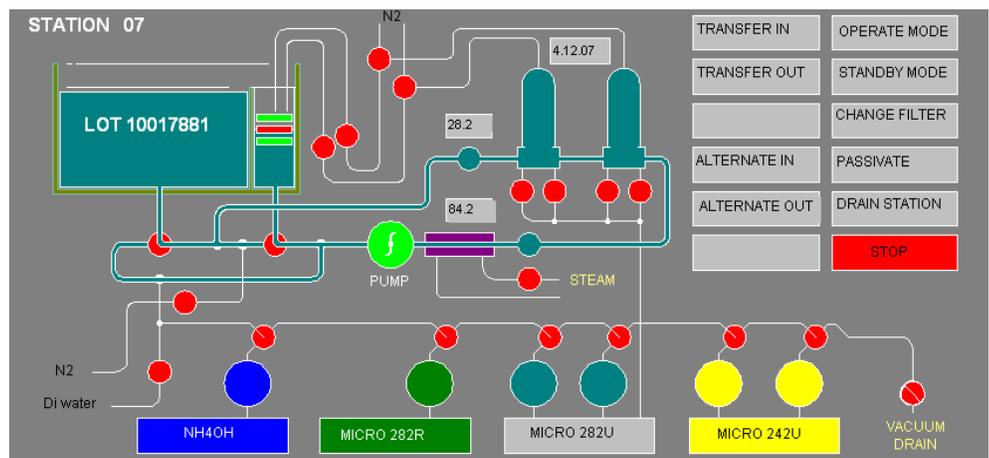


OPERATOR CONTROLS

The tool incorporates a Server and Client management system to process information and store in a SQL database. Recipes for each device type and design are saved and locked. Monitoring starts with entry of the lot of wafers and the assigning of a rack to the lot. The lot of wafers are then placed in que and await processing.

The rack is identified in each station and the production time in and out recorded. In addition all process information is recorded for each operation providing control charts for all conditions being monitored.

When the station is in Maintenance Mode a detailed description of the station function is displayed and the operator can transfer materials in and out of the station using dedicated transfer pumps for each material.



Autocatalytic Processes

UNDER BUMP
METALMETALIZATION

MEMS PROCESSING

ADVANCED PACKAGING

CMOS

RoHS

- > Nickel
- > Cobalt
- > Gold
- > Palladium
- > Tin
- > Copper

STAPLETON
TECHNOLOGIES INC.

1350 W 12th Street
Long Beach, California 90813
USA

Phone: 562-437-0541
Fax: 562-437-8632
E-mail: info@stapletontech.com



Station Layout for M120-136

Station	Process	Description	Vol	Features	C
1	MICRO 209U	Micro Etch Cleaner	56L	0.1 Filter, 20 l/min Single Chemical Transfer Rack Detect	40
2	Quick Dump Rinse	Rinse		Rack detect, Conductivity detect, Spray/Flood Rinse cycle	22
3	MICRO 242U	Nitric Acid Deox	56L	0.1 Filter, 20 l/min Single Chemical Transfer Rack Detect	22
4	Quick Dump Rinse	Rinse		Rack detect, Conductivity detect, Spray/Flood Rinse cycle	22
5	MICRO 261U/262U	Zincate, Alk. or Acid	56L	0.1 Filter, 20 l/min Dual Chemical Transfer Rack Detect	35
6	Quick Dump Rinse	Rinse		Rack detect, Conductivity detect, Spray/Flood Rinse cycle	22
7	MICRO 282U	Autocatalytic Nickel	56L	0.1 Filter, 25 l/min Dual Chemical Transfer Rack Detect	87
8	MICRO 282U	Autocatalytic Nickel	56L	0.1 Filter, 25 l/min Dual Chemical Transfer Rack Detect	87
9	Quick Dump Rinse	Rinse		Rack detect, Conductivity detect, Spray/Flood Rinse cycle	22
10	MICRO 291U/B	Autocatalytic Gold	74L	0.1 Filter, 30 l/min Dual Chemical Transfer Rack Detect	65
11	Quick Dump Rinse	Rinse		Rack detect, Conductivity detect, Spray/Flood Rinse cycle	22
12	Hot Deionized Rinse	Hot Di Rinse	56L	0.1 Filter, 20 l/min Rack Detect	85