SINGLE WAFER WET ETCH SOLUTIONS

AUDIENCE: European CMP and WET Users Meeting
LOCATION: Radebeul, Dresden
Date: 2019-10-24

HARALD PERCHINIG
Sales Europe

www.nexgenws.com
NEXGEN WAFER SYSTEMS develops and manufactures a line of unique semiconductor processing equipment.

With the focus on single wafer equipment we enabling technologies for wet chemical process applications.
DEVELOPMENT, MANUFACTURING SUPPORT
Mechanical engineering and design
Software and Controls
Equipment assembly and startup
Customer support
Regional spare part stock

STATISTICS
800 m² office facilities
2000 m² assembly facilities
1500 m² start-up facilities
11 equipment bays
PRODUCT MANAGEMENT, CUSTOMER SUPPORT
Sales and marketing
Customer support
Process application development
Regional spare part stock

STATISTICS
150 m² office facilities
200 m² lab and demo facilities
SALES, CUSTOMER SUPPORT, APPLICATION DEVELOPMENT

Sales and account management
Customer support
Regional spare part stock
@Entrepix
PRODUCTIVITY
We develop products and services together with our customers to provide superior value-adding solutions to ensure their long-term success.

QUALITY
We build products to the highest quality and engineering standards to ensure we deliver reliable and sustainable solutions exceeding our customers’ reliability and performance expectations.

INNOVATION
We challenge ourselves every day to transform our customer requirements to proficient leading-edge solutions.
OUR PRODUCTS

MG SERIES – SINGLE WAFER WET CHEMICAL PROCESSORS
MG21, 100 – 300 mm single chamber platform
MG22, 100 – 300 mm double chamber platform

HIGH PURITY LIQUID CHEMICAL SUPPLY SYSTEMS
CBS100, High purity supply for silicon etch applications
CBS200, High purity supply for cleaning applications
Customised mix and supply systems

ATMS SERIES - WAFER INSPECTION SYSTEMS
ATMS100, Contactless film and substrate measurements
FILM REMOVAL
Poly
Oxide
Nitride

CLEAN
SC1, SC2
DiO3 + dHF + dHCL
DSP, DSP+
EKC6x, NE111,
TMAH, ST250, NMP
.....

Si ETCH
Wafer thinning
Stress relief
Surface conditioning

PROCESS APPLICATIONS

WET ETCH AND CLEAN
PHOTORESIST REMOVAL
BEVEL ETCH AND CLEAN
UNDERBUMP METALLIZATION ETCH
POST-DEFLUX CLEAN
MG SERIES
WET CHEMICAL PROCESSORS
MULTI PROCESS CHEMISTRIES

UP TO 4 PROCESS CHEMISTRIES

3 process chemistries in recirculation/recycling
   Each of the recirculated chemistries can be processed to drain as well (recipe parameter)
1 process chemistry to drain (no recirculation)
   For high diluted chemistries (dHF, dHCL, SC1, SC2 …..)

ADVANTAGES

Significant cost savings by recycling and filtration of process chemistries
Multiple applications on one single platform
   Less cleanroom space required
   Removal of several layers in one wafer load
2019
MG-P
200mm and 300mm four chamber platform

Multi chamber SW

2011
MG21
200 mm process chamber
Modular SW and HW

2015
MG22
300 mm process chamber
Multi chamber flow concept

PRODUCT DEVELOPMENT STRATEGY
HANDLING SYSTEM

WAFER TYPES
Si
Ultra thin
High warp and bow
Bonded
Taiko
LN, LT
III-V

STANDARD WAFER
≥ 250 um
4” - 12” substrates

THIN WAFER
≤ 250 um
4” - 12” substrates
Contactless Bernoulli handling
RECIPE BASED HANDLING PARAMETERS
For each wafer handling module
Loading and unloading parameters for high warp and bow wafers

RECIPE BASED THICKNESS CONTROL
Definition of wafer target thickness
Inline pre and post measurement for each wafer
Tailored processing for each wafer

PRECISE POINT OF USE PROCESS CONTROL
Flow rates: 300 – 2500 ml/min ± 50ml
Temperature: 15 - 65°C ± 0.2°C

UNIFORMITY
Robust against incoming thickness variations
Wafer to Wafer uniformity ≤ 0.5 %
Within wafer uniformity ≤ 3 %
MG SERIES AT A GLANCE

INTEGRATED CHEMICAL MIXING
1:1 – 1000:1

FLEXIBLE HANDLING SYSTEM
100 - 300 mm wafer processing
Sub 60 µm ultra thin wafer processing

MULTI PROCESS CHEMISTRIES
Up to 4 process chemistries
On the fly medium conditioning
Medium temperature 15 - 65°C
Dual tank option

RECIPE BASED PROCESS PARAMETERS
Medium flow and temperature
Film and substrate thickness
Endpoint detection
Chemical concentration
DIO3 concentration
Conductivity

SINGLE SIDED WAFER PROCESSING
Protecting one side of the wafer while processing the other

HIGH THROUGHPUT
8% higher vs. competing platforms
THANK YOU FOR YOUR ATTENTION